Temporal Trends and Changing Racial/ethnic Disparities in Alcohol Problems: Results from the 2000 to 2010 National Alcohol Surveys

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Abstract

Background—Economic conditions and drinking norms have been in considerable flux over the past 10 years. Accordingly, research is needed to evaluate both overall trends in alcohol problems during this period and whether changes within racial/ethnic groups have affected racial/ethnic disparities.

Methods—We used 3 cross-sectional waves of National Alcohol Survey data (2000, 2005, and 2010) to examine a) temporal trends in alcohol dependence and consequences overall and by race/ethnicity, and b) the effects of temporal changes on racial/ethnic disparities. Analyses involved bivariate tests and multivariate negative binomial regressions testing the effects of race/ethnicity, survey year, and their interaction on problem measures.

Results—Both women and men overall showed significant increases in dependence symptoms in 2010 (vs. 2000); women also reported increases in alcohol-related consequences in 2010 (vs. 2000). (Problem rates were equivalent across 2005 and 2000.) However, increases in problems were most dramatic among Whites, and dependence symptoms actually decreased among Latinos of both genders in 2010. Consequently, the long-standing disparity in dependence between Latino and White men *was substantially reduced* in 2010. Post-hoc analyses suggested that changes in drinking norms at least partially drove increased problem rates among Whites.

Conclusions—Results constitute an important contribution to the literature on racial/ethnic disparities in alcohol problems. Findings are not inconsistent with the macroeconomic literature suggesting increases in alcohol problems during economic recession, but the pattern of effects across race/ethnicity and findings regarding norms together suggest, at the least, a revised understanding of how recessions affect drinking patterns and problems.

1. Introduction

1.1 Prior Research on Race/ethnicity and Alcohol Problems

Evidence suggests that Latino populations in the U.S., and especially Latino men, have been at elevated risk of alcohol dependence for some time. All known national survey studies spanning 1991–2005 have shown higher rates of current (12-month) and lifetime alcohol

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dependence among Latinos than Whites, though sometimes nonsignificantly so. These studies include the 1990–2 National Comorbidity Survey Replication study (NCS-R) (Breslau et al., 2006), the 1991–3 National Household Surveys on Drug Abuse (NHSDA) (Kandel et al., 1997), the 1992 National Longitudinal Alcohol Epidemiologic Survey (NLAES) (Chartier and Caetano, 2011), the 2001–2 National Epidemiological Survey on Alcohol and Related Conditions (NESARC) (Hasin and Grant, 2004; Smith et al., 2006), and the 2005 National Alcohol Survey (NAS) (Mulia et al., 2009), all of which have defined dependence using scales based on the APA's Diagnostic and Statistical Manual (American Psychiatric Association, 1994). Caetano and Clark (1998a) also reported higher rates of alcohol-related problems, measured using a combined index of dependence symptoms and alcohol-related consequences, among Latinos (vs. Whites) in the 1995 NAS. Results from gender-disaggregated analyses suggest that these differences were driven by men (Caetano and Clark, 1998a; Hasin and Grant, 2004; Kandel et al., 1997). By contrast, Black-White differences in dependence have been mixed, and smaller. The Latino-White disparity in dependence is consistent with studies suggesting elevated rates of alcohol-related liver cirrhosis (Carrion et al., 2011; Yoon et al., 2011) and somewhat higher binge intensity (Naimi et al., 2010; Neff, 1997; Neff et al., 1991; Zemore, 2007) among Latino men.

Nevertheless, research has shown important historical variation in Latino-White disparities in alcohol problems. To point, early trends analyses of the NAS (Caetano and Clark, 1998a, b) showed that both Whites and Blacks actually had *higher* rates of alcohol problems (again measured using a combined index of dependence symptoms and consequences) than Latinos in 1984. From 1984 to 1995, however, both male and female Latinos reported increases in frequent heavy drinking and alcohol problems, while Whites of both genders showed decreases in the same, leading to a reversal of the former Latino-White disparity. A more recent analysis of trends in DSM-IV dependence across the 1991–2 NLAES and the 2001–2 NESARC (Grant et al., 2004) likewise found that Latinos had higher rates of dependence than Whites in 1991–2. Yet, by 2001–2, this disparity was considerably diminished due to decreases in dependence symptoms among Latinos, though all groups showed some decline in the same. By contrast, disparities in alcohol abuse remained similar, with all groups showing increased prevalence over time and Whites continuing to report higher prevalence than Latinos and Blacks. (See Caetano et al., 2011, for similar results.)

