Published in final edited form as:
Drug Alcohol Depend. 2013 December 1; 133(2): . doi:10.1016/j.drugalcdep.2013.06.008.

Illicit and nonmedical drug use among Asian Americans, Native Hawaiians/Pacific Islanders, and mixed-race individuals

Li-Tzy Wu[a,*], **Dan G. Blazer**[a], **Marvin S. Swartz**[a], **Bruce Burchett**[a], **Kathleen T. Brady**[b], and **NIDA AAPI Workgroup**[c]

[a]Department of Psychiatry and Behavioral Sciences, Duke University Medical Center, Durham, NC 27710, United States

[b]Clinical Neurosciences Division, Psychiatry and Behavioral Sciences, Medical University of South Carolina, Charleston, SC 29425, United States

[c]National Institute on Drug Abuse Asian American and Pacific Islander Researchers and Scholars Workgroup, Bethesda, MD 20892, United States

Abstract

Background—The racial/ethnic composition of the United States is shifting rapidly, with non-Hispanic Asian-Americans, Native Hawaiians/Pacific Islanders (NHs/PIs), and mixed-race individuals the fastest growing segments of the population. We determined new drug use estimates for these rising groups. Prevalences among Whites were included as a comparison.

Methods—Data were from the 2005–2011 National Surveys on Drug Use and Health. Substance use among respondents aged ≥12 years was assessed by computer-assisted self-interviewing methods. Respondents' self-reported race/ethnicity, age, gender, household income, government assistance, county type, residential stability, major depressive episode, history of being arrested, tobacco use, and alcohol use were examined as correlates. We stratified the analysis by race/ethnicity and used logistic regression to estimate odds of drug use.

Results—Prevalence of past-year marijuana use among Whites increased from 10.7% in 2005 to 11.6–11.8% in 2009–2011 ($P<0.05$). There were no significant yearly changes in drug use prevalences among Asian-Americans, NHs/PIs, and mixed-race people; but use of any drug, especially marijuana, was prevalent among NHs/PIs and mixed-race people (21.2% and 23.3%, respectively, in 2011). Compared with Asian-Americans, NHs/PIs had higher odds of marijuana use, and mixed-race individuals had higher odds of using marijuana, cocaine, hallucinogens, stimulants, sedatives, and tranquilizers. Compared with Whites, mixed-race individuals had greater odds of any drug use, mainly marijuana, and NHs/PIs resembled Whites in odds of any drug use.

*Corresponding author: Li-Tzy Wu, Department of Psychiatry and Behavioral Sciences, Duke University School of Medicine, Duke University Medical Center, Box 3903, Durham, NC 27710, United States; Tel: +1 919 668 6067; fax: +1 919 681 8400; litzy.wu@duke.edu.

Human Participant Protection: No protocol approval was required because the study involved the use of existing data.

Conflict of Interest: Li-Tzy Wu is a committee member of the National Institute on Drug Abuse Asian American and Pacific Islander Researchers and Scholars Workgroup (NIDA AAPI workgroup), Special Populations Office, National Institute on Drug Abuse. Marvin S. Swartz has served as a consultant to Novartis Pharmaceuticals and has received research support from Eli Lilly. The other authors have no conflict of interest to disclose.

Conclusions—Findings reveal alarmingly prevalent drug use among NHs/PIs and mixed-race people. Research on drug use is needed in these rising populations to inform prevention and treatment efforts.

Keywords

Asian Americans; drug use; marijuana use; mixed race; multiple race; Native Hawaiians; nonmedical opioid use; Pacific Islanders

1. INTRODUCTION

During the past decade, there have been important shifts in the racial/ethnic composition of the US population, particularly Asian-Americans, Native Hawaiians/Pacific Islanders (NHs/PIs), and mixed-race individuals (people of multiple races). This study determines new nonmedical/illicit drug use estimates for these rising populations. Asian-Americans alone (14.7 million; 4.8% of the US population), NHs/PIs (0.5 million; 0.2%), and mixed-race persons (9.0 million; 2.9%) are the fastest growing US populations (Hoeffel et al., 2012; US Census Bureau, 2011). The 2010 census data showed that these populations grew about three times faster than the total US population (US Census Bureau, 2011). Because drug use studies typically enroll small numbers of members from these groups, there are limited data available to inform prevention and health policy. Members of these groups are often pooled as “others” or omitted from reports. Even population-based studies have focused mainly on Whites, Blacks, and Hispanics. The Monitoring the Future studies have not regularly reported drug use estimates for these three groups (Johnston et al., 2012). The Treatment Episode Data Set (TEDS) reports, which examine substance abuse treatment admissions collected by states in monitoring their treatment systems, have aggregated Asian-Americans and NHs/PIs into a single group and omitted mixed-race individuals from reports (Substance Abuse and Mental Health Services Administration [SAMHSA], 2012c). There are scarce data on drug use estimates for these populations.

The lack of data may obscure intervention needs for Asian-Americans, NHs/PIs, and mixed-race individuals, and hinder development of preventive services and health policies to address drug use problems. Because of socioeconomic stress or cultural factors (e.g., cost, language), members of minority populations generally underutilize substance abuse and mental health care (Fong and Tsuang, 2007; Garland et al., 2005; Han and Liu, 2005). Asian-Americans and NHs/PIs appear to face additional culture-related stigma and barriers to utilizing substance abuse care (e.g., lack of culturally sensitive interventions), which may contribute to undertreatment and escalation of drug problems (Edwards et al., 2010; Mercado, 2000; Yu et al., 2009). Drug use may have a particularly negative impact on these groups. For Asian-Americans, shame in asking for help and preferring to keep substance problems within the family to avoid disgrace may result in delay in seeking care or difficulty in treatment engagement (Fong and Tsuang, 2007). Although data suggest that NHs/PIs were exposed to more substance-using peers than other racial/ethnic groups, there is a dearth of information on substance use intervention for NHs/PIs (Edwards et al., 2010; Okamoto et al., 2010).

When Asian-Americans and NHs/PIs are included in a study, they are often pooled as a single group. Substance use estimates from this combined group may obscure their differences. Studies suggest prevalent substance use among NHs/PIs (Kim and McCarthy, 2006). In a sample of 10th-graders, 51.6% of Native Hawaiian adolescents reported lifetime marijuana use, compared with 45.8% of Whites (Wong et al., 2004). Mixed-race individuals also may have a higher prevalence of drug use than Asian-Americans and NHs/PIs (Price et al., 2002; Wu et al., 2007, 2011a, 2011b). In a sample of youth aged 16–23 years, mixed-

race individuals had prevalent rates of lifetime use of methamphetamine (mixed-race: 11.4%, White: 6.1%, Black: 0.5%, Hispanic: 3.4%) and ecstasy (mixed-race: 21.9%, White: 16.8%, Black: 4.2%, Hispanic: 8.9%) (Wu et al., 2006). These descriptive data point to a need for research to evaluate their drug use.

Further, findings from earlier studies may not reflect recent patterns in drug use. Opioid analgesics are now the second most commonly used illicit drugs after marijuana (Paulozzi, 2012; SAMHSA, 2012b). The number of opioid analgesics-related overdose mortalities has exceeded that of heroin and cocaine combined (Paulozzi, 2012). Substance use, involvement with the legal system, and mental health problems are associated with nonmedical opioid use (Wu et al., 2008). The TEDS data showed that the majority of admissions for primary opioid analgesic abuse treatment were young adults (20–29 years) and Whites (SAMHSA, 2012c). Nonmedical opioid use is epidemic in the United States (Centers for Disease Control and Prevention [CDC], 2012a), but little is known about the extent of nonmedical opioid use relative to other drug use among Asian-Americans, NHs/PIs, and mixed-race individuals.

