Ten-Year Trend in Women's Reasons for Abstaining or Limiting Drinking: The 2000 and 2010 United States National Alcohol Surveys

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Abstract

Background: Data on individual and cultural factors contributing to drinking can inform screening and brief intervention in clinical practice. Our aims were to examine 10-year trends in women's reasons for abstaining/limiting drinking and to document changes in associations with drinking status for population subgroups defined by race/ethnicity and age.

Materials and Methods: Using repeated cross-sectional data from White, Black and Hispanic women in the 2000 and 2010 United States National Alcohol Surveys (combined $N=5501$), population-weighted multiple linear and multinomial logistic regression models assessed changes in three reasons for abstaining or limiting drinking (health concerns, religious prohibition, and upsetting family or friends) and drinking status (past-year abstainer, low-risk drinker, or at-risk drinker), and their associations over time.

Results: Adjusting for key demographics, reasons for limiting alcohol consumption declined in importance over time, with reductions in both health concerns and religious prohibition particularly noteworthy for older women of all three racial/ethnic backgrounds. Despite these reductions in importance, both health concerns and religious prohibition were most consistently associated with increased abstinence relative to low-risk drinking; these reasons were not strongly associated with at-risk drinking, however.

Conclusions: It is essential for healthcare providers and others to disseminate accurate information about the risks of drinking to counter cultural shifts that suggest greater acceptance of moderate-to-heavy drinking by women aged 40 and older.

Keywords: alcohol consumption, culture, race/ethnicity, age

Introduction

IN THE UNITED STATES (U.S.), recent health reforms mandated coverage for screening and brief intervention (SBI) for alcohol problems by all private and public insurance plans. As healthcare practitioners increase implementation of SBI, it is essential to monitor cultural factors that contribute to abstinence and different levels of drinking. Such data can highlight population subgroups for targeted SBI, and they also may serve to reduce biases about groups traditionally assumed to be low risk, who consequently may be less likely to be screened for alcohol problems.

In the U.S., many racial/ethnic minority groups have higher abstention rates than Caucasians/Whites (hereafter,

Whites); this is particularly true among women. It remains to be seen whether high abstention rates and strong cultural prohibition of drinking will continue to be protective for these groups, as has previously been the case.¹⁻³ Abstinence has been on the decline in the U.S., with significant reductions beginning in 1984.^{4,5} More recent U.S. national survey data reveal ongoing changes in drinking since 2001, including further decreases in past-year abstinence⁶ as well as increases in volume,⁷ frequency,⁶ heavy drinking,⁶ and alcohol problems among drinkers.⁸ These recent trends generally appear more marked for women than men.^{6,8} When examined by racial/ethnic group, there is evidence of greater declines in abstinence for racial/ethnic minorities relative to Whites, as well as more pronounced increases in regular heavy drinking

for African American/Black (hereafter, Black) drinkers relative to White drinkers,⁶ although trends in alcohol problems appear more robust for Whites than for either Blacks or Hispanics/Latinos (hereafter, Hispanics).⁸ With the exception of frequent heavy drinking (measured as 5+ drinks for men and 4+ drinks for women on a single occasion at least monthly), overall changes have been fairly consistent across different age groups.⁶ Despite a focus on racial/ethnic or sex differences, most of these recent trend studies have not looked in detail at key demographic subgroups, nor have they assessed cultural characteristics that may impact drinking. Thus, in this article, we extend prior research to examine changes in correlates of drinking status for subgroups of women defined by race/ethnicity and age.

In addition to formal, research-based definitions of at-risk drinking proposed and publicized by public health and medical organizations,^{9,10} heavy drinking also is subjectively defined based on culturally determined social group norms. Drinking norms have been getting more permissive in the U.S. since 2000.⁸ In these analyses, we examine how women's reasons for abstaining or limiting drinking have changed from 2000 to 2010, and we assess relationships of these cultural indicators with drinking status (past-year abstainer, low-risk drinker, or at-risk drinker) over time. We focus on two primary types of reasons to abstain: health concerns and social control of drinking. Prior unpublished work using data from four U.S. National Alcohol Surveys (NAS) conducted between 1984 and 1995 suggested that health concerns were the most important reason for abstaining or limiting drinking.¹¹ Social control of drinking is indicated by both religious prohibition, a powerful marker delineating abstainers from drinkers,^{11–13} as well as more personal social control of drinking by family or friends who may get upset if someone were to drink at all or if they were to drink heavily.¹⁴ In light of current debates about possible health benefits of light alcohol consumption^{15,16} as well as increasing secularism among young people in the U.S.,¹⁷ examination of trends in these correlates of drinking is warranted.