In short, existing trend studies make a clear case that racial/ethnic disparities have been in considerable flux over time. Moreover, changes in racial/ethnic disparities cannot be obviously linked to larger historical trends, such as changing disparities in socioeconomic status.

1.2 The Current Study

Given the complicated course of racial/ethnic disparities, additional work is needed to understand how disparities have changed since the early 2000's. An analysis of current disparities, and trends in alcohol problems broadly, is particularly timely in light of the severe 2008–9 economic recession, which, although affecting Whites as well as minorities, has had especially devastating effects on Latino and Black populations (Lopez and Cohn, 2011; Taylor et al., 2011) and may be expected to have altered both the prevalence and distribution of alcohol problems. Supporting that point, numerous individual-level studies have associated involuntary unemployment with heavy drinking and alcohol problems; some macro-economic studies likewise report associations between economic downturns and heavy drinking, though findings are mixed (see (Catalano et al., 2011 for a review). Dee (2001) and others have proposed that economic stress may provoke increases in psychological distress, and hence heavier drinking. Researchers have also speculated that drinking norms in the U.S. may be becoming more permissive, due in part to increased

awareness of the potential health benefits of drinking, alcohol marketing, and other factors (Kerr et al., in press; Renaud and deLorgeril, 1992)—though changes in norms have not been directly established. Based on this rationale, the current study uses repeated cross-sectional national survey data to a) examine trends in alcohol problems from 2000 to 2010 overall and by race/ethnicity, and b) investigate the effects of temporal changes on racial/ethnic disparities in alcohol problems.

First, however, some caveats. In interpreting racial/ethnic disparities, it should be recognized that disparities in alcohol problems do not necessarily imply correspondent disparities in consumption. Indeed, evidence suggests that Blacks and Latinos experience greater prevalence of problems than Whites at equivalent levels of consumption, for unknown reasons (Herd, 1994; Jones-Webb et al., 1997; Mulia et al., 2009). Further, Latino-White differences may be qualified by Latino ethnicity. Most research suggests that Mexican Americans (and particularly males) are at higher risk for alcohol problems than Central/South Americans and Cubans, and to a lesser extent, Puerto Ricans (Caetano et al., 1998; Vaeth et al., 2009). Latinos are not homogenous, and we account for this in our analyses.

2. Materials and Methods

2.1 Data Source and Sample

The National Alcohol Surveys (NAS) are independent surveys collected every 5 years by the Alcohol Research Group. Data for the current study were pooled from the three most recent waves: 2000, 2005, and 2010. All surveys involved computer-assisted telephone interviews of a national probability sample of U.S. adults 18 years and older, selected via random-digit dialing. Surveys were augmented by oversamples of Blacks, Latinos, and respondents from sparsely populated U.S. states. The 2010 NAS also included a cell sample constituting about 14% of the total (N=1,012). Respondents were interviewed in English or Spanish. Sample sizes were large across the 2000 NAS (N=7,260; 4,905 Whites, 1,361 Blacks, 994 Latinos), 2005 NAS (N=6,631; 3,967 Whites, 1,054 Blacks, 1,610 Latinos) and 2010 NAS (N=7,647; 4,599 Whites, 1,595 Blacks, 1,453 Latinos), for a total N=21,538, including 13,471 Whites, 4,010 Blacks, and 4,057 Latinos. (Respondents identifying as "Other" were dropped.)

Response rates were 58% in 2000, 56% in 2005, and 52% in 2010. These rates are typical of recent U.S. telephone surveys in a time of increasing barriers to *random digit dialing* (