Additionally, there are concerns about the potential effects of legalizing medical marijuana (e.g., increasing the drug's availability) on illicit marijuana use problems. Presently, 18 states and Washington, DC, have legalized medical marijuana; 10 states have legislation pending (medicalmarijuana.procon.org). States with legalized medical marijuana had a higher prevalence of illicit marijuana use than states without (Cerdá et al., 2012). Studies have found common medical marijuana diversion and illicit marijuana use among adolescents in substance abuse treatment (Salomonsen-Sautel et al., 2012; Thurston et al., 2011). While the data do not confirm a causality between legalizing medical marijuana and illicit use, national data also reveal increased prevalences of illicit marijuana use and marijuana-related treatment (Johnston et al., 2012; SAMHSA 2012b, c). No recent studies have examined the extent of marijuana use among Asian-Americans, NHs/PIs, and mixed-race individuals.

Given the lack of drug use estimates and the need to better inform prevention and treatment, we examined recent national trends in past-year prevalence of (illicit or nonmedical) drug use among these groups to determine racial/ethnic differences and identify correlates of use in each group. Because of reported increases in marijuana and opioid analgesic use, we focused on these two commonly used drug classes. Prevalences for other drugs were included for comparison, as were estimates among Whites for informing racial/ethnic disparity (CDC, 2011). We analyzed data files from national samples of non-Hispanic Asian-Americans, non-Hispanic NHs/PIs, and non-Hispanic mixed-race individuals from the National Surveys on Drug Use and Health (NSDUH). The independent, cross-sectional 2005–2011 NSDUH used similar designs and allowed analysis of the same variables from the pooled sample, which enabled us to generate reliable estimates for correlates of drug use.

2. METHODS

2.1. Data source

Public-use data files from the 2005–2011 NSDUH were analyzed to characterize recent national trends in drug use and correlates of use. All respondents aged ≥12 years were included to determine age-related changes in drug use. NSDUH is the only national survey designed to provide ongoing estimates of drug use in the United States (SAMHSA, 2006, 2012b). The 2005–2011 surveys used multistage area probability sampling methods to select a representative sample of the civilian, noninstitutionalized population aged ≥12 years. Residents of households from the 50 states (including shelters, rooming houses, group homes) and civilians residing on military bases were included. 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 before 1999

Respondents were interviewed at their home for about an hour. They were assured that their names would not be recorded and their responses would be kept strictly confidential, and all study procedures and protections were carefully explained. Respondents' sociodemographics were assessed by computer-assisted personal interviews; substance use questions were assessed using a computer-assisted self-interviewing method. The latter was designed to increase honest reports of substance use by allowing respondents to either read the questions on a computer screen or listen to the questions read aloud by the computer through headphones, and then enter their responses directly into the computer.

The NSDUH's annual sample was considered representative of the US general population aged ≥12 years. To include adequate numbers of Asian-Americans, NHs/PIs, and mixed-race individuals for detecting meaningful racial/ethnic differences in drug use, we pooled the public-use data files from 2005–2011 (n=55,279–58,379/year). They used similar designs, allowing pooled analyses of the same variables (SAMHSA, 2006, 2012b). Weighted response rates of household screening and interviewing for these years were 87–91% and 73–76%, respectively. The pooled sample included 13,623 Asian-Americans, 1,826 NHs/PIs, 12,209 mixed-race individuals, and 248,027 Whites.

2.2. Study variables

Respondents' self-reported race/ethnicity, age, gender, annual household income, government assistance, county type (large, small, nonmetropolitan areas), and residential stability ("How many times in the past 12 months have you moved?") were examined. The latter variables were included in the logistic regression analysis to take into account race/ethnicity-related differences in socioeconomic and residential factors (Duncan et al., 2002; Wilson and Donnermeyer, 2006). Based on respondents' self-reported responses to race and ethnicity questions, NSDUH defined mutually exclusive groups: non-Hispanic White, non-Hispanic Asian-American (e.g., Asian Indian, Chinese, Filipino, Japanese, Korean, or Vietnamese), non-Hispanic NH/PI (Native Hawaiian, other Pacific Islander), and mixed-race individuals (≥2 races). The data do not distinguish between specific racial groups of mixed-race individuals. The 2010 census data showed that about 83% of mixed-race individuals were White in combination with ≥1 other race (Black, Asian-American, NH/PI, native-American, other race); NHs/PIs, Asian-Americans, and native-Americans were more likely than other nonwhites to be mixed-race individuals (US Census Bureau, 2011).

Illicit/nonmedical drug use assessments included a detailed description of each drug group and lists of qualifying drugs. It used separate questions to assess respondents' use of marijuana/hashish, cocaine/ crack, inhalants, hallucinogens, heroin, opioid analgesics, stimulants, sedatives, and tranquilizers. We examined past-year drug use; past-year use of alcohol and any tobacco (cigarettes, cigars, smokeless tobacco, pipe tobacco) were included in the adjusted analysis to mitigate their confounding effects on associations between drug use and race/ethnicity (Wu et al., 2013). Additionally, respondents' history of DSM-IV major depressive episodes (MDE) and being arrested ("Not counting minor traffic violations, have you ever been arrested and booked for breaking the law?") were included as control variables due to their associations with drug use (Bennett et al., 2008; Wu et al., 2008). We used updated public-use data released in 2013 as they permitted pooled analyses of MDE variables from 2005–2011.

2.3. Data quality

To increase the accuracy of self-reports, NSDUH uses detailed probes to augment assessments for substance use, color pictures of prescription drugs to aid identification of drugs used, and computer-assisted self-interviewing to ensure respondents' privacy (SAMHSA, 2012b). Additionally, the survey incorporates consistency checks, statistical computation, and analysis weights to minimize response inconsistency and adjust for nonresponse bias, which further enhances the data quality to provide national drug use estimates (Gfroerer et al., 2002; Harrison et al., 2007; SAMHSA, 2012b).

2.4. Data analysis

Chi^2 analysis was used to examine racial/ethnic differences in sociodemographics, substance use, MDE, and ever being arrested. We calculated drug use prevalences by survey year to determine yearly variations in drug use. Because of population-based data, we focused on prevalence estimates; 95% confidence intervals (CI) are reported to ease the interpretation. For drug use prevalence showing yearly variations, we used logistic regression to examine the presence of an increasing or decreasing trend (e.g., a linear term). Next, we conducted logistic regression analyses of the pooled sample to determine racial/ethnic differences in odds of drug use, when adjusting for age, gender, household income, government assistance, county type, residential stability, MDE, being arrested, past-year alcohol use, past-year tobacco use, and survey year to lessen for their confounding effects. Finally, we examined correlates of past-year drug use for each racial/ethnic group in the pooled sample. All analyses took into account the NSDUH's complex designs, such as weighting and clustering (Research Triangle Institute, 2006). All results are weighted except for sample sizes (unweighted).

3. RESULTS

3.1. Sociodemographics and behavioral health (Table 1)

Compared with Whites, Asian-Americans, NHs/PIs, and mixed-race individuals were generally younger (fewer adults aged ≥50 years) and experienced greater residential moves, but had a lower prevalence of past-year alcohol use. There were more NHs/PIs and mixed-race individuals than Whites in the two lower-income groups and receiving government assistance. Mixed-race individuals had the highest prevalence of MDE, being arrested, and past-year tobacco use.

3.2. Prevalence of past-year drug use: 2005–2011 (Table 2)

Whites—Marijuana use prevalence among Whites increased from 10.7% in 2005 to 11.6–11.8% during 2009–2011 (a linear trend, $P<0.001$). Cocaine use decreased from 2.4% in 2005 to 1.8% in 2010 and 1.5% in 2011 (a downward trend, $P=0.008$). There was no significant yearly change in prevalence of use of other drugs. Overall, prevalence of any drug use among Whites remained stable during 2005–2011 (14.5–15.5%). Opioid analgesics were the second most commonly used drug (4.6% in 2011).

Asian-Americans—There was no significant yearly change in drug use prevalence among Asian-Americans during 2005–2011. In 2011, 6.8% used any drug in the past year (marijuana, 4.9%; opioid analgesics, 1.8%; other drug classes, ≤1.0%).

NHs/PIs—There was no significant yearly change in drug use prevalence among NHs/PIs. In 2011, 21.2% used any drug in the past year (marijuana, 18.8%; opioid analgesics, 2.7%; other drug classes, ≤3.8%).