We focus here on White, Black, and Hispanic women because these are the three largest racial/ethnic groups in the U.S., and the NAS were designed to include substantial oversamples of both Black and Hispanic Americans starting in 2000. There also are important cultural differences between these groups. For many decades, religious prohibition on drinking has been a strong protective factor for U.S. Blacks.^{1–3,13} Black Americans are more likely to report affiliation with religious denominations that prohibit alcohol consumption than either Whites or Hispanics, and this manifests in particularly high abstinence rates among Blacks,^{13,18} as well as strong disapproval of heavy drinking and drunkenness.¹⁹ These social controls have resulted in alcohol being much less integrated into daily rituals and habits for Blacks than for Whites.^{2,20}

Both social control indicators—religion and upsetting family and friends—also should be very salient for U.S. Hispanics, who often are motivated by principles such as *personalismo* (valuing interpersonal relationships based on trust), *familismo* (value of family), and *respeto* (respect for authority figures and elders)²¹; these values may result in very high rates of abstinence from alcohol in response to social controls. Interestingly, despite relatively high levels of

religiosity, when they do drink, Hispanics are more likely than other groups to do so heavily,¹³ suggesting there may be settings where heavy drinking and drunkenness are culturally acceptable for some individuals.²² This may be less common among Hispanic women than men due to other feminine cultural values such as *marianismo* (which may include traditional female gender roles such as being spiritual pillar of the family).²³

In addition to these cultural distinctions between these major racial/ethnic groups, there may be individual differences by age in protective effects of both health concerns and social control of drinking. Older adults may be more aware of possible negative health effects of drinking than younger adults, as health concerns are commonly cited as reasons for reducing alcohol consumption by older adults,²⁴ and older adults are more likely to be taking medications that can negatively interact with alcohol.²⁵

Social controls and cultural taboos are particularly salient for women,^{3,26} and social control of drinking may be even more pronounced for women of childbearing age. However, in addition to being less religious than their older counterparts,¹³ younger women are likely to have peer groups that engage in heavy drinking, and this may reduce the impact of personal social control of heavy drinking for younger women.²⁷ Furthermore, the U.S. and other countries show a narrowing of sex differences in heavy drinking and alcohol problems,²⁸ as well as marked cultural shifts toward both secularism and later childbearing,²⁹ suggesting that social control of at-risk drinking may be less strict for younger women than for their older counterparts.

In this study, we examine trends in and interrelationships of drinking status and women's reasons for abstaining by race/ethnicity and age (younger than 40 vs. 40 or older, which is an age at which many preventive health screenings become recommended in primary care). Based on the extant literature, we expected health concerns to be associated with reduced at-risk drinking (and perhaps more abstinence) for all racial/ethnic groups, and particularly for older women. We also expected social control to be associated with more abstinence (particularly for racial/ethnic minorities), with Black women also expected to evidence reduced at-risk drinking in response to social control.

Materials and Methods

Data

Data came from the 2000 and 2010 U.S. NAS, which provide comprehensive data on alcohol consumption (and correlates thereof) for residents of all 50 U.S. states and the District of Columbia. Data were collected using random digit dialing strategies to sample from the noninstitutionalized population aged 18 and older. Computer-assisted telephone interviews were conducted using landline telephones in 2000 and both landline and cellular telephones in 2010, given the rapid rise of exclusive cell phone use in the U.S.³⁰ Both surveys included targeted oversamples of Blacks and Hispanics, and interviews were conducted in either English or Spanish. A detailed introductory consent script was used, with the requirement for written proof of consent to participate waived by the Institutional Review Boards of the Public Health Institute, Oakland, CA, and fieldwork agencies (Datastat, Ann Arbor, MI, and ICF Macro, Burlington, VT).

