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Changes in Alcohol Consumption: United States, 2001-2 to 2012-13

Deborah A. Dawson[a,b], **Rise B. Goldstein**[b], **Tulshi D. Saha**[b], and **Bridget F. Grant**[b]

[a]Kelly Government Services Bethesda MD 20852, USA

[b]Laboratory of Epidemiology and Biometry, Division of Intramural Clinical and Biological Research, National Institute on Alcohol Abuse and Alcoholism National Institutes of Health Bethesda MD 20892-9304, USA

Abstract

Background—Documenting changes in alcohol consumption is critical for assessing future health service and alcohol treatment needs, evaluating efforts to modify drinking behavior and understanding the impact of shifting demographics and social norms. For the period since the year 2000, published data on drinking trends have been scarce and inconsistent.

Methods—Using data from two large, nationally representative surveys of U.S. adults (2001-2002 and 2012-2013) that contained virtually identical questions on consumption, we assessed differences by period in the prevalence of drinking, volume of intake, frequency of drinking and prevalence of ≥monthly heavy episodic drinking (HED) and determined whether changes in consumption were consistent across beverage types and in population subgroups.

Results—Between 2001-2002 and 2012-2013, the prevalence of drinking increased, as did volume and frequency of drinking and prevalence of ≥monthly HED among drinkers. Increases were greater for women than men for all measures and smaller among the formerly married for consumption among drinkers. The increase in overall drinking prevalence was magnified among all race-ethnic minorities, whereas the increase in ≥monthly HED was magnified only among Blacks (all relative to Whites).

Conclusions—Our findings are suggestive of a “wetter” drinking climate in 2012-2013 than in 2001-2002, indicating the need for continued and expanded efforts to prevent chronic and episodic heavy alcohol consumption. Given the across-the-board increases in alcohol consumption in

Corresponding author: Rise B. Goldstein NIAAA/LEB 5635 Fishers Lane, MSC 9304 Bethesda MD 20892-9304 Telephone: 301-443-3528 Fax: 301-443-1400 goldster@mail.nih.gov.

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recent years, policy efforts that address drinking at the population level are supported, even if specific drinking behaviors and subgroups of drinkers are additionally targeted for individualized approaches.

Keywords

alcohol consumption; drinking trends; heavy episodic drinking

1. INTRODUCTION

Documenting changes in alcohol consumption is critical for assessing future health services and alcohol treatment needs, evaluating industry and public health efforts to modify drinking behavior and understanding the impact of shifting demographics and social norms regarding drinking. Information on consumption trends comes from two primary sources: alcohol sales data and periodic sample surveys. The former provide estimates of average per capita consumption, the latter of drinking prevalence, volume and pattern. For the period since 2000, published data on drinking trends have been scarce and inconsistent.

Sales-based data revealed that annual U.S. apparent per capita ethanol consumption rose from 2.18 gallons in 2001 to 2.33 gallons in 2012 (La Vallee et al., 2014). This 7% increase was not consistent across beverage types. Ethanol consumption from wine and spirits rose by 34% and 22%, respectively, whereas ethanol consumption from beer declined by 8%. These changes provide a useful marker of alcohol consumption trends at the population level but do not indicate whether they reflect changes in drinking prevalence or in volume consumed among drinkers – much less changes in drinking frequency and quantity or frequency of heavy episodic drinking (HED). Some of these more detailed data were included in two recent studies based on the National Alcohol Surveys (NAS) that have been conducted approximately every five years since 1979. For the period 2000 to 2010, NAS data indicated that the proportion of past-year drinkers among U.S. adults 18 and older rose from 60.7% to 65.9% and mean volume of ethanol consumption increased by 26% (Kerr et al., 2014). In a separate report based on the same data (Kerr et al., 2012) that assessed net age, period and cohort (APC) effects on volume of consumption, a significant period effect indicated a lower volume of consumption in 2000 than in 2010 among women but not men. Beverage-specific period effects fell short of statistical significance for both sexes. Data from the National Health Interview Surveys (NHIS, 2013) showed an increase between 2000 and 2010 in the proportion of high-volume drinkers among U.S. adults 18 and older that was partially offset by a decrease between 2010 and 2011 (National Centers for Health Statistics, 2012).

