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Alcohol use among Native Americans compared to whites: Examining the veracity of the 'Native American elevated alcohol consumption' belief

James K. Cunningham[a,b,*], Teshia A. Solomon[a,b], Myra L. Muramoto[a]

[a] Department of Family and Community Medicine, The University of Arizona, 1450 N. Cherry Avenue, Tucson, AZ 85719, United States
[b] Native American Research and Training Center, The University of Arizona, 1642 East Helen Street, Tucson, AZ 85719, United States

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ABSTRACT

Background: This study uses national survey data to examine the veracity of the longstanding belief that, compared to whites, Native Americans (NA) have elevated alcohol consumption.
Methods: The primary data source was the National Survey on Drug Use and Health (NSDUH) from 2009 to 2013: whites (n = 171,858) and NA (n = 4,201). Analyses using logistic regression with demographic covariate adjustment were conducted to assess differences in the odds of NA and whites being alcohol abstinent, light/moderate drinkers (no binge/heavy consumption), binge drinkers (5+ drinks on an occasion 1–4 days), or heavy drinkers (5+ drinks on an occasion 5+ days) in the past month. Complementary alcohol abstinence, light/moderate drinking and excessive drinking analyses were conducted using Behavioral Risk Factor Surveillance System (BRFSS) data from 2011 to 2013: whites (n = 1,130,658) and NA (n = 21,589).
Results: In the NSDUH analyses, the majority of NA, 59.9% (95% CI: 56.7–63.1), abstained, whereas a minority of whites, 43.1% (CI: 42.6–43.6), abstained—adjusted odds ratio (AOR): 0.64 (CI: 0.56–0.73). Approximately 14.5% (CI: 12.0–17.4) of NA were light/moderate-only drinkers, versus 32.7% (CI: 32.2–33.2) of whites (AOR: 1.90; CI: 1.51–2.39). NA and white binge drinking estimates were similar—17.3% (CI: 15.0-19.8) and 16.7% (CI: 16.4–17.0), respectively (AOR: 1.00; CI: 0.83–1.20). The two populations' heavy drinking estimates were also similar—8.3% (CI: 6.7–10.2) and 7.5% (CI: 7.3–7.7), respectively (AOR: 1.06; CI: 0.85–1.32). Results from the BRFSS analyses generally corroborated those from NSDUH.
Conclusions: In contrast to the 'Native American elevated alcohol consumption' belief, Native Americans compared to whites had lower or comparable rates across the range of alcohol measures examined.

1. Introduction

It is commonly believed that Native Americans (NA) have elevated alcohol consumption compared to whites (Mihesuah, 1996). This could bear on NA healthcare, as negative beliefs about a group can compromise their interactions with healthcare providers (Betancourt and Ananeh-Firempong, 2004; Burgess et al., 2010; Smedley et al., 2003). Moreover, if such elevated consumption exists, it might help explain why NA alcoholic liver disease (ALD) mortality was recently reported as 4.9 times that experienced by whites (Landen et al., 2014). If, however, such consumption was nonexistant, explanation for the reported disparity in NA ALD mortality would rest with factors beyond alcohol use alone (cf. Mendenhall et al., 1989; Scott and Garland, 2008). The present study uses US national survey data to compare alcohol consumption among NA and whites.

1.1. Historical and current commentary

Statements about pronounced alcohol use among NA are centuries old. For example, Leland (1976) reports that the Catholic priest Abbé Belmont, around the late 1700s, described the Ottawa as 'passionately attached' to brandy. In an 1847 US government report, ethnologist H. R. Schoolcraft stated "It is strange how all the

* Corresponding author at: Department of Family and Community Medicine, The University of Arizona, 1450 N. Cherry Avenue, Tucson, AZ 85719, United States. Fax: +1 5205771864.
E-mail addresses: jkcunnin@email.arizona.edu (J.K. Cunningham), solomont@email.arizona.edu (T.A. Solomon), myram@email.arizona.edu (M.L. Muramoto).

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Indian nations, and almost every person among them, male and female, are infatuated with the love of strong drink. They know no bounds to their desire" (Leland, 1976; Schoolcraft, 1847).

Today, statements about pronounced alcohol use among NA continue. For example, the Indian Health Services states that "The high rates of alcohol and substance abuse . . . in American Indian and Alaska Native (AI/AN) communities are well documented" (Indian Health Service, 2015). And the American Psychiatric Association states that "Native Americans use and abuse alcohol . . . at higher rates, than all other ethnic groups" (American Psychiatric Association, 2014).

1.2. Related research

When authorities describe NA as having a higher rate of alcohol use/abuse, it seems reasonable to assume that they, at a minimum, mean higher in comparison to whites, the United States' largest and predominant race/ethnicity (Phinney, 1996; Population Division, 2013). This said, little research to date has actually tested whether alcohol consumption among NA as a population exceeds that of whites. Several studies have provided and/or discussed important information about drinking rates and patterns among NA in particular tribes or geographic areas (e.g. Beals et al., 2003; Beauvais, 1998; May and Gossage, 2001; Miller et al., 2012; Stanley et al., 2014). Such studies, however, have focused on selected subgroups of NA and, consequently, are not a viable basis for comparing population level alcohol consumption among NA and whites (cf. Young and Joe, 2009).

The US government conducts surveys that measure alcohol use in national samples of NA, whites and other racial/ethnic groups; for example, the National Survey on Drug Use and Health (NSDUH; Center for Behavioral Health Statistics and Quality, 2014a) and the Behavioral Risk Factor Surveillance System (BRFSS; Centers for Disease Control and Prevention, 2014). NSDUH measures heavy drinking (defined by NSDUH as 5+ drinks on an occasion 5+ different days in the past month), but we know of no studies that have tested whether such drinking differs significantly between NA and whites. At least one study (Kanny et al., 2013) has used BRFSS to compare NA to whites regarding excessive drinking (5+ drinks for men and 4+ drinks for women on an occasion 1+ times in the past month); they found it to be significantly higher among whites.