The 2000 NAS included 7612 respondents, with a cooperation rate of 58% (completion rate among those determined to be eligible). The 2010 NAS included 7969 respondents, with a cooperation rate of 52%. In this study, we use data from the 2010 landline sample only, because items on reasons for abstaining were not included in the cell phone interview protocol due to time limitations. The combined analytic sample included 6285 women (weighted $N=5501$) who reported their race/ethnicity as White, Black, or Hispanic. The other racial/ethnic groups (Asians/Pacific Islanders, American Indians/Alaska Natives, and others) were too small for subanalysis and too heterogeneous for combined analysis, so they were not included. Data were weighted to account for household selection and nonresponse, based on characteristics of the U.S. population at the time of data collection.

Measures

Past-year drinking status. Drinking status in the past year was coded as a three-category variable, contrasting low-risk drinking with abstinence and drinking at levels exceeding recommended guidelines. Respondents who did not consume at least one full drink of alcohol in the past 12 months were coded as abstainers. The two drinking levels were defined based on the U.S. National Institute on Alcohol Abuse and Alcoholism's weekly and daily drinking guidelines. These guidelines recommend no more than three drinks in a day and no more than seven drinks per week on average for women.^{9,10} Drinkers who exceeded the daily and/or weekly guidelines were classified as at-risk drinkers; other drinkers were classified as low-risk drinkers.

Reasons for abstaining or limiting drinking. Three items assessed the importance of "reasons for abstaining from alcoholic beverages or being careful about how much you drink." Items were "drinking is bad for your health," "it goes against your religion," and "family or friends get upset when you drink." Responses were "not a reason at all" (0), "not an important reason" (1), "somewhat important reason" (2), and "very important reason" (3) for abstaining from alcoholic beverages or limiting drinking.

Demographic correlates. All models were adjusted for key demographic correlates expected to be associated with both drinking status and reasons for abstaining. Age was divided by 10; coefficients represent the associated change in drinking status for a 10-year change in age. Marital status was coded using two indicators for (a) separated/divorced/widowed and (b) never married, with currently married/living with a partner as referent. An indicator variable was used for the presence of minor children (younger than 18) in the home. Educational attainment was coded using three indicators for (a) less than high school, (b) high school diploma/equivalent (typically 12 years formal schooling), and (c) some college, with a 4-year college/university degree as referent. Income was coded as below (vs. above) the median income (in 2005 USD\$), with an extra indicator for missing income (~13% did not report their income). Employment was coded with two indicators for (a) unemployment and (b) being out of the workforce (such as retired or homemaker), with full- or part-time employment as referent. A final variable was based on the state of residence to indicate living in a relatively "dry"

drinking region (primarily in the Deep South, plus Utah) compared to more moderate or "wetter" drinking cultures (states classified as "wet" were primarily in the North Central and New England regions); classifications were based on state-level prevalence of abstinence and heavy (5+) drinking in the past month, as well as apparent per capita ethanol consumption (based on alcohol sales and tax data).³¹

Analysis strategy

Trends in reasons for abstaining were assessed using multiple linear regression. Associations between reasons for abstaining with drinking status were assessed using multinomial logistic regression, using interaction terms to evaluate significant changes in associations between reasons for abstaining with drinking status over time. A significant interaction term (such as Health $\times$ 2010 NAS) indicates the association of that reason for abstaining/limiting drinking with drinking status changed between 2000 and 2010. In models with significant interactions, relative risk ratios (RRRs) for 2000 and 2010 were calculated using linear combinations to enable comparison of the associations with drinking status over time, and adjusted predicted probabilities for each survey year were calculated using the margins command.³² We used data stratified by race/ethnicity (non-Hispanic White; non-Hispanic Black; Hispanic) and age (younger=under age 40; older=aged 40 and older). Analyses were conducted using Stata to accommodate data weights and survey design effects.³³