Mixed-race individuals—No significant changes were seen in drug use prevalence over time by mixed-race individuals. Mixed-race individuals showed prevalent drug use. In 2011, 23.3% used any drug in the past year (marijuana, 20.6%; opioid analgesics, 5.2%; other drug classes, ≤2.7%).

3.3. Adjusted analysis of racial/ethnic differences in drug use (Table 3)

To adjust for potentially confounding influences of age, gender, household income, county type, government assistance, residential stability, MDE, being arrested, past-year alcohol use, past-year tobacco use, and survey year on the estimates of racial/ethnic differences in drug use, we conducted logistic regression analyses of past-year use of each drug class.

Compared with Whites, Asian-Americans showed lower odds of drug use (marijuana, opioid analgesics, cocaine, hallucinogens, stimulants, tranquilizers); NHs/PIs resembled Whites in odds of any drug use; mixed-race individuals had greater odds of using any drug, mainly marijuana, but they had lower odds of using tranquilizers.

To explore differences in drug use among Asian-Americans, NHs/PIs, and mixed-race people, we report adjusted odds ratios (AOR). Due to multiple comparisons, AOR with $P \leq 0.01$ are described. Compared with Asian-Americans, NHs/PIs had higher odds of marijuana use (AOR=1.72, 95% CI=1.12–2.63); mixed-race individuals had higher odds of use of marijuana (AOR=2.87, 95% CI=2.31–3.56), cocaine (AOR=2.11, 95% CI=1.56–2.86), hallucinogens (AOR=1.79, 95% CI=1.34–2.38), stimulants (AOR=1.77, 95% CI=1.17–4.68), sedatives (AOR=3.18, 95% CI=1.28–7.93), and tranquilizers (AOR=2.09, 95% CI= 1.47–2.97). Compared with NHs/PIs, mixed-race individuals had higher odds of sedative use (AOR=5.49, 95% CI=1.92–15.69).

3.4. Correlates of drug use (Tables 4–5)

Adjusted logistic regression analyses were conducted to determine correlates of any drug use, marijuana use, and opioid analgesic use. Past-year drug use variable from independent samples of 2005–2011 was examined as a dependent variable. Survey year was included as a control variable.

Any drug (Table 4)—In all three racial/ethnic groups, there was an age-related decrease in odds of drug use; being arrested, past-year tobacco use, and past-year alcohol use increased odds of drug use. Lower household income (for Asian-Americans, mixed-race individuals), government assistance (Asian-Americans), residence in a large metropolitan area (NHs/PIs), and MDE (Asian-Americans) increased odds of drug use.

Marijuana (Table 5)—The pattern of associations was similar to results of any drug use. Younger ages (<26 years among Asian-Americans and NHs/PIs; <18 years among mixed-race individuals), ever being arrested, past-year tobacco use, and past-year alcohol use increased odds of marijuana use. Other factors associated with increased odds of marijuana use included: low household income (<$20,000) and MDE among Asian-Americans, receipt of government assistance and residence in a large metropolitan area among NHs/PIs, and residential move among mixed-race individuals.

Opioid analgesics (Table 5)—Among Asian-Americans, younger ages, low household income, receiving government assistance, past-year tobacco use, and past-year alcohol use increased odds of nonmedical opioid use. Among NHs/PIs, younger ages, residence in a small metropolitan area, and past-year alcohol use increased odds of nonmedical opioid use. Among mixed-race individuals, younger ages, MDE, ever being arrested, past-year tobacco use, and past-year alcohol use increased odds of nonmedical opioid use.

4. DISCUSSION

The increased use of nonmedical/illicit marijuana and opioid analgesics has been a major public health concern, but little is known about the extent of use in the fastest growing segments of the population: Asian-Americans, NHs/PIs, and mixed-race individuals. We analyzed national samples to determine new drug use estimate. Findings have timely implications for informing research, prevention, and health policy. *First,* these groups were generally younger (<26 years) than Whites, more NHs/PIs and mixed-race individuals than Whites resided in low-income households, and mixed-race individuals exhibited the highest prevalence of MDE, being arrested, and tobacco use. *Second,* although there were little changes in drug use prevalence during 2005–2011, NHs/PIs and mixed-race individuals demonstrated an alarmingly prevalent rate of drug use (21.2% and 23.3%, respectively, vs. 15.1% among Whites in 2011). Adjusted logistic regression controlling for sociodemographics, behavioral health (MDE, being arrested, tobacco use, alcohol use), and survey year showed that mixed-race individuals were most likely to use drugs. *Third,* NHs/PIs were similar to Whites in odds of any drug use; moreover, NHs/PIs had greater odds of marijuana use than Asian-Americans. *Fourth,* regardless of race/ethnicity, younger ages (<26 years), being arrested, and tobacco or alcohol use increased odds of drug use; low household income and MDE were associated specifically with drug use among Asian-Americans.

4.1. What this study adds to our knowledge

The most striking finding is the prevalence of marijuana use among mixed-race individuals (20.6% in 2011) and NHs/PIs (18.8% in 2011), which was higher than that of Whites (11.8% in 2011) and Asian-Americans (4.9% in 2011). The greater odds of any drug use and of marijuana use among mixed-race individuals than among Whites were noted in the adjusted analysis, suggesting a robust association. A recent study of tobacco use also reveals a high prevalence of current tobacco use among mixed-race individuals (32.2%) and Whites (29.5%) (Wu et al., 2013). However, there is limited information available about mixed-race individuals' specific need for drug use prevention and treatment. The primary US federal databases for substance abuse treatment (SAMHSA, 2012a), such as the Drug Abuse Warning Network, have not included mixed-race people due to data limitation. There are no data about their trend in drug abuse treatment. Here, mixed-race individuals were most likely to use marijuana and they resembled Whites and NHs/PIs in odds of nonmedical opioid use. Given the fast-growing and the relatively large population size of mixed-race people (9 million) (US Census Bureau, 2011), there is a need to increase substance use research for mixed-race individuals.

This study includes perhaps the most up-to-date and comprehensive drug use estimates for mixed-race people. Because mixed-race status is not routinely collected by drug use studies, little is known about their risk and protective factors of drug use. Drug use among mixed-race people may relate partly to their younger age, as drug use is most common in adolescence and young adulthood. Drug use also disproportionally affects individuals of low-income families and those with mental health problems (Compton et al., 2007). Some mixed-race people may experience more stressors than others due to poor socioeconomic conditions. Mixed-race people also had the highest prevalence of past-year tobacco use, being arrested, and history of MDE. These factors, however, correlate with substance use, and they may interact with one another to intensify drug use or health conditions (Bennett et al., 2008; DuRant et al., 1999). These findings suggest a pattern of vulnerability to poor mental health among people who self-identify as mixed-race. They call for research to elucidate causal associations among drug use, being arrested, and other behavioral problems. Additionally, the prevalent MDE among mixed-race individuals and its association with nonmedical opioid use suggest directions for research to explore motives for nonmedical

opioid use and distinguish between persons using opioids for pain relief versus those using them for other reasons (to get high, improve mood, relieve stress). The latter group may have more drug problems and poorer mental health than the former group (Bohnert et al., 2013; McCabe et al., 2009).

Another finding with implications for research and health policy is the higher prevalence of drug use among NHs/PIs (21.2% in 2011) compared with Asian-Americans (6.8% in 2011). Due to small sample sizes of either NHs/PIs or Asian-Americans, both groups are frequently pooled as "other" in health statistics. Our findings support the need to separate NHs/PIs from Asian-Americans in health statistics, as aggregate estimates may not accurately reflect health disparity. In addition to drug use, studies have identified higher prevalences of tobacco/alcohol use among NHs/PIs than among Asian-Americans (Kim and McCarthy, 2006; Wong et al., 2004). The high proportion of low-income NHs/PIs and a lack of research on substance abuse interventions indicate that their needs for prevention or treatment may not be addressed adequately (Edwards et al., 2010). Collectively, substance use and related health status of NHs/PIs require research and reporting to inform health policy and NH/PI-specific interventions.