Keyes and Miech (2013) used data from multiple years of the National Survey on Drug Use and Health (NSDUH) to distinguish net APC effects on prevalence of past-month HED (drinking 5+ drinks ≥once in the last 30 days) in the U.S. population aged 15-64 years. Although changes in survey administration obscured examination of long-term trends, unadjusted prevalence estimates for 2002-2009 showed a decline in past-month HED among 15-19 year olds and slight increases for most other age groups. Comparison of period parameters from the APC models indicated an increase between 2000-2004 and 2005-2009

in past-month HED for men, women, Whites, Blacks and Hispanics (all ages combined). Likewise, NHIS data for adults 18 and older indicated modest increases in two measures of past-year HED from 2000 to 2010, with partially offsetting decreases from 2010 to 2011 (National Centers for Health Statistics, 2012). Among active duty military personnel, Bray et al. (2013) reported that the prevalence of past-month HED (5+/4+ drinks in a single day for men and women, respectively) increased from 35% in 1998 to 47% in 2008.

NSDUH data for 18-20 year olds showed significant decreases in the prevalence of past-month drinking and HED between 2001 and 2011 and in overall frequency, usual quantity and volume of past-month drinking between 2000-2 and 2009-11 (Chen et al., 2013). Likewise, data from the Behavioral Risk Factor Surveillance System for 2001-2005 indicated that past-month HED (5+ drinks in a single day) among persons aged 18-24 years was significantly lower in 2005 than 2001 for men, women and Whites but not for Nonwhites (Delnevo et al., 2008).

In summary, data on changes in alcohol consumption since 2000 are scattered, and comparison across studies may be confounded by differences in data source (sales vs. survey), age range and population characteristics, HED definitions and survey methodology. Interpretation of the magnitudes, correlates and interrelationships of these changes would be optimized if data on various aspects of consumption could be drawn from a single source. Data from the recently conducted National Epidemiologic Survey on Alcohol and Related Conditions III (NESARC-III) and its predecessor, the Wave 1 NESARC, provide such a source. Using data from these two surveys, we examined differences between 2001-2002 and 2012-2013 in drinking prevalence, average daily volume (ADV) of ethanol intake, overall frequency of drinking and prevalence of ≥monthly HED.

2. METHODS

2.1 Participants

Data were drawn from two nationally representative samples of U.S. adults: the 2001-2002 Wave 1 NESARC (n=43,093, response rate=81.0%) and the 2012-13 NESARC-III (n=36,309, response rate=61.1%) (Grant et al., 2003, 2014). The NESARC-III comprised an independent cross-sectional sample, not a reinterview of prior NESARC respondents. Both surveys were sponsored by the National Institute on Alcohol Abuse and Alcoholism (NIAAA); fieldwork was carried out by the Census Bureau (Wave 1) and Westat Inc. (NESARC-III). Both surveys obtained informed consent after potential respondents were informed in writing about the survey content, uses of the data, voluntary nature of participation and confidentiality of identifiable survey information. Both research protocols received full ethical review and approval.

The eligibility criteria for the two surveys were identical, both having target populations of U.S. adults 18 and older living in households and noninstitutional group quarters. Both surveys oversampled Blacks and Hispanics; the Wave 1 NESARC also oversampled adults aged 18-24 years and the NESARC-III oversampled Asians/Pacific Islanders. Oversampling of minorities was achieved in both surveys by taking higher sampling fractions in geographic areas with high minority concentrations. Additionally, in the NESARC-III only,

two respondents were permitted in minority households with ≥four eligible respondents. Whereas the Wave 1 NESARC interviewed college students in on-campus residences, the NESARC-III interviewed them in their primary off-campus residences (waiting if necessary to interview them at home during school breaks).

Data for both surveys were collected in personal interviews conducted in respondents' homes by interviewers trained extensively regarding survey content and administration. Training materials for the NESARC-III were adapted from Wave 1. The NESARC-III offered a financial incentive for participation, half paid upon consent and half after completion. No financial incentive was offered for the Wave 1 NESARC, although the Wave 2 longitudinal follow-up did employ an identically structured financial incentive. One final difference between the Wave 1 NESARC and the NESARC-III is that the latter included a component in which genetic (saliva) samples were collected from consenting respondents. This occurred after completion of the regular interview, and participation was not required to be counted as a survey respondent or to receive the full financial incentive.

2.2 Measures

The Wave 1 NESARC and NESARC-III contained nearly identical questions on alcohol consumption. These included screening questions to distinguish past-year drinkers, former drinkers and lifetime abstainers and parallel sets of questions for malt/wine/spirits-based coolers, including prepackaged cocktails and hard tea/cider/lemonade; beer, including malt liquor; wine, including fortified wine; and distilled spirits, including mixed drinks that were not prepackaged. For each beverage type, respondents were asked overall frequency of drinking, usual and largest quantity of drinks consumed in a single day, frequencies of drinking 5+ drinks and the largest quantity, usual drink size and usual brand consumed, from which ethanol content by volume was obtained. A separate series of questions for all alcoholic beverages combined replicated the quantity/frequency items above and added frequency of drinking 4+ drinks for women (and additionally for men 65 and older in the NESARC-III). The only other change in the NESARC-III was the addition of questions on frequencies of consuming 8+ and 12+ drinks for all beverages combined.