TABLE 1. SAMPLE CHARACTERISTICS, WOMEN IN THE 2000 AND 2010 UNITED STATES NATIONAL ALCOHOL SURVEYS

	2000 NAS	2010 NAS
Age, mean (SD)	45.6 (17.5)	47.6 (20.3)
Race/ethnicity, %		
White/Caucasian	76.1	74.3
Black/African American	13.0	12.7
Hispanic/Latina	10.9	13.0
Marital status, %		
Married/living with a partner	59.9	63.9
Separated/divorced/widowed	23.7	19.4
Never married	16.5	16.7
Minor child in home, %	40.2	42.1
Education, %		
Less than high school	14.2	13.4
High school graduate	33.9	30.7
Some college	27.3	29.0
Four-year college degree	24.6	26.9
Low income, %	55.0	42.6
Employment status, %		
Employed full- or part-time	47.0	48.0
Unemployed	3.3	8.8
Not in workforce	39.7	43.2
Live in "dry" region of the country, %	22.7	20.5
Drinker status, %		
Past-year abstainer	50.8	41.9
Low-risk drinker	30.8	30.4
At-risk drinker	18.4	27.6

SD, standard deviation; NAS, National Alcohol Surveys.

Results

Descriptive statistics

The samples are described in Table 1. In 2000, 50.8% of the women were past-year abstainers, 30.8% were low-risk drinkers, and 18.4% were at-risk drinkers. In 2010, 41.9% of the women were past-year abstainers, 30.4% were low-risk drinkers, and 27.6% were at-risk drinkers. Changes in drinking status between 2000 and 2010 are depicted in Figure 1. Older (ages 40+) White women showed significant declines in abstinence and significant increases in at-risk drinking. Older Black women also showed significant declines in abstinence (full models are presented in Supplementary Tables S1–S3; Supplementary Data are available online at www.liebertpub.com/jwh).

In 2000, 69.8% of women reported health as a very important reason, 46.6% reported religion as a very important reason, and 46.6% reported upsetting family/friends as a very important reason for abstaining or being careful about how much you drink. In 2010, 63.6% of women reported health as a very important reason, 31.6% reported religion as a very important reason, and 38.4% reported upsetting family/friends as a very important reason for abstaining or being careful about how much you drink. Changes in reasons for abstaining between 2000 and 2010 are depicted in Figure 2

(full models available upon request). Younger (younger than 40) White women showed a significant reduction in health concerns, and older White women showed significant reductions in all three reasons to abstain. Younger Black women showed significant reductions in health concerns and upsetting family/friends, while older Black women showed significant reductions in health and religion as reasons to abstain. For older Hispanic women, there also were significant reductions in both health and religion as reasons to abstain.

Associations of reasons for abstaining with drinking status

In the multinomial logistic regression models, results suggesting protective effects are those that indicate significant associations of a reason for abstaining with either increased abstinence or decreased at-risk drinking (each relative to low-risk drinking). We also examined temporal changes in the associations of each reason for abstaining with drinking status using interactions with survey year. In models evidencing significant temporal shifts, we report the RRRs and predicted probabilities for the reason for abstaining separately for 2000 and 2010. RRRs from adjusted multinomial logistic regression models are presented in Tables 2

FIG. 1. Changes in women's drinking status between 2000 and 2010. Significance levels are from stratified multinomial logistic regression models assessing changes over time within subgroups, adjusting for demographics (age, marital status, children in the home, education, income, employment, and regional wetness). + $p < 0.10$; * $p < 0.05$; *** $p < 0.001$.

FIG. 2. Changes in women's reasons for abstaining or limiting drinking between 2000 and 2010. Significance levels are from stratified linear regression models assessing changes over time within subgroups, adjusting for demographics (age, marital status, children in the home, education, income, employment, and regional wetness). + $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

TABLE 2. ASSOCIATIONS BETWEEN YOUNGER WOMEN'S REASONS FOR ABSTAINING/LIMITING DRINKING WITH DRINKING STATUS, 2000 AND 2010 UNITED STATES NATIONAL ALCOHOL SURVEYS