Finally, regardless of race/ethnicity, being younger, having been arrested, and using tobacco/alcohol in the past year are consistent correlates of drug use, and gender is not associated with drug use. This affirms the importance of starting substance use prevention programs in early adolescence for both genders to prevent or reduce substance use problems (Bennett et al., 2008). For Asian-Americans, low household income and MDE were uniquely associated with drug use, which warrants exploration of their temporal associations to inform intervention. Their low rate of being arrested suggests that Asian-American drug users may be less likely than other racial/ethnic groups to be identified or enter treatment via the legal system. Research could explore whether Asian-Americans tend to avoid manifesting their drug use and to present internalizing symptoms (e.g., depression) due to culture-related sanctions against drug use (Fong and Tsuang, 2007).

4.2. Limitations

NSDUH uses a cross-sectional design to provide population-based drug use estimates. Results of correlates of drug use reflect estimated associations, not causality. About 2% of institutionalized or homeless individuals are not covered by the survey's sampling plan; findings do not apply to them. NSDUH relies on respondents' self-reports that are influenced by memory errors and underreporting. NSDUH has conducted methodological studies to guide its designs and has implemented rigorous procedures to ensure the data quality (SAMHSA, 2012b). Despite the large sample, the moderate number of NHs/PIs limits the analysis. Because of space constraints, we focused on two primary drugs of use (marijuana, opioid analgesics). It is important to note that each racial/ethnic group, especially individuals who self-identify as mixed-race, is diverse in socioeconomic conditions, languages, and cultural traditions (Macartney et al., 2013), which can influence drug use (Hong et al., 2011; Wong et al., 2004). These findings are conservative drug use estimates for *the broadly defined groups* of Asian-Americans, NHs/PIs, and mixed-race individuals in a national sample of the general population. They may not be fully generalizable to a specific racial/ethnic subgroup. In-depth research is needed to further disaggregate intra-racial and inter-racial variations in drug use patterns and consequences while considering culture-specific contextual factors.

4.3. Conclusions

This study presents new drug use estimates for Asian-Americans, NHs/PIs, and mixed-race people. The sociodemographics of the NSDUH are consistent with other national data in

terms of higher household income among Whites and Asian-Americans than other racial/ethnic groups as well as younger ages of Asian-Americans, NHs/PIs, and mixed-race individuals than Whites (Lee et al., 2005; Macartney et al., 2013; Passel et al., 2012). The data support the growth of minority and mixed-race populations (Passel et al., 2012). The young age of minority groups is expected to contribute to higher birth rates than Whites' and their rising population sizes (Lee et al., 2005; Passel et al., 2012). The expanding Asian-American, NH/PI, and mixed-race populations reaffirm the need for drug use data. Findings from the representative sample serve as timely "baseline" data for tracking future trends in drug use. Prevalent rates of marijuana and opioid analgesic use among NHs/PIs and mixed-race individuals warrant in-depth research. State-level or regional studies could explore the impact of legalizing medical marijuana on nonmedical marijuana use and drug diversion, especially among NHs/PIs and mixed-race people. Oversampling these groups in studies could be considered to increase the sample size for an adequate analysis. Asian-Americans, NHs/PIs, and mixed-race individuals are underrepresented in studies of universal drug use prevention programs (Rehuher et al., 2008). These findings point to a need for research to determine whether and how such universal prevention programs (school-, family-based programs) work for these racial/ethnic groups. The heterogeneity in racial/ethnic composition of these groups, especially mixed-race people, also requires selected prevention programs to address culture-specific drug use risk for vulnerable minority subgroups and communities. Research findings from native Hawaiian youth demonstrate the utility of developing culturally grounded drug use prevention interventions for racial/ethnic communities (Okamoto et al., 2012).

Acknowledgments

Role of the funding source: This work was made possible by research support from the U.S. National Institute on Drug Abuse of the National Institutes of Health (HHSN271200900499P, R01DA019623, R01DA019901, and R33DA027503) and by Duke University Department of Psychiatry and Behavioral Sciences. The sponsoring agency had no further role in the study design and analysis, the writing of the report, or the decision to submit the paper for publication. The opinions expressed in this paper are solely those of the authors.

The authors thank the National Institute on Drug Abuse (NIDA) Special Populations Office, NIDA Asian American and Pacific Islander Researchers and Scholars Workgroup (NIDA AAPI workgroup), and the National Asian Pacific American Families Against Substance Abuse, Inc. (NAPAFASA). The authors thank Pete Hoffmann for manuscript preparation.

Contributors: Li-Tzy Wu originated the study aims and drafted the manuscripts. Li-Tzy Wu and Bruce Burchett conducted data analyses. All coauthors contributed to critical writing of the manuscripts resulting in the final version.

Conflict of Interest: Li-Tzy Wu is a committee member of the National Institute on Drug Abuse Asian American and Pacific Islander Researchers and Scholars Workgroup (NIDA AAPI workgroup), Special Populations Office, National Institute on Drug Abuse. Marvin S. Swartz has served as a consultant to Novartis Pharmaceuticals and has received research support from Eli Lilly. The other authors have no conflict of interest to disclose.

References

Bennett T, Holloway K, Farrington D. The statistical association between drug misuse and crime: A meta-analysis. Aggress Violent Behav. 2008; 13:107–118.

Bohnert AS, Eisenberg A, Whiteside L, Price A, McCabe SE, Ilgen MA. Prescription opioid use among addictions treatment patients: nonmedical use for pain relief vs. other forms of nonmedical use. Addict Behav. 2013; 38:1776–1781. [PubMed: 23254228]

Centers for Disease Control and Prevention. [accessed on 10.11.2012] Healthy People 2010 Final Review. 2011. http://www.cdc.gov/nchs/data/hpdata2010/hp2010_final_review.pdf

Centers for Disease Control Prevention. CDC grand rounds: prescription drug overdoses – a US epidemic. Morb Mortal Wkly Rep. 2012a; 61:10–13.

Cerdá M, Wall M, Keyes KM, Galea S, Hasin D. Medical marijuana laws in 50 states: investigating the relationship between state legalization of medical marijuana and marijuana use, abuse and dependence. Drug Alcohol Depend. 2012; 120:22–27. [PubMed: 22099393]

Chromy, JR.; Feder, M.; Gfroerer, J.; Hirsch, E.; Kennet, J.; Morton, KB.; Piper, L.; Riggsbee, BH.; Snodgrass, JA.; Virag, TG.; Yu, F. DHHS Publication No SMA 09-4425, Methodology Series M-8. Substance Abuse and Mental Health Services Administration, Office of Applied Studies; Rockville, MD: 2009. Reliability of key measures in the National Survey on Drug Use and Health.

Duncan SC, Duncan TE, Strycker LA. A multilevel analysis of neighborhood context and youth alcohol and drug problems. Prev Sci. 2002; 3:125–133. [PubMed: 12088137]

DuRant RH, Smith JA, Kreiter SR, Krowchuk DP. The relationship between early age of onset of initial substance use and engaging in multiple health risk behaviors among young adolescents. Arch Pediatr Adolesc Med. 1999; 153:286–291. [PubMed: 10086407]

Edwards C, Giroux D, Okamoto SK. A review of the literature on Native Hawaiian youth and drug use: implications for research and practice. J Ethn Subst Abuse. 2010; 9:153–172. [PubMed: 20737343]

Fong TW, Tsuang J. Asian-Americans, addictions, and barriers to treatment. Psychiatry (Edgmont). 2007; 4:51–59. [PubMed: 20428303]

Garland AF, Lau AS, Yeh M, McCabe KM, Hough RL, Landsverk JA. Racial and ethnic differences in utilization of mental health services among high-risk youths. Am J Psychiatry. 2005; 162:1336–1343. [PubMed: 15994717]

Gfroerer, J.; Eyerman, J.; Chromy, J., editors. DHHS Publication No SMA 03–3768. Substance Abuse and Mental Health Services Administration, Office of Applied Studies; Rockville, MD: 2002. Redesigning an Ongoing National Household Survey: Methodological Issues.