The US government has used NSDUH data to test for differences in binge drinking between the NA population and the US general population, and found significantly higher binge drinking rates among NA (Office of Applied Studies, 2010). However, the US general population is a mix of racial/ethnic groups, making it difficult to determine what the comparison means, especially as some racial/ethnic groups (e.g., Asians) in the US general population have particularly low rates of alcohol consumption (Esser et al., 2014).

The US government does provide annual descriptive estimates of binge and heavy drinking among NA and whites (and other racial/ethnic groups). For example, for NA and whites in NSDUH in 2013, the Center for Behavioral Health Statistics and Quality (2014a) reported heavy drinker (5+ drinks on an occasion 5+ days in past month) estimates of 5.8% and 7.3%, respectively, and binge drinker (5+ drinks on an occasion 1–4 days in past month) estimates of 17.7% and 16.7%, respectively. In a report for the National Institute on Alcohol Abuse and Alcoholism, Chen et al. (2006) examined the National Epidemiologic Survey on Alcohol and Related Conditions (2001–2002) and reported "heavier drinker" rates (2+ drinks per day for men and 1+ per day for women) of 12.75% and 11.29% for NA and whites, respectively. Tests on whether the above estimates for NA and whites differed by more than chance were not presented, but the estimates appear to suggest little difference.

1.3. Study approach

To help assess the veracity of the NA elevated alcohol consumption belief, this study examines, for NA and whites, drink counts during various occasions, including the most recent and typical drinking occasions. And it assesses alcohol abstinence, light/moderate drinking, binge drinking and heavy drinking. Racial/ethnic groups in addition to NA and whites are considered in selected analyses. The principal data examined come from NSDUH, reportedly the nation's primary source for measures of drug use (Center for Behavioral Health Statistics and Quality, 2014a). Selected complementary analyses are conducted using BRFSS data to help assess possible corroboration of and expand on this study's NSDUH analysis.

2. Methods

2.1. NSDUH

NSDUH uses complex sampling to provide representative samples of civilian, non-institutionalized individuals aged 12+ years living in the United States. Most questions in NSDUH are administered with Audio Computer-Assisted Self-Interviewing (ACASI) to provide the respondent with a highly private and confidential mode for answering questions, which can help support honest reporting of drug use (Center for Behavioral Health Statistics and Quality, 2014a,b; Mullany et al., 2013). To identify race/ethnicity, NSDUH first asks respondents whether they are Hispanic, and then which racial group best describes them: white, black/African American, American Indian/Alaska Native (referred to as NA here), Asian, or Native Hawaiian/Other Pacific Islander (NHOPI). More than one race can be selected. In this study, whites are those who identified themselves as non-Hispanic white. NA, blacks, Asians, and NHOPI are those who identified themselves as non-Hispanic and selected only the category NA, black/African American, Asians, or NHOPI, respectively, as their race. "Multiple races" are non-Hispanics who selected more than one race. Hispanics are persons who indicated that they were Hispanic, regardless of racial group selection(s) (Center for Behavioral Health Statistics and Quality, 2014a). NSDUH makes available an imputed race/ethnicity variable (Center for Behavioral Health Statistics and Quality, 2014b); it was used here. To help ensure adequate sample sizes, we pooled NSDUH data from 2009 to 2013.

2.2. BRFSS

BRFSS, a complex sampling health survey that includes alcohol questions, is telephone-based (landline and cellular) and administered primarily with Computer Assisted Telephone Interviewing (CATI) systems. Respondents are 18+ years of age living in the United States. The Centers for Disease Control and Prevention supports BRFSS, though individual US states/territories generally oversee execution of the survey within their respective geographic areas. BRFSS asks respondents to identify their race/ethnicity much as NSDUH does. It also provides an imputed race/ethnicity variable for analysis, but the variable lacked a distinct category for NHOPI (Behavioral Risk Factor Surveillance System, 2014). We consequently used BRFSS' non-imputed race/ethnicity variable, which did include the category. BRFSS changed its sampling design in 2011, limiting comparisons with prior years (Centers for Disease Control and Prevention, 2014). This study pools BRFSS data from 2011 to 2013.

2.3. Alcohol consumption variables

All of the alcohol variables examined involve consumption in the past month. For the NSDUH analyses, abstinence was defined as no alcohol use (in the past month). Heavy drinking was 5+ drinks on the same occasion (the same time or within a couple of hours of each other) on each of 5+ days (NSDUH's definition). "Binge but not heavy drinking", referred to here simply as "binge drinking", was 5+ drinks on the same occasion on 1–4 days (NSDUH's definition). Two limited-drinking variables (not mutually exclusive of one another) were used. One was for drinkers who reported no binge or heavy drinking—labeled here as "light/moderate-only" drinkers. The other entailed persons that typically, but not necessarily always, engaged in light/moderate drinking. Persons who reported 1–4 drinks during a typical drinking occasion were included in this latter variable—labeled here as "typically-light/moderate" drinkers. Drink counts during the most recent drinking occasion and a typical drinking occasion were also examined.

For the BRFSS analyses, abstinence was also defined as no alcohol use (in the past month). BRFSS has no "binge but not heavy drinking" variable and no "heavy drinking" variable, as defined by NSDUH. BRFSS does have a variable titled "binge drinking", defined as 5+ drinks for men and 4+ drinks for women on an occasion 1+ times in the past month. Here, this BRFSS variable is referred to as "excessive drinking". Drinkers who reported 1–4 drinks on a typical drinking occasion were classified as typically-light/moderate drinkers. Drink counts during a typical