ADV of ethanol intake was computed from usual and largest quantities of drinks and their associated frequencies as well as frequency of drinking 5+ drinks (Dawson, 2003). The new questions on drinking 8+ and 12+ drinks were not used in estimating ADV for the NESARC-III, to ensure comparability of volume estimates across surveys. Overall volume of consumption was set to the larger of the sum of the beverage-specific volumes or the volume derived from questions for all alcoholic beverages combined. To avoid undue influence of outliers, we top-coded ADV down to 14.4 ounces (≈24 cans of beer). This affected <1% of drinkers. Frequency of drinking in days/year corresponded to the midpoint of the selected response category. Frequency of heavy episodic drinking (HED) was based on drinking 5+ drinks for specific beverages and drinking 5+/4+ drinks (for men and women, respectively) for all beverages combined. To approximate the measure of past-month HED used in many prior studies, we constructed a variable that was positive if frequency of HED for all beverage types combined was ≥1/month.

Sociodemographic characteristics used to define population subgroups comprised age, sex, race-ethnicity, marital status, educational attainment and family income. Individuals endorsing multiple races were systematically assigned to a single "main" race (Smith et al., 2010), with Hispanic origin comprising a separate category irrespective of race. Missing values on these sociodemographic characteristics (generally <1% of the total sample) were imputed identically in both surveys.

2.3 Data analyses

Data from the Wave 1 NESARC and NESARC-III were combined into a single data set, with a dummy variable for survey period. We examined the proportion of past-year drinkers and, among drinkers, ADV, overall frequency of drinking and prevalence of ≥monthly HED for specific beverages in the total population and for all beverages combined within sociodemographic subgroups. All data analysis employed SUDAAN software (Research Triangle Institute, 2008) to account for the complex, multistage survey designs. To assess the significance of consumption changes over time after accounting for changes in sociodemographic composition, we estimated multiple regression models, in which survey period was the primary exposure variable, with controls for sociodemographic characteristics. A second set of models included interactions between survey period and the other covariates to determine whether changes over time varied across population subgroups.

Logistic regression models predicted past-year drinking and ≥monthly HED among past-year drinkers. Linear regression models predicted ADV and overall drinking frequency among past-year drinkers. ADV and drinking frequency were log-transformed to help normalize their distributions and yield multiplicative models. Thus, beta parameters from these models do not represent additive effects but, when exponentiated, indicate the ratio of the outcome measure for each covariate relative to its referent. The main effects models included all main effects; models including interactions included all main effects and interactions significant at the $p<.05$ level.

3. RESULTS

The proportion of past-year drinkers increased from 65.4% in 2001-2002 to 72.7% in 2012-2013. This primarily reflected a decrease in the proportion of lifetime abstainers from 17.3 to 11.1%; the proportion of former drinkers showed only a slight decrease from 17.3% to 16.2% (data not shown). The increase in drinking prevalence varied by beverage (Table 1). The proportion of cooler drinkers declined slightly, whereas the proportions of beer, wine and spirits drinkers all increased. Among all past-year drinkers, total ADV increased from 0.628 ounces (≈14.6 grams) to 0.751 ounces (≈17.5 grams); ADV increased for wine and spirits, decreased for coolers and remained stable for beer. These patterns were similar among individuals who drank the specific beverages.

Among past-year drinkers, overall frequency of drinking any alcoholic beverage rose from 83.5 to 87.9 days/year. The only specific beverage for which drinking frequency increased was wine. Frequencies of consuming coolers and beer decreased, and frequency of drinking spirits remained stable. Among all drinkers, the prevalence of ≥monthly HED rose from

21.5% to 25.8%. The prevalence of ≥monthly HED for specific beverages decreased for coolers, remained stable for beer and increased for wine and spirits.

Increases in drinking prevalence were significant in each sociodemographic subgroup we examined (Table 2). In most subgroups, this reflected proportionately fewer lifetime abstainers; the proportion of former drinkers showed a meaningful decline only among Blacks (data not shown). The largest increases occurred among adults 65 and older, women, race-ethnic minorities, the formerly married and individuals in the lowest education and income categories. Consequently, many sociodemographic differentials in drinking prevalence – particularly by race-ethnicity – narrowed between 2001-2002 and 2012-2013. However, patterns were similar in both periods, with drinking prevalence declining at ages 45 and older, higher for men than women, highest among the never-married and increasing with education and income.