Han E, Liu GG. Racial disparities in prescription drug use for mental illness among population in US. J Ment Health Policy Econ. 2005; 8:131–143. [PubMed: 16278501]

Harrison, LD.; Martin, SS.; Enev, T.; Harrington, D. DHHS Publication No SMA 07-4249, Methodology Series M-7, RTI/0209009.186.002. Substance Abuse and Mental Health Services Administration, Office of Applied Studies; Rockville, MD: 2007. Comparing Drug Testing and Self-report of Drug Use among Youths and Young Adults in the General Population.

Hoeffel, EM.; Rastogi, S.; Kim, MO.; Shahid, H. The Asian Population: 2010. US Census Bureau, Economics and Statistics Administration, U.S. Department of Commerce; 2012. http://www.census.gov/prod/cen2010/briefs/c2010br-11.pdf [accessed on 5.11.2012]

Hong JS, Huang H, Sabri B, Kim JS. Substance abuse among Asian American youth: an ecological review of the literature. Child Youth Serv Rev. 2011; 33:669–677.

Johnston, LD.; O'Malley, PM.; Bachman, JG.; Schulenberg, JE. Monitoring the Future: National Survey Results on Drug Use, 1975–2011: vol. II, College Students and Adults Ages 19–50. Institute for Social Research, The University of Michigan; Ann Arbor: 2012.

Kim J, McCarthy WJ. School-level contextual influences on smoking and drinking among Asian and Pacific Islander adolescents. Drug Alcohol Depend. 2006; 84:56–68. [PubMed: 16413142]

Lee, SM.; Edmonston, B. Population Bulletin. Vol. 60. Population Reference Bureau; 2005. New Marriages, New Families: U.S. Racial and Hispanic Intermarriage. http://www.prb.org/pdf05/60.2NewMarriages.pdf [accessed on 5.23.2013]

Macartney, S.; Bishaw, A.; Fontenot, K. American Community Survey Briefs. US Census Bureau; 2013. Poverty Rates for Selected Detailed Race and Hispanic Groups by State and Place: 2007–2011. http://www.census.gov/prod/2013pubs/acsbr11-17.pdf [accessed on 5.22.2013]

McCabe SE, Boyd CJ, Cranford JA, Teter CJ. Motives for nonmedical use of prescription opioids among high school seniors in the United States: self-treatment and beyond. Arch Pediatr Adolesc Med. 2009; 163:739–744. [PubMed: 19652106]

Mercado MM. The invisible family: counseling Asian American substance abusers and their families. Family J. 2000; 8:267–272.

Okamoto SK, Helm S, Giroux D, Edwards C, Kulis S. The development and initial validation of the Hawaiian Youth Drug Offers Survey (HYDOS). Ethn Health. 2010; 15:73–92. [PubMed: 20013440]

Okamoto SK, Helm S, Pel S, McClain LL, Hill AP, Hayashida JK. Developing empirically based, culturally grounded drug prevention interventions for indigenous youth populations. J Behav Health Serv Res 2012. 2012 Nov 28. [Epub ahead of print].

Passel, J.; Livingston, G.; Cohn, D. [accessed on 5.22.2013] Explaining Why Minority Births Now Outnumber White Births. 2012. http://www.pewsocialtrends.org/2012/05/17/explaining-why-minority-births-now-outnumber-white-births/

Paulozzi LJ. Prescription drug overdoses: A review. J Safety Res. 2012; 43:283–289. [PubMed: 23127678]

Price RK, Risk NK, Wong MM, Klingle RS. Substance use and abuse by Asian Americans and Pacific Islanders: preliminary results from four national epidemiologic studies. Public Health Rep. 2002; 117(Suppl 1):S39–S50. [PubMed: 12435826]

Rehuher D, Hiramatsu T, Helm S. Evidence-based youth drug prevention: a critique with implications for practice-based contextually relevant prevention in Hawai'i. HAWAI I'J Public Health. 2008; 12:52–60.

Research Triangle Institute. SUDAAN User's Manual, Release 9.0. Research Triangle Institute; Research Triangle Park, NC: 2006.

Salomonsen-Sautel S, Sakai JT, Thurstone C, Corley R, Hopfer C. Medical marijuana use among adolescents in substance abuse treatment. J Am Acad Child Adolesc Psychiatry. 2012; 51:694–702. [PubMed: 22721592]

Substance Abuse and Mental Health Services Administration. NSDUH Series H-30, DHHS Publication No (SMA) 06-4194. Substance Abuse and Mental Health Services Administration; Rockville, MD: 2006. Results from the 2005 National Survey on Drug Use and Health: National Findings.

Substance Abuse and Mental Health Services Administration. HHS Publication No (SMA) 12-4733, DAWN Series D-38. Substance Abuse and Mental Health Services Administration; Rockville, MD: 2012a. Drug Abuse Warning Network, 2010: National Estimates of Drug-Related Emergency Department Visits.

Substance Abuse and Mental Health Services Administration. NSDUH Series H-44, HHS Publication No (SMA) 12-4713. 2012b. Results from the 2011 National Survey on Drug Use and Health: Summary of National Findings.

Substance Abuse and Mental Health Services Administration, Rockville, MD. Substance Abuse and Mental Health Services Administration. DASIS Series S-61, HHS Publication No (SMA) 12-4701. Substance Abuse and Mental Health Services Administration; Rockville, MD: 2012c. Treatment Episode Data Set (TEDS): 2000–2010. National Admissions to Substance Abuse Treatment Services.

Thurstone C, Lieberman SA, Schmiege SJ. Medical marijuana diversion and associated problems in adolescent substance treatment. Drug Alcohol Depend. 2011; 118:489–492. [PubMed: 21565453]

U.S. Census Bureau. Overview of Race and Hispanic Origin: 2010. Economics and Statistics Administration, U.S. Department of Commerce; 2011. http://www.census.gov/prod/cen2010/briefs/c2010br-02.pdf [accessed on 5.11.2012]

Wilson JM, Donnermeyer JF. Urbanity, rurality, and adolescent substance use. Crim Justice Rev. 2006; 31:337–356.

Wong MM, Klingle RS, Price RK. Alcohol, tobacco, and other drug use among Asian American and Pacific Islander adolescents in California and Hawaii. Addict Behav. 2004; 29:127–141. [PubMed: 14667425]

Wu LT, Schlenger WE, Galvin DM. Concurrent use of methamphetamine, MDMA, LSD, ketamine, GHB, and flunitrazepam among American youths. Drug Alcohol Depend. 2006; 84:102–113. [PubMed: 16483730]

Wu LT, Pilowsky DJ, Schlenger WE, Galvin DM. Misuse of methamphetamine and prescription stimulants among youths and young adults in the community. Drug Alcohol Depend. 2007; 89:195–205. [PubMed: 17257780]

Wu LT, Pilowsky DJ, Patkar AA. Non-prescribed use of pain relievers among adolescents in the United States. Drug Alcohol Depend. 2008; 94:1–11. [PubMed: 18054444]

Wu LT, Woody GE, Yang C, Li JH, Blazer DG. Recent national trends in Salvia divinorum use and substance-use disorders among recent and former Salvia divinorum users compared with nonusers. Subst Abuse Rehabil. 2011a; 2:53–68. [PubMed: 21709724]

Wu LT, Woody GE, Yang C, Pan JJ, Blazer DG. Racial/ethnic variations in substance-related disorders among adolescents in the United States. Arch Gen Psychiatry. 2011b; 68:1176–1185. [PubMed: 22065533]

Wu LT, Swartz MS, Burchett B, Workgroup NA, Blazer DG. Tobacco use among Asian Americans, Native Hawaiians/Pacific Islanders, and mixed-race individuals: 2002–2010. Drug Alcohol Depend. 2013 [Epub ahead of print].

Yu J, Clark LP, Chandra L, Dias A, Lai TF. Reducing cultural barriers to substance abuse treatment among Asian Americans: a case study in New York City. J Subst Abuse Treat. 2009; 37:398–406. [PubMed: 19553065]

Table 1

Selected characteristics of non-Hispanic Whites, non-Hispanic Asian Americans, non-Hispanic Native Hawaiians/Pacific Islanders (NHs/PIs), and non-Hispanic mixed-race individuals: 2005–2011 (*N*=275,685).