	<i>Abstainer^a</i>		<i>At-risk drinker^a</i>	
	<i>RRR (95% CI)</i>	<i>p</i>	<i>RRR (95% CI)</i>	<i>p</i>
<i>White women younger than 40 (Wtd n=1427)</i>				
Bad for health	1.54 (1.08–2.20)	0.02	0.85 (0.66–1.11)	0.24
Against religion	1.68 (1.37–2.07)	<0.01	0.94 (0.78–1.14)	0.53
Friends and family upset	0.87 (0.71–1.05)	0.14	1.08 (0.89–1.30)	0.45
<i>Black women younger than 40 (Wtd n=326)</i>				
Bad for health	1.51 (0.96–2.37)	0.07	1.20 (0.71–2.05)	0.50
Against religion	1.40 (1.07–1.85)	0.02	0.77 (0.58–1.03)	0.08
Friends and family upset				
Association in 2000	0.80 (0.62–1.03)	0.08	1.22 (0.89–1.69)	0.22
Association in 2010	1.25 (0.80–1.94)	0.32	2.07 (1.31–3.26)	<0.01
<i>Hispanic women younger than 40 (Wtd n=373)</i>				
Bad for health	1.21 (0.81–1.80)	0.36	0.64 (0.42–0.97)	0.04
Against religion	1.33 (1.04–1.70)	0.02	0.89 (0.67–1.19)	0.43
Friends and family upset				
Association in 2000	1.35 (1.03–1.78)	0.03	1.63 (1.15–2.31)	0.01
Association in 2010	0.87 (0.61–1.23)	0.43	0.77 (0.52–1.13)	0.18

^aMultinomial logistic regression models compared both abstainers and at-risk drinkers to low-risk drinkers who did not exceed NIAAA recommended daily or weekly limits in the prior year. In the case of a significant interaction term of a reason with survey year (p -values for the interactions are reported in the text), which indicates the association with drinking status changed between 2000 and 2010, RRRs for each year were calculated using linear combinations to enable comparisons of the associations with drinking status for 2000 and 2010. All models were adjusted for survey year, age, marital status, children in the home, education, income, employment, and regional wetness.

Wtd n , weighted sample size; RRR, relative risk ratio; CI, 95% confidence interval.

TABLE 3. ASSOCIATIONS BETWEEN OLDER WOMEN'S REASONS FOR ABSTAINING/LIMITING DRINKING WITH DRINKING STATUS, 2000 AND 2010 UNITED STATES NATIONAL ALCOHOL SURVEYS

	<i>Abstainer^a</i>		<i>At-risk drinker^a</i>	
	<i>RRR (95% CI)</i>	<i>p</i>	<i>RRR (95% CI)</i>	<i>p</i>
<i>White women older than 40 (Wtd n=2716)</i>				
Bad for health				
Association in 2000	1.09 (0.92–1.29)	0.34	0.71 (0.57–0.89)	<0.01
Association in 2010	1.25 (1.04–1.50)	0.02	1.08 (0.91–1.27)	0.38
Against religion	1.42 (1.29–1.56)	<0.01	0.72 (0.63–0.83)	<0.01
Friends and family upset	0.99 (0.90–1.09)	0.87	1.28 (1.14–1.44)	<0.01
<i>Black women older than 40 (Wtd n=383)</i>				
Bad for health	0.76 (0.57–1)	0.05	0.95 (0.67–1.34)	0.76
Against religion				
Association in 2000	1.44 (1.09–1.90)	0.01	1.50 (0.96–2.33)	0.07
Association in 2010	1.67 (1.21–2.29)	<0.01	0.77 (0.53–1.13)	0.18
Friends and family upset	0.96 (0.79–1.16)	0.66	0.95 (0.73–1.23)	0.69
<i>Hispanic women older than 40 (Wtd n=276)</i>				
Bad for health	1.20 (0.81–1.77)	0.36	0.86 (0.54–1.38)	0.54
Against religion	1.03 (0.80–1.34)	0.80	0.71 (0.50–1)	0.05
Friends and family upset	1.09 (0.85–1.39)	0.50	0.93 (0.63–1.40)	0.74

^aMultinomial logistic regression models compared both abstainers and at-risk drinkers to low-risk drinkers who did not exceed NIAAA recommended daily or weekly limits in the prior year. In the case of a significant interaction term of a reason with survey year (*p*-values for the interactions are reported in the text), which indicates the association with drinking status changed between 2000 and 2010, RRRs for each year were calculated using linear combinations to enable comparisons of the associations with drinking status for 2000 and 2010. All models were adjusted for survey year, age, marital status, children in the home, education, income, employment, and regional wetness.

and 3 for younger and older women, respectively; coefficients for the control variables were similar to those presented in Supplementary Tables S1–S3 (full models available upon request).