The increase in ADV observed within most population subgroups was absent among individuals aged 18-24 and 65+ years, Native Americans, Asians/Pacific Islanders, the formerly married and individuals with less than a high school degree. The largest significant increases in ADV occurred among individuals aged 25-44 years, Blacks and high school graduates who did not attend college. Accordingly, the formerly steady decrease in ADV with advancing age did not begin until ages 45 and older in 2012-2013. The ADV of Black drinkers was 21% greater than that of White drinkers in 2001-2002 compared to 41% greater in 2012-13. ADV was higher among men, the never married, the less educated and those with the lowest incomes in both survey periods.

Overall frequency of drinking increased by 4.4 days/year across all drinkers, but the increase was significant only among individuals aged 25-44 years, women, Whites and Blacks, the currently or never married, college graduates and those in the two highest income categories. Although the inverse relationships of drinking frequency with education and income were slightly attenuated between 2001-2002 and 2012-2013, most sociodemographic differentials remained similar. Drinking frequency increased with age and was highest for men, Whites and the formerly married.

The increased prevalence of ≥monthly HED among drinkers was observed across all population subgroups other than adults aged 18-24 years, Asians/Pacific Islanders and the formerly married. The absolute increase was especially large for Blacks, from 19.0% to 27.7%. The largest proportional increase was among adults 65 and older, with a near doubling from 6.1% to 11.8%. Regardless of survey period, prevalence of ≥monthly HED declined with age, education and income, was about twice as high for men as women and was higher for the never married than the currently or formerly married.

Prior to adjustment, based on ratios of values for the two time periods from Table 2, the proportion of past-year drinkers increased by 11%, ADV increased by 20%, overall drinking frequency increased by 5% and prevalence of ≥monthly HED increased by 20%. After adjustment for sociodemographic factors (Table 3, top panel), the odds of past-year drinking were 44% greater in 2012-13 than in 2001-2 ($e^{0.366} = 1.44$), ADV of consumption was 34%

higher ($e^{0.289}$ = 1.34), overall frequency of drinking increased by 13% ($e^{0.123}$ = 1.13) and the odds of ≥monthly HED increased by 39% ($e^{0.330}$ = 1.39).

Interactions of survey period with other model covariates (bottom panel of Table 3) revealed that the positive period effect for drinking prevalence was magnified among race-ethnic minorities and reduced among men. The positive period effect for ADV was increased among individuals aged 25-44 years and reduced among men and the formerly married. The increase in overall drinking frequency was weaker among men and the never married and stronger among individuals with family incomes of $35,000–69,999. The positive period effect for ≥monthly HED was increased within all age groups 25 and older (especially 65 and older) and among Blacks but diminished among men and the formerly married.

4. DISCUSSION

By any metric, the period from 2001-2002 to 2012-2013 was a period of increasing alcohol consumption among U.S. adults. The prevalence of drinking increased, as did ADV, drinking frequency and prevalence of ≥monthly HED among drinkers. One of several striking findings was the disproportionate increase in most aspects of consumption among Blacks. Their unadjusted increases in drinking prevalence, ADV and ≥monthly HED were twice as great as those for Whites, and the latter two differentials remained significant after adjusting for sociodemographic differences. Because the proportion of former drinkers decreased among Blacks but not within other race-ethnic groups, the disproportionate increases in heavy drinking among Blacks may reflect less drinking cessation among heavier drinkers, possibly indicating disparities in treatment availability and/or treatment seeking. Increases over time in retail outlet density and targeted advertising also could have contributed to the greater increases in consumption among Blacks, as various studies have shown that Blacks are disproportionately affected by these factors (Alaniz, 1998; Kwate and Lee, 2007; McKee et al., 2011; Theall et al., 2011); Although the change in oversampling procedures that permitted two respondents in selected minority households in the NESARC-III could play a role, the small extent to which it may have resulted in a greater proportion of Black respondents in areas of high minority concentration would not likely inflate increases in consumption among Blacks. Rather, studies have shown that living in areas with high minority concentrations is associated with lower consumption among Blacks, possibly because it reduces drinking related to the stresses of acculturation and perceived discrimination (Bécares et al., 2011; Hurd et al., 2014; Monshouwer et al., 2007).