Weighted %	White (*n*=248,027)		Asian-American[1] (*n*=13,623)0		NH/PI (*n*=1,826)		Mixed-race (*n*=12,209)	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Age in years								
12–17	8.7	8.6–8.8	9.6	9.0–10.2	10.1	8.6–11.6	16.3	15.5–17.1
18–25	11.9	11.7–12.1	14.0	13.2–14.9	16.8	14.2–19.3	15.5	14.6–16.4
26–34	12.5	12.3–12.8	18.8	17.5–20.1	18.1	15.2–21.0	14.0	12.3–15.6
35–49	25.0	24.7–25.3	29.5	27.8–31.3	32.9	27.7–38.0	19.6	18.0–21.2
50–64	24.1	23.7–24.6	18.0	16.5–19.6	18.1	12.8–23.4	20.8	18.5–23.2
≥65	17.7	17.3–18.1	10.0	8.3–11.7	4.1	1.3–6.8	13.8	11.8–15.7
Gender								
Male	48.6	48.2–49.0	47.5	45.7–49.4	49.5	43.5–55.5	47.3	44.4–50.2
Female	51.4	51.0–51.8	52.5	50.6–54.3	50.5	44.5–56.5	52.7	49.8–55.6
Total family Income								
<$20,000	14.0	13.7–14.4	14.7	13.2–16.2	18.3	14.5–22.2	24.0	22.1–25.9
$20,000–$49,999	30.9	30.5–31.3	25.9	24.2–27.6	38.3	33.7–42.9	34.9	32.5–37.3
$50,000–$74,999	19.2	18.9–19.5	18.2	16.8–19.6	15.5	11.9–19.1	15.8	14.2–17.4
≥$75,000	35.8	35.3–36.4	41.2	39.3–43.1	27.9	22.3–33.4	25.4	23.3–27.4
County type								
Large metro	45.5	44.8–46.1	75.9	74.4–77.4	58.1	52.3–63.8	45.1	42.3–47.9
Small metro	46.4	45.7–47.1	23.4	21.9–25.0	41.2	35.5–46.8	48.7	45.6–51.9
Nonmetro	8.1	7.7–8.5	0.6	0.4–0.9	0.8	0.1–1.4	6.1	4.7–7.6
Government assistance[2]								
Yes	11.7	11.5–12.0	8.9	7.9–10.0	21.2	17.2–25.1	22.9	20.8–25.1
Residential move								
Yes	19.5	19.1–19.8	25.6	24.1–27.1	32.1	27.2–37.0	27.4	25.5–29.3
Major depressive episode, ever [3]								
Yes	14.4	14.1–14.6	7.2	6.3–8.0	10.8	8.3–13.4	18.2	16.3–20.1
Ever been arrested								

Weighted %	White (*n*=248,027)		Asian-American[1] (*n*=13,623)0		NH/PI (*n*=1,826)		Mixed-race (*n*=12,209)	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Yes	16.4	16.1–16.6	5.0	4.2–5.9	13.0	10.1–16.0	20.8	19.0–22.5
Past-year tobacco use								
Yes	35.8	35.5–36.3	17.9	16.9–19.0	33.3	28.3–38.6	40.8	39.0–42.5
Past-year alcohol use								
Yes	70.6	70.3–70.9	51.6	49.7–53.4	60.6	54.3–66.6	62.5	60.1–64.8

Chi[2] tests for race/ethnicity and each covariate listed in the first column ($P<0.001$), except for gender ($P>0.05$).

[1]Persons who self-reported ≥1 Asian group only was considered Asian-American.

[2]Government assistance included participation in any government assistance programs (supplemental security income, food stamps, cash assistance).

[3]Pre-2005 data do not include comparable MDE variables.

Table 2

Past-year prevalence estimates of illicit or nonmedical drug use among non-Hispanic Whites, non-Hispanic Asian-Americans, non-Hispanic Native Hawaiians/Pacific Islanders, and non-Hispanic mixed-race individuals: 2005–2011 (*N*=275,685)

Weighted %	2005		2006		2007		2008		2009		2010		2011	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
White														
Any drug	14.6	14.0–15.3	14.6	14.0–15.1	14.7	14.0–15.4	14.5	13.8–15.1	15.5	14.9–16.2	15.4	14.8–15.9	15.1	14.4–15.7
Marijuana	**10.7**	**10.1–11.2**	10.6	10.1–11.1	10.4	9.9–11.0	10.3	9.7–10.9	**11.7**	**11.2–12.2**	**11.6**	**11.2–12.1**	**11.8**	**11.3–12.4**
Opioid analgesics	5.1	4.8–5.4	5.3	5.1–5.6	5.4	5.1–5.7	5.3	5.0–5.6	5.4	5.1–5.8	5.1	4.8–5.4	4.6	4.2–5.0
Inhalants	0.9	0.8–1.0	0.9	0.8–1.0	0.9	0.8–1.0	0.8	0.7–0.9	0.8	0.7–0.9	0.8	0.7–1.0	0.7	0.6–0.8
Cocaine	**2.4**	**2.2–2.6**	2.5	2.3–2.7	2.5	2.3–2.7	2.3	2.1–2.5	2.2	1.9–2.5	**1.8**	**1.6–2.1**	**1.5**	**1.3–1.6**
Hallucinogens	1.7	1.5–1.9	1.7	1.6–1.9	1.6	1.5–1.8	1.6	1.5–1.8	1.9	1.8–2.1	1.9	1.7–2.1	1.6	1.5–1.8
Heroin	0.2	0.1–0.2	0.1	0.1–0.2	0.2	0.1–0.3	0.2	0.2–0.3	0.3	0.2–0.4	0.3	0.2–0.3	0.3	0.2–0.3
Stimulants	1.3	1.2–1.5	1.5	1.3–1.7	1.3	1.1–1.5	1.3	1.1–1.4	1.3	1.2–1.5	1.3	1.1–1.4	1.1	1.0–1.3
Sedatives	0.3	0.2–0.4	0.4	0.3–0.5	0.4	0.3–0.5	0.3	0.2–0.4	0.4	0.3–0.5	0.4	0.3–0.5	0.2	0.1–0.3
Tranquilizers	2.7	2.5–2.9	2.3	2.1–2.6	2.5	2.2–2.7	2.6	2.3–2.9	2.8	2.5–3.1	2.5	2.3–2.7	2.3	2.1–2.5
Asian-American														
Any drug	6.8	5.2–8.4	8.1	6.0–10.2	7.5	5.1–9.8	7.8	5.8–9.7	6.3	4.9–7.7	9.0	6.5–11.5	6.8	5.5–8.1
Marijuana	4.0	2.8–5.1	4.6	3.0–6.2	4.7	3.3–6.0	4.3	2.6–6.0	4.2	3.2–5.2	5.4	4.0–6.8	4.9	3.7–6.0
Opioid analgesics	2.6	1.3–3.9	2.7	1.6–3.9	2.5	1.0–4.0	2.7	1.8–3.7	2.4	1.4–3.5	3.5	1.2–5.8	1.8	1.0–2.6
Inhalants	0.5	0.1–0.8	0.6	0.3–0.9	0.4	0.1–0.6	1.1	0.7–1.6	0.7	0.3–1.1	0.4	0.2–0.6	0.7	0.3–1.1
Cocaine	0.4	0.2–0.7	0.8	0.2–1.5	0.3	0.1–0.6	0.5	0.1–0.8	0.4	0.1–0.8	0.9	0.3–1.6	0.8	0.2–1.3
Hallucinogens	0.6	0.3–0.9	1.5	0.7–2.2	0.4	0.1–0.7	0.6	0.2–1.0	0.7	0.3–1.1	0.9	0.4–1.4	1.0	0.6–1.4
Heroin	_*a*		_*a*		_*a*		_*a*		_*a*		_*a*		_*a,b*	
Stimulants	0.4	0.1–0.6	1.2	0.7–1.8	0.5	0.1–0.8	0.3	0.1–0.6	0.4	0.1–0.6	0.3	0.1–0.5	0.3	0–0.5
Sedatives	_*a*		0.2	0–0.4	0.1	0–0.2	_*a*		0.2	0–0.6	_*a*		_*a,c*	
Tranquilizers	0.3	0–0.6	0.3	0.1–0.6	0.3	0.1–0.6	0.6	0.1–1.2	0.5	0.2–0.9	0.8	0.2–1.5	0.8	0.3–1.2
Native Hawaiian/ Pacific Islander														
Any drug	14.4	8.6–20.2	13.3	8.0–18.7	15.4	6.3–24.5	22.7	8.6–36.9	13.7	4.2–23.2	10.3	6.3–14.2	21.2	10.7–31.7
Marijuana	9.9	5.1–14.7	9.8	5.6–14.0	5.9	3.3–8.4	13.9	2.4–25.4	7.5	3.9–11.0	6.8	3.8–9.7	18.8	8.5–29.1