Health concerns and drinking status. We expected health concerns to be associated with reduced at-risk drinking (and perhaps more abstinence) for all racial/ethnic groups, particularly among older women. As shown in Table 2, for younger White women and younger Black women, data suggested protective effects of health concerns on drinking status, as higher scores were associated with increased abstinence relative to low-risk drinking (RRR = 1.54 for younger White women; RRR = 1.51 for younger Black women). Health concerns were not associated with at-risk drinking, and there were no changes in these associations between 2000 and 2010 for younger White or Black women (all interactions with *p* > 0.10). For younger Hispanic women, however, data suggested protective effects of health concerns on reduced at-risk drinking relative to low-risk drinking (RRR = 0.64), with no associations of health concerns and abstinence.

As shown in Table 3, for older White women, the association of health concerns with drinking status changed between 2000 and 2010, with a significant interaction term for at-risk drinking (relative to low-risk drinking; *p* < 0.01). In 2000, there was a positive, but nonsignificant association of health with abstinence (RRR = 1.09), and this was strengthened and significant in 2010 (RRR = 1.25). In 2000, the data suggested a protective effect of health on reduced at-risk drinking (RRR = 0.71), but in 2010, the relationship had reversed and was no longer significant (RRR = 1.08). As shown

in Figure 3, compared to 2000, in 2010, the average older White woman who reported health as a very important reason for abstaining/limiting drinking was less likely to be an abstainer (predicted 47.0% chance in 2000 and 37.3% in 2010) or a low-risk drinker (41.3% chance in 2000 and 35.8% in 2010), and more likely to be an at-risk drinker (11.7% chance in 2000 and 26.8% in 2010).

For older Black women, higher scores on health as a reason to abstain were associated with *reduced* abstinence (RRR = 0.76), and they were not associated with at-risk drinking. For older Hispanic women, health concerns were not associated with drinking status at all, and there were no changes in these associations between 2000 and 2010.

Social control and drinking status. We expected social control to be associated with more abstinence (particularly for Black and Hispanic women) and with reduced at-risk drinking by Black women. As shown in Table 2, for younger women, data suggested protective effects of religion for all three racial/ethnic groups, as higher scores were associated with increased abstinence relative to low-risk drinking for younger White (RRR = 1.68), Black (RRR = 1.40), and Hispanic (RRR = 1.33) women. Religion was not associated with at-risk drinking by younger women, and there were no changes in these associations between 2000 and 2010 (all interactions with *p* > 0.10).

Concerns about upset family/friends were not associated with the drinking status of younger White women. For younger Black and Hispanic women, the associations of drinking status with upset family/friends changed between 2000 and 2010. For younger Black women, there was a marginally significant

FIG. 3. Adjusted predicted probabilities for each drinking status of older White women in 2000 and 2010. Probabilities calculated for women reporting health is a “very important reason for abstaining/limiting drinking.”

interaction term for abstinence ($p=0.06$) and a significant interaction term for at-risk drinking ($p=0.05$). In 2000, there was a marginal negative association of upset family/friends with abstinence ($RRR=0.80$), and this was reversed, but not significant, in 2010 ($RRR=1.25$). In 2000, there was a non-

significant association of upset family/friends with *increased* at-risk drinking ($RRR=1.20$), and in 2010, the relationship had strengthened and was statistically significant ($RRR=2.07$). As shown in the top panel of Figure 4, compared to 2000, in 2010, the average younger Black woman who

FIG. 4. Adjusted predicted probabilities for each drinking status of young Black and Hispanic women in 2000 and 2010. Probabilities calculated for women reporting family/friends “very important reason for abstaining/limiting drinking.”

FIG. 5. Adjusted predicted probabilities for each drinking status of older Black women in 2000 and 2010. Probabilities calculated for women reporting religion is a “very important reason for abstaining/limiting drinking.”

reported family/friends getting upset as a very important reason for abstaining/limiting drinking was less likely to be a low-risk drinker (predicted 61.0% chance in 2000 and 41.3% in 2010) and more likely to be an at-risk drinker (8.6% chance in 2000 and 24.0% in 2010).

For younger Hispanic women, the association between drinking status and upset family/friends also changed significantly between 2000 and 2010, with significant interaction terms for both abstinence ($p=0.04$) and at-risk drinking ($p<0.01$), each relative to low-risk drinking. In 2000, there was a significant positive association of upset family/friends with abstinence ($RRR=1.35$), but this was reversed and no longer significant in 2010 ($RRR=0.87$). In 2000, upset family/friends was associated with significantly *increased* at-risk drinking ($RRR=1.63$), but in 2010, the relationship had reversed and was no longer significant ($RRR=0.77$). As shown in the lower panel of Figure 4, compared to 2000, in 2010, the average younger Hispanic woman who reported family/friends getting upset as a very important reason for abstaining/limiting drinking was more likely to be a low-risk drinker (predicted 13.9% chance in 2000 and 19.4% in 2010) and less likely to be an at-risk drinker (25.4% chance in 2000 and 18.0% in 2010).

As shown in Table 3, for older White women, results suggested a protective effect of religion, with higher scores on religion associated with both increased abstinence ($RRR=1.42$) and less at-risk drinking ($RRR=0.72$), each relative to low-risk drinking. For older Black women, results also suggested a protective effect of religion, but the association between at-risk drinking and religion changed between 2000 and 2010 ($p=0.02$ for the interaction). Religion was associated with increased abstinence in both 2000 ($RRR=1.44$) and 2010 ($RRR=1.67$). In 2000, there was a marginally significant association of religion with *increased* at-risk drinking ($RRR=1.50$), and in 2010, the relationship had reversed, but was not statistically significant ($RRR=0.77$). As shown in Figure 5, compared to 2000, in 2010, the average older Black woman who reported religion as a very important reason for abstaining/limiting drinking was less likely to be an abstainer (predicted 73.8% chance in 2000 and 66.9% in 2010)

and more likely to be a low-risk drinker (18.5% chance in 2000 and 25.4% in 2010). For older Hispanic women, results suggested a protective effect of religion on reduced at-risk drinking ($RRR=0.71$) relative to low-risk drinking.

Contrary to expectations, higher scores on upset family/friends were associated with *more* at-risk drinking ($RRR=1.28$) for older White women. Concerns about family/friends were not associated with drinking status of older Black or Hispanic women.

Discussion

In this study, we examined trends in and interrelationships of drinking status and women's reasons for abstaining by race/ethnicity and age. Based on the prevailing literature, we expected health concerns to be associated with both increased abstinence and reduced at-risk drinking among women who do drink for all racial/ethnic groups, and particularly for older women. In our data, we found only partial support for these hypotheses. Health concerns were significantly related to increased abstinence for both younger and older White women, with marginally significant associations for younger Black women. Health concerns were significantly related to reduced at-risk drinking for younger Hispanic women, as well as for older White women in 2000 (but not in 2010).

We also hypothesized that social control would be associated with more abstinence (particularly for racial/ethnic minorities) and with reduced at-risk drinking, particularly for Black women. We found stronger support for these hypotheses in relation to religious prohibition than social control of drinking by friends and family (discussed in more detail below). Religion was associated with more abstinence for all women except older Hispanics. Religion also was associated with reduced at-risk drinking for older White and Hispanic women.

Our data showed a significant decline in past-year abstinence between 2000 and 2010 for older White women and older Black women. These declines in abstinence were accompanied by increases in at-risk drinking for older White

women as well, which is similar to the marked increases in frequent heavy drinking by adults older than 45 seen between 2001 and 2012 in the National Epidemiologic Surveys of Alcohol and Related Conditions.⁶ There also were trends suggesting that key reasons for limiting alcohol consumption simultaneously declined for these three groups of older women, with noteworthy reductions over the decade of health and religion as reasons to abstain or limit drinking. However, it is interesting that concern about possible health problems resulting from drinking was given as a reason for abstaining by ~60% of the U.S. population of abstainers in 1979,³⁴ which was around the period of greatest per capita drinking in the U.S.³⁵; in our 2010 data, 89% of abstainers indicated health was a somewhat or very important reason for abstaining. The importance of religion also declined over an earlier study period (between 1985 and 1995), although not significantly.¹¹ These data suggest that the declines documented between 2000 and 2010 may be better understood in the context of longer-term cultural shifts related to “long waves” of changing alcohol consumption.^{36,37}

In the context of reduced importance of health and religion as reasons for abstaining, it is notable that these are the associations that emerged most consistently related to increased abstinence relative to low-risk drinking. If assumed to be causal, these might be described as protective effects. These findings are consistent with earlier research documenting strong associations between conservative religious beliefs and abstinence among U.S. Blacks.^{1–3} No significant associations emerged that could be considered protective effects that reduced at-risk drinking. In fact, interpersonal social control of drinking actually was associated with *greater* at-risk drinking for some groups of younger women, which suggests that family and friends of these drinkers may be reacting to their heavy drinking (implying that such drinking may instead “cause” informal social reactions). Further research should examine why these concerns about health, religious beliefs, and others’ disapproval typically are not strongly related to differences between high- and low-risk drinkers. Other reasons that women give for limiting their alcohol consumption should be identified as well.

Study strengths and limitations

As noted above, our data were cross-sectional, making causal inference speculative at best. However, the repeated surveys provide important information on cultural trends in women’s drinking status and espoused reasons for abstaining from alcohol or limiting its intake. In these data, we were able to examine how both health concerns and social control are associated with women’s current drinking status and how these relationships have changed over a 10-year period. We chose to use two time points for parsimony and because prior research suggests U.S. drinking norms changed linearly from 2000 to 2010,⁸ and drinking norms in a culture usually change fairly slowly.³⁸ Future research should take advantage of data from a longer survey series to examine cultural shifts in more detail and to extend to more recent data. We also used stratified models to examine cultural changes for specific demographic subgroups defined by race/ethnicity and age; in future analysis, it could be informative to test the

magnitude of subgroup differences using interaction terms and include additional racial/ethnic groups in the analysis, particularly as heavy episodic drinking is elevated for some groups, such as American Indian/Alaska Native women who drink.³⁹

Counter to our expectations, interpersonal social control of drinking (“family/friends get upset”) appeared most strongly related to increased at-risk drinking, with the positive association suggesting that respondents who drink heavily may be concerned about how their drinking is perceived by close others in their reference group. If family or friends also are relatively heavy drinkers, this may offer little social control. Future surveys should explore other ways of assessing reasons for abstaining that can address this limitation, such as by including more detailed information about drinking in respondents’ social networks.

Although we used two large, commensurate national samples, we were unable to include the cellular phone sample from the 2010 NAS. When these cases are included, the proportion of abstainers is generally reduced and that of heavy drinkers is increased; so any conclusions about correlates of drinking trends based on the 2010 landline sample may be underestimates. Finally, the cooperation rates are lower than may be expected for face-to-face interviews; however, they are respectable for recent telephone surveys in the U.S.⁴⁰ Because telephone break-offs often occur before identification of the study topic, low response rates in telephone surveys may introduce less bias than they would in face-to-face interviews.⁴¹

Conclusion and recommendations

In the era of conflicting information about possible health benefits of light drinking,^{15,16} it is essential for healthcare providers and others to disseminate accurate information about the risks of drinking to counter cultural shifts toward greater acceptance of at-risk drinking by women aged 40 and older. Patient-provider interactions prompted by SBI for at-risk or problem drinking could be a good opportunity for such one-on-one conversations, but educational efforts should expand beyond primary care to avoid inadvertent increasing of alcohol-related racial/ethnic disparities.⁴² Increased medical care coverage could help mitigate concerns about disparities in access to SBI, but alternative, culturally-relevant venues and pathways for health promotion should be explored.

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