Another striking finding was the smaller increase in heavy drinking at younger ages. In absolute terms, neither ADV nor frequent HED changed significantly between 2001-2 and 2012-13 among 18-24 year olds. For ADV, the adjusted period effect was significantly greater for persons 25-44 than 18-24 years of age; for ≥monthly HED, it was greater for all older age groups. Given the economic downturn during the observation period for this study, larger period effects among older drinkers are consistent with recent evidence that economic stress was associated positively associated with HED among older but not the youngest drinkers (Mulia et al., 2014). However, we cannot eliminate the possibility that the smaller increase in consumption among 18-24 year olds was affected by having interviewed college students in their primary residence in 2012-13 versus on campus in 2001-2. Although every

effort was made to conduct interviews in privacy, it is possible that students under-reported consumption in proximity to their parents and/or over-reported it in proximity to their peers, thus downwardly biasing consumption changes between the two surveys for this age group.

Another noteworthy finding was the lower increase in alcohol consumption among men relative to women, paralleling other recent evidence of a closing gender gap in heavy drinking (see review in Keyes et al., 2011). Prior to adjustment for sociodemographic differences, increases in prevalence and overall drinking frequency were roughly twice as great for women as men; after adjustment, all consumption measures demonstrated significantly larger increases among women. For overall drinking frequency and prevalence of ≥monthly HED, the negative interactions between survey period and male sex completely negated the positive period effects among men.

Proportional increases in the four consumption measures examined in this study were all larger after adjustment for sociodemographic factors than when based on unadjusted ratios of the values for 2012-2013 and 2001-2002. This suggests that the population subgroups with the lowest baseline consumption levels, e.g., older adults, women and Asians/Pacific Islanders, may have grown disproportionately in size relative to the rest of the adult population between 2001-2002 and 2012-2013. Higher growth rates among groups with lower consumption levels would tend to spuriously deflate the increase in consumption that would be observed in a standardized population, signifying the importance of adjusting for changing sociodemographic composition – or acknowledging its contributory role – when examining changes over time.

The findings of this study were generally in line with previous studies of consumption trends during the same period. Like Kerr et al. (2014), we found increases in the prevalence and volume of drinking. Consistent with per capita consumption estimates based on sales data (La Vallee et al., 2014), we found that volume increases were limited to wine and liquor. With respect to ≥monthly HED among drinkers, we replicated increases reported by Keyes and Miech (2013) for the general population and Bray et al. (2013) for active duty military personnel. Like Keyes and Miech (2013), we found greater increases in ≥monthly HED among older drinkers. Whereas we did not replicate the significant decrease in ≥monthly HED among 18-24 year olds reported by Delnevo et al. (2008), our post-hoc finding of a significant increase in that age group that was limited to Blacks (data not shown) parallels their finding that the overall decrease among 18 to 24 year olds did not extend to Nonwhites.

With respect to ADV, our unadjusted increase of 20% was similar to the 26% increase reported by Kerr et al. (2014), but substantially greater than the 7% increase in sales-based average per capita consumption (La Vallee et al., 2014). However, alcohol sales exclude home manufacture of alcoholic beverages and alcohol purchased outside the U.S., whereas they include alcohol spilled, stored, taken abroad and consumed by groups (e.g., homeless and institutionalized individuals) that lie outside the target populations for household surveys. Thus, discrepancies relative to changes in alcohol sales should not be seen as invalidating the higher survey-based estimates of changes in ADV.

One of the primary limitations to the current study, its reliance on self-report, is minimized considerably by the fact that we examined changes over time in consumption rather than consumption *per se*. However, there remains the possibility that changes over time in the permissiveness of attitudes towards drinking and HED, i.e., a wetter drinking climate reflected in increasing alcohol sales, could have resulted in differential willingness to fully report alcohol intake, thus upwardly biasing estimates of change. Another possible limitation is the sparseness of our sociodemographic controls. We would argue, though, that many additional factors such as joblessness and drinking norms are intervening variables that contribute to legitimate period effects and should not be controlled. Also of concern is the drop in response rate, which may reflect increased distrust of the government, concerns based on recent commercial data breaches and the increase in gated communities. Previous studies have shown mixed results regarding associations of nonresponse with drinking prevalence, volume, and frequent HED (see review in Dawson et al. 2014). A study of nonresponse at the Wave 2 follow-up interview of Wave 1 NESARC respondents found that Wave 2 nonrespondents were slightly less likely at Wave 1 to be past-year drinkers but had somewhat higher volumes of intake and levels of ≥monthly HED among drinkers, with a minimal impact on overall consumption estimates (Dawson et al., 2014). On this basis, the decline in response rate between the Wave 1 NESARC and NESARC-III might mean that our estimated increase in drinking prevalence is somewhat conservative but the estimated increases in ADV and frequent HED are slightly overstated.

In summary, our findings suggest a wetter drinking climate in 2012-2013 than in 2001-2002, indicating the need for continued and expanded efforts to prevent chronic and episodic heavy drinking. The sharp increase in drinking prevalence among Blacks, coupled with their disproportionately large increase in frequent HED, highlights the need for culturally appropriate, targeted prevention and intervention efforts. Among other race-ethnic minorities, similar increases in drinking prevalence (but not HED) correspond to more individuals at risk of developing adverse drinking patterns and indicate that global efforts targeting all drinkers must be designed to reach an increasingly diverse population. Although the greater-than-average increases in consumption among older drinkers and women mean that these groups are increasingly at risk of alcohol-related harm and may warrant additional attention, they should not obscure the fact that young drinkers and men continue to have by far the higher volumes of consumption and rates of frequent HED and thus remain critical targets of prevention efforts. Given the across-the-board increases in alcohol consumption in recent years, policy efforts that address drinking at the population level are supported, even if specific drinking behaviors and subgroups of drinkers are additionally targeted for individualized approaches. Potential benefits of incorporating consideration of macro-level contextual factors such as significant economic downturns into prevention strategies, both at the population level and targeted to specific subgroups of drinkers and drinking behaviors, also warrant investigation.

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Highlights

- Changes in past-year alcohol consumption from 2001-2 to 2012-13 were examined in two large, nationally representative surveys of U.S. adults.
- Overall prevalence of drinking and consumption among drinkers increased significantly in all examined population subgroups, but the magnitudes of the increases varied.
- Continued and expanded efforts are needed to prevent chronic and episodic heavy drinking.

Table 1

Selected measures of past-year alcohol consumption among U.S. adults 18 years of age and older, by type of alcoholic beverage: 2001-2002 (Wave 1 NESARC) and 2012-2013 (NESARC-III)

	2001-2	2012-13	Change
Proportion of adults who consumed beverage in past year			
Any alcoholic beverage	65.4 (0.6)	72.7 (0.6)	7.3**
Coolers	19.4 (0.5)	18.1 (0.4)	−1.3*
Beer	45.9 (0.5)	49.7 (0.6)	3.8**
Wine	36.0 (0.7)	43.7 (0.8)	7.7**
Distilled spirits	33.4 (0.5)	44.9 (0.6)	11.5*
Average daily ethanol consumption from beverage, among all drinkers (oz.)[a]			
All alcoholic beverages	0.628 (.014)	0.751 (.016)	0.123**
Coolers	0.034 (.003)	0.027 (.002)	−0.008*
Beer	0.351 (.010)	0.325 (.009)	−0.025
Wine	0.083 (.003)	0.123 (.004)	0.040**
Distilled spirits	0.104 (.005)	0.159 (.006)	0.056**
Average daily ethanol consumption from beverage, among those who consumed beverage (oz.)[a]			
All alcoholic beverages	0.628 (.014)	0.751 (.016)	0.123**
Coolers	0.117 (.009)	0.107 (.008)	−0.010
Beer	0.502 (.014)	0.477 (.013)	−0.025
Wine	0.152 (.004)	0.205 (.005)	0.053**
Distilled spirits	0.205 (.009)	0.259 (.010)	0.054**
Overall frequency of drinking beverage, among those who consumed beverage			
All alcoholic beverages	83.5 (1.1)	87.9 (1.2)	4.4*
Coolers	19.8 (0.7)	17.4 (0.6)	−2.4*
Beer	70.2 (1.1)	66.3 (1.0)	−3.9*
Wine	44.0 (1.1)	48.8 (1.0)	4.8*
Distilled spirits	38.3 (0.8)	39.2 (0.9)	0.9
Prevalence of ≥monthly HED[a] among those who consumed beverage			
All alcoholic beverages	21.5 (0.4)	25.8 (0.5)	4.3**
Coolers	4.5 (0.3)	3.1 (0.3)	−1.5**
Beer	20.7 (0.5)	19.4 (0.5)	−1.3
Wine	1.7 (0.2)	2.6 (0.2)	0.8**

	2001-2	2012-13	Change
Distilled spirits	6.8 (0.3)	8.3 (0.3)	1.5**

Note: Figures in parentheses are standard errors of estimates. Standard errors of 0.0 represent values <0.05.

[b]For all alcoholic beverages, frequency of drinking 5+ drinks for men and 4+ drinks for women; for specific beverages, frequency of drinking 5+ drinks for men and women

[a]One U.S. fluid ounce is the equivalent of ≈23.32 grams of ethanol.

** P value for standard error of difference <.001

* P-value for standard error of difference .001<p<.05

Table 2

Selected measures of past-year alcohol consumption among U.S. adults 18 years of age and older, by sociodemographic characteristics: 2001-2002 (Wave 1 NESARC) and 2012-2013 (NESARC-III)

	Proportion of past-year drinkers			Average daily ethanol intake (oz.)[a]			Overall frequency of drinking[a]			Prevalence of ≥monthly HED[a]		
	2001-2	2012-13	Change	2001-2	2012-13	Change	2001-2	2012-13	Change	2001-2	2012-13	Change
Total	65.4 (0.6)	72.7 (0.6)	7.3**	0.628 (.014)	0.751 (.016)	0.123**	83.5 (1.1)	87.9 (1.2)	4.4*	21.5 (0.4)	25.8 (0.5)	4.3**
Ages 18-24	70.8 (1.0)	78.0 (0.8)	7.2**	0.963 (.045)	0.856 (.039)	−0.107	66.5 (1.7)	65.2 (1.9)	−1.3	39.9 (1.1)	40.4 (1.2)	0.5
Ages 25-44	72.9 (0.7)	80.4 (0.6)	7.5**	0.601 (.019)	0.823 (.025)	0.222**	73.5 (1.2)	79.8 (1.6)	6.4*	23.7 (0.6)	30.2 (0.6)	6.3**
Ages 45-64	64.3 (0.7)	71.9 (0.8)	7.7**	0.582 (.018)	0.738 (.022)	0.157**	94.1 (1.8)	95.8 (1.5)	1.7	15.5 (0.6)	20.4 (0.6)	4.9**
Ages 65+	45.1 (0.9)	55.2 (1.2)	10.1**	0.441 (.017)	0.467 (.019)	0.026	115.8 (3.1)	114.4 (3.1)	−1.5	6.1 (0.5)	11.8 (0.7)	5.7**
Male	71.8 (0.6)	76.7 (0.6)	4.9**	0.885 (.023)	1.015 (.025)	0.129**	102.1 (1.6)	105.4 (1.5)	3.3	27.8 (0.6)	31.8 (0.6)	4.0**
Female	59.6 (0.8)	69.0 (0.8)	9.5**	0.344 (.011)	0.479 (.014)	0.136**	62.9 (1.2)	69.9 (1.3)	7.0**	14.6 (0.5)	19.6 (0.5)	4.9**
White	69.5 (0.7)	75.3 (0.8)	5.8**	0.619 (.015)	0.731 (.017)	0.112**	87.5 (1.4)	94.3 (1.5)	6.9*	21.3 (0.4)	24.8 (0.6)	3.5**
Black	53.2 (0.8)	66.1 (1.1)	12.9**	0.751 (.048)	1.033 (.052)	0.282**	81.5 (1.9)	89.4 (2.3)	7.9*	19.0 (0.9)	27.7 (0.8)	8.8**
Native American	58.2 (2.6)	73.9 (2.3)	15.6**	0.948 (.133)	1.090 (.125)	0.142	86.9 (7.0)	85.2 (5.7)	−1.7	28.1 (2.7)	30.4 (3.3)	2.2
Asian/Pacif. Islander	48.4 (2.1)	62.5 (1.6)	14.1**	0.435 (.056)	0.493 (.043)	0.058	63.2 (5.0)	61.8 (3.4)	−1.4	15.3 (1.7)	17.2 (1.6)	1.9
Hispanic	59.9 (0.9)	70.2 (0.7)	10.3**	0.591 (.035)	0.685 (.031)	0.094*	62.6 (1.9)	65.4 (1.8)	2.8	25.9 (1.2)	31.6 (0.8)	5.7**
Married, cohabiting	66.3 (0.7)	73.1 (0.7)	6.8**	0.503 (.013)	0.607 (.016)	0.104**	83.1 (1.3)	88.4 (1.6)	5.3*	16.6 (0.4)	21.0 (0.5)	4.4**
Formerly married	56.8 (0.7)	67.2 (0.9)	10.4**	0.738 (.037)	0.815 (.030)	0.077	95.6 (2.0)	94.1 (1.8)	−1.6	21.4 (0.8)	23.4 (0.8)	2.0
Never married	70.1 (0.8)	76.6 (0.7)	6.4**	0.904 (.035)	1.054 (.036)	0.150*	76.4 (1.5)	82.1 (1.6)	5.7*	35.4 (1.0)	39.4 (0.8)	3.9*
< HS graduate	46.4 (0.8)	55.8 (1.2)	9.4**	0.902 (.058)	0.992 (.057)	0.090	79.1 (3.0)	79.3 (2.5)	0.2	28.1 (1.3)	33.1 (1.2)	5.0*
HS graduate, GED	60.9 (0.7)	68.0 (0.8)	7.1**	0.678 (.025)	0.917 (.039)	0.238**	81.1 (1.7)	85.8 (1.9)	4.7	24.5 (0.8)	31.3 (0.7)	6.8**
Some college	70.9 (0.7)	75.9 (0.6)	5.0**	0.601 (.019)	0.722 (.023)	0.122**	79.2 (1.7)	80.8 (1.4)	1.5	23.1 (0.7)	26.9 (0.7)	3.8**
BA or higher	76.2 (0.7)	81.1 (0.7)	4.9**	0.507 (.014)	0.579 (.016)	0.071*	92.3 (1.7)	100.2 (1.8)	7.9*	14.4 (0.5)	18.0 (0.7)	3.6**

	Proportion of past-year drinkers			Average daily ethanol intake (oz.)[a]			Overall frequency of drinking[a]			Prevalence of ≥monthly HED[a]		
	2001-2	2012-13	Change	2001-2	2012-13	Change	2001-2	2012-13	Change	2001-2	2012-13	Change
Less than $20,000	52.4 (0.6)	64.1 (0.9)	11.7**	0.849 (.036)	1.037 (.039)	0.187*	83.5 (2.1)	82.8 (1.9)	−0.6	28.3 (1.0)	33.6 (0.9)	5.3**
$20,000 - 34,999	61.0 (0.7)	68.5 (0.8)	7.6**	0.672 (.026)	0.754 (.029)	0.082*	81.8 (1.8)	81.2 (2.1)	−0.6	24.1 (0.7)	26.8 (0.9)	2.7*
$35,000 - 69,999	68.1 (0.7)	73.4 (0.8)	5.2**	0.569 (.021)	0.741 (.023)	0.172**	79.7 (1.5)	88.3 (1.7)	8.5**	20.7 (0.6)	25.9 (0.6)	5.2**
$70,000 or more	78.4 (0.8)	81.0 (0.7)	2.6*	0.524 (.017)	0.592 (.016)	0.068*	89.0 (1.9)	94.1 (1.8)	5.1*	16.5 (0.6)	20.7 (0.7)	4.2**

Note: Figures in parentheses are standard errors of estimates. Standard errors of 0.0 represent values <0.05.

** P value for standard error of difference <.001

* P-value for standard error of difference .001<p<.05

[a] Among past-year drinkers; one U.S. fluid ounce is the equivalent of ≈23.3 grams of ethanol.

Table 3

Adjusted associations of survey period[a] in predicting selected measures of past-year alcohol consumption among U.S. adults 18 years of age and older

	Proportion of past-year drinkers		Average daily ethanol intake (oz.)[b]		Overall frequency of drinking[b]		Prevalence of ≥monthly HED[b]	
	Beta (SE)	p	Beta (SE)	p	Beta (SE)	p	Beta (SE)	p
Main effects models:								
Survey period 2012-13[c]	0.366 (.040)	.000	0.289 (.033)	.000	0.123 (.026)	.000	0.330 (.036)	.000
Models including interactions with survey period								
Survey period 2012-13[c]	0.346 (.058)	.000	0.238 (.084)	.005	0.134 (.056)	.017	0.169 (.103)	.103
Interaction of survey period w.:								
Ages 25-44[d]	----	----	0.263 (.077)	.001	----	----	0.306 (.086)	.001
Ages 45-64[d]	----	----	0.153 (.085)	.075	----	----	0.352 (.099)	.000
Ages 65+[d]	----	----	0.054 (.105)	.607	----	----	0.883 (.136)	.000
Male[e]	−0.158 (.046)	.001	−0.192 (.046)	.000	−0.140 (.035)	.000	−0.206 (.059)	.001
Black[f]	0.301 (.074)	.000	----	----	----	----	0.330 (.083)	.000
Native American	0.393 (.168)	.002	----	----	----	----	−0.107 (.204)	.599
Asian/Pacific Islander[f]	0.329 (.113)	.004	----	----	----	----	−0.001 (.181)	.995
Hispanic[f]	0.169 (.069)	.015	----	----	----	----	0.144 (.079)	.070
Formerly married[g]	----	----	−0.183 (.058)	.002	−0.135 (.047)	.005	−0.274 (.071)	.000
Never married[g]	----	----	0.068 (.058)	.241	0.034 (.042)	.418	−0.034 (.071)	.636
Family income $20,000-34,999[h]	----	----	----	----	0.032 (.051)	.534	----	----
Family income $35,000-69,999[h]	----	----	----	----	0.145 (.050)	.004	----	----
Family income $70,000+[h]	----	----	----	----	0.080 (.055)	.147	----	----

Referents

[a] Controlling for age group, sex, race-ethnic group, marital status, education and family income.

[b] Among past-year drinkers

[c] 2001-2002

[d] Ages 18-24

[e] Female

[f] White

[g] Married/cohabiting

[h] Family income < $20,000