Weighted %	2005		2006		2007		2008		2009		2010		2011	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Opioid analgesics	3.8	1.8–5.8	3.0	0.8–5.3	6.1	1.5–10.6	10.5	1.7–19.2	7.2	0–16.1	3.2	0.5–6.0	2.7	0.8–4.6
Inhalants	2.9	0–6.1	1.3	0–3.3	0.3	0–0.6	0.9	0–1.9	0.7	0–1.5	0.3	0–0.6	2.7	0.2–5.3
Cocaine	1.8	0.2–3.4	1.8	0.5–3.1	1.3	0.3–2.4	0.6	0–1.5	1.1	0–2.3	0.3	0–0.7	3.2	0–6.9
Hallucinogens	1.3	0–2.8	0.7	0–1.6	0.8	0–1.7	0.7	0–1.7	0.7	0–1.5	0.7	0–1.4	3.8	0–7.5
Heroin	0.5	0–1.1	0.7	0–1.7	0.2	0–0.7	0.1	0–0.4	_[a]		0.2	0–0.4	0.8	0–2.4
Stimulants	0.9	0–1.9	1.5	0–3.7	5.2	0–14.0	0.1	0–0.2	0.9	0.2–1.7	1.0	0–2.2	1.7	0–3.7
Sedatives	0.1	0–0.3	0.1	0–0.4	0.2	0–0.4	0.1	0–0.3	_[a]		_[a]		_[a]	
Tranquilizers	1.8	0.1–3.4	0.5	0–1.3	1.6	0–3.7	0.6	0–1.2	1.7	0.4–3.0	0.5	0–1.0	1.5	0–4.4
Mixed-race														
Any drug	17.7	14.4–21.1	18.3	13.6–23.0	22.0	17.6–26.5	21.3	16.2–26.4	23.8	19.2–28.3	22.5	18.3–26.8	23.3	19.6–27.0
Marijuana	14.6	11.6–17.6	14.1	9.8–18.5	16.9	13.6–20.1	17.0	12.3–21.7	19.6	15.5–23.8	18.7	14.9–22.5	20.6	17.0–24.3
Opioid analgesics	4.6	3.4–5.7	6.4	3.8–8.9	7.8	4.8–10.8	5.3	3.5–7.0	5.9	3.4–8.3	7.0	4.8–9.2	5.2	3.6–6.9
Inhalants	1.2	0.6–1.7	1.1	0.4–1.8	1.1	0.6–1.5	1.1	0.6–1.7	2.0	1.0–3.0	1.3	0.6–1.9	1.5	0.7–2.3
Cocaine	3.6	2.1–5.1	2.8	1.3–4.4	3.0	1.6–4.4	3.3	1.6–5.0	2.9	1.4–4.5	1.8	0.7–3.0	1.9	0.9–2.9
Hallucinogens	2.3	1.5–3.1	3.3	1.5–5.0	2.6	1.8–3.4	2.5	1.6–3.5	3.6	2.0–5.1	2.5	1.6–3.4	2.7	1.7–3.7
Heroin	0.4	0–0.9	0.2	0–0.5	0.2	0–0.6	0.1	0–0.3	0.3	0–0.6	_[a]		0.2	0–0.4
Stimulants	1.3	0.7–1.9	2.9	0.7–5.1	2.2	0.5–3.9	2.3	0.5–4.0	1.9	0.9–3.0	0.7	0.4–1.0	1.5	0.8–2.3
Sedatives	0.4	0.1–0.7	1.6	0–3.4	1.3	0–2.7	0.3	0–0.6	0.1	0–0.2	0.4	0–0.8	0.1	0–0.2
Tranquilizers	1.9	1.1–2.7	2.5	0.6–4.4	3.9	1.7–6.2	1.6	0.8–2.3	1.8	1.0–2.6	2.5	1.2–3.7	1.9	1.2–2.6

Boldface indicates that the estimate in a given year differed from the estimate in 2005 ($P<0.05$).

"Any drug" included marijuana, cocaine, inhalants, hallucinogens, heroin, opioid analgesics, stimulants, sedatives, and tranquilizers.

[a] Estimates are not reported due to a small sample size.

[b] Prevalence estimate of heroin use was 0.03 (95% CI: 0.01–0.09) among all Asian-Americans.

[c] Prevalence estimate of sedative use was 0.08 (95% CI: 0.04–0.18) among all Asian-Americans.

Table 3

Adjusted odds ratios (AORs) of racial/ethnic differences in past-year drug use among non-Hispanic Whites, non-Hispanic Asian-Americans, non-Hispanic Native Hawaiians/Pacific Islanders (NHs/PIs), and non-Hispanic mixed-race individuals: 2005–2011 (*N*=275,685)

Past-year drug use	Asian-American vs. White		NH/PI vs. White		Mixed-race vs. White		NH/PI vs. Asian-American		Mixed-race vs. Asian-American		Mixed-race vs. NH/PI	
	AOR	95% CI	AOR	95% CI	AOR	95% CI	AOR	95% CI	AOR	95% CI	AOR	95% CI
Any drug	**0.60**	**0.52–0.68*****	1.01	0.76–1.35	**1.27**	**1.13–1.41*****	**1.70**	**1.20–2.40****	**2.12**	**1.79–2.52*****	1.25	0.92–1.69
Marijuana	**0.51**	**0.44–0.59*****	0.87	0.60–1.27	**1.47**	**1.27–1.67*****	**1.72**	**1.12–2.63****	**2.87**	**2.31–3.56*****	**1.67**	**1.10–2.54***
Opioid analgesics	**0.68**	**0.54–0.87****	0.92	0.59–1.44	0.87	0.75–1.01	1.34	0.79–2.28	1.28	0.98–1.66	0.90	0.65–1.51
Inhalants	0.96	0.76–1.27	1.51	0.91–2.53	1.06	0.86–1.30	1.58	0.94–2.66	1.10	0.83–1.47	0.70	0.42–1.17
Cocaine	**0.45**	**0.34–0.58*****	**0.61**	**0.37–0.99***	0.94	0.78–1.41	1.38	0.80–2.32	**2.11**	**1.56–2.86*****	1.55	0.96–2.49
Hallucinogens	**0.65**	**0.52–0.81*****	0.63	0.34–1.18	1.16	0.96–1.41	0.97	0.48–1.93	**1.79**	**1.34–2.38*****	1.85	0.97–3.52
Heroin	0.32	0.10–1.02	1.63	0.67–3.99	**0.62**	**0.39–0.99***	**5.06**	**1.25–20.49***	1.94	0.53–7.06	**0.38**	**0.17–0.88***
Stimulants	**0.56**	**0.43–0.73*****	1.09	0.44–2.69	0.99	0.74–1.34	1.84	0.81–4.65	**1.77**	**1.17–4.68****	0.91	0.37–2.25
Sedatives	**0.39**	**0.18–0.85***	**0.22**	**0.09–0.58****	1.23	0.71–2.14	0.58	0.18–1.88	**3.18**	**1.28–7.93****	**5.49**	**1.92–15.69****
Tranquilizers	**0.32**	**0.23–0.44*****	**0.42**	**0.25–0.70****	**0.67**	**0.54–0.83*****	1.30	0.66–2.55	**2.09**	**1.47–2.97*****	1.61	0.87–2.96

$^{*}P < 0.05$;

$^{**}P \leq 0.01$;

$^{***}P \leq 0.001$.

Results are based on separate logistic regression models. Each model adjusted for age, sex, total family income, government assistance status, county type, residential move, history of major depressive episode, arrest history, past-year tobacco use, past-year alcohol use, and survey year. “Any drug” included marijuana, cocaine, inhalants, hallucinogens, heroin, opioid analgesics, stimulants, sedatives, and tranquilizers.

Table 4

Adjusted odds ratios (AORs) of correlates of past-year illicit or nonmedical drug use; results are stratified by race/ethnicity: 2005–2011

	Asian-American		Native Hawaiian/ Pacific Islander		Mixed-race	
Adjusted logistic regression	**AOR**	**95% CI**	**AOR**	**95% CI**	**AOR**	**95% CI**
Age in years (vs. 12–17)						
18–25	0.78	0.60–1.03	**0.61**	**0.39–0.97**	**0.59**	**0.48–0.72**
26–34	**0.42**	**0.32–0.56**	**0.16**	**0.07–0.37**	**0.29**	**0.23–0.38**
35–49	**0.19**	**0.13–0.28**	**0.18**	**0.11–0.30**	**0.23**	**0.16–0.33**
50–64	**0.25**	**0.12–0.54**	**0.07**	**0.01–0.40**	**0.17**	**0.09–0.31**
≥65	**0.10**	**0.05–0.23**	_[a]		**0.03**	**0.01–0.10**
Gender (vs. female)						
Male	1.09	0.84–1.42	0.86	0.53–1.39	1.09	0.85–1.39
Family income (vs. ≥ $75,000)						
<$20,000	**1.58**	**1.22–2.04**	0.70	0.36–1.35	**1.52**	**1.06–2.19**
$20,000–$49,999	**1.52**	**1.14–2.01**	0.55	0.29–1.06	1.09	0.75–1.57
$50,000–$74,999	**1.48**	**1.03–2.12**	0.88	0.46–1.69	1.12	0.81–1.55
Government assistance (vs. no)	**1.48**	**1.10–2.01**	0.98	0.64–1.50	1.03	0.80–1.32
County type (vs. large metro)						
Small metro	0.88	0.71–1.09	1.04	0.49–2.20	1.01	0.80–1.29
Nonmetro	2.64	0.52–13.53	**0.16**	**0.04–0.76**	1.10	0.64–1.89
Residential move (vs. no)	1.11	0.85–1.44	0.97	0.62–1.52	1.23	0.99–1.52
Major depressive episode (vs. no)	**1.85**	**1.26–2.71**	0.85	0.52–1.40	1.26	0.96–1.67
Ever been arrested (vs. no)	**2.03**	**1.46–2.83**	**2.68**	**1.49–4.83**	**2.18**	**1.66–2.86**
Past-year tobacco use (vs. no)	**3.81**	**3.04–4.77**	**3.47**	**1.89–6.41**	**4.46**	**3.39–5.88**
Past-year alcohol use (vs. no)	**2.73**	**2.14–3.48**	**5.72**	**3.17–10.32**	**3.74**	**2.83–4.95**

Past-year drug use variable from independent samples of 2005–2011 NSDUH was examined as a dependent variable. Boldface indicates $P<0.05$. Past-year drug use variable from independent samples of 2005–2011 NSDUH was examined as a dependent variable. Each adjusted logistic regression included all variables listed in the first column (covariates) and controlled for survey year.

[a] Adults aged ≥50 years were categorized as one group due to a small sample size.

Table 5

Adjusted odds ratios (AORs) of correlates of past-year illicit marijuana use and nonmedical opioid analgesic use; results are stratified by race/ethnicity: 2005–2011

	Marijuana use						Opioid analgesic use					
Adjusted logistic regression	**Asian-American**		**Native Hawaiian/ Pacific Islander**		**Mixed-race**		**Asian-American**		**Native Hawaiian/ Pacific Islander**		**Mixed-race**	
Age in years (vs. 12–17)												
18–25	0.72	0.46–1.14	0.62	0.32–1.21	**0.66**	**0.53–0.83**	0.77	0.52–1.14	0.59	0.33–1.04	**0.64**	**0.45–0.91**
26–34	**0.32**	**0.20–0.52**	**0.08**	**0.03–0.20**	**0.30**	**0.21–0.41**	0.70	0.41–1.17	**0.13**	**0.03–0.59**	**0.29**	**0.18–0.46**
35–49	**0.10**	**0.06–0.18**	**0.10**	**0.04–0.25**	**0.28**	**0.19–0.40**	**0.43**	**0.22–0.83**	**0.37**	**0.17–0.82**	**0.20**	**0.12–0.34**
50–64	**0.10**	**0.04–0.23**	_*b*		**0.24**	**0.12–0.47**	0.79	0.32–1.91	0.25	0.06–1.07	**0.16**	**0.07–0.37**
≥65	_*a*		_*b*		**0.03**	**0.01–0.11**	**0.22**	**0.07–0.68**	_*a*		**0.08**	**0.02–0.28**
Gender (vs. female)												
Male	0.99	0.74–1.33	0.79	0.35–1.78	1.14	0.89–1.45	1.38	0.87–2.19	1.25	0.56–2.81	0.99	0.73–1.35
Family income (vs. ≥$75,000)												
<$20,000	**1.42**	**1.06–1.90**	0.64	0.34–1.22	1.45	0.97–2.18	**2.09**	**1.33–3.28**	1.03	0.36–2.94	1.27	0.86–1.87
$20,000–$49,999	1.06	0.80–1.40	0.51	0.23–1.14	1.12	0.74–1.70	**2.66**	**1.57–4.51**	0.60	0.22–1.62	1.27	0.82–1.98
$50,000–$74,999	1.10	0.70–1.74	1.55	0.67–3.59	1.16	0.79–1.69	**2.25**	**1.31–3.88**	0.68	0.26–1.80	1.21	0.79–1.85
Government assistance (vs. no)	0.91	0.63–1.34	**1.65**	**1.01–2.71**	0.88	0.66–1.18	**1.95**	**1.24–3.07**	0.63	0.34–1.14	0.84	0.61–1.16
County type (vs. large metro)												
Small metro	0.81	0.63–1.04	0.84	0.51–1.37	0.89	0.69–1.15	0.88	0.58–1.35	**2.23**	**1.02–4.87**	1.08	0.78–1.48
Nonmetro	6.35	0.40–101.01	**0.09**	**0.01–0.80**	1.07	0.60–1.93	0.37	0.11–1.19	0.42	0.05–3.75	1.50	0.60–3.74
Residential move (vs. no)	0.95	0.73–1.25	1.21	0.75–1.93	**1.34**	**1.06–1.68**	1.41	0.82–2.43	1.31	0.69–2.47	1.08	0.83–1.42
Major depressive episode (vs. no)	**2.14**	**1.18–3.89**	0.72	0.37–1.43	1.18	0.91–1.52	1.55	0.94–2.58	1.36	0.70–2.63	**1.67**	**1.21–2.31**
Ever been arrested (vs. no)	**2.53**	**1.73–3.68**	**2.25**	**1.28–3.95**	**2.21**	**1.70–2.88**	1.25	0.83–1.88	2.07	0.72–6.00	**2.40**	**1.71–3.37**
Past-year tobacco use (vs. no)	**6.85**	**5.13–9.13**	**5.93**	**2.76–12.75**	**5.25**	**3.81–7.24**	**1.68**	**1.20–2.37**	1.34	0.64–2.80	**2.89**	**2.04–4.08**
Past-year alcohol use (vs. no)	**8.92**	**4.80–16.57**	**11.76**	**5.02–27.56**	**4.19**	**2.98–5.88**	**1.65**	**1.00–2.74**	**4.56**	**1.61–12.87**	**2.85**	**1.64–4.93**

Boldface indicates $P<0.05$. Past-year drug use variable from independent samples of 2005–2011 NSDUH was examined as a dependent variable. Each adjusted logistic regression included all variables listed in the first column (covariates) and controlled for survey year.

[a] Adults aged ≥50 years were categorized as one group due to a small sample size.

[b] Adults aged ≥35 years were categorized as one group due to a small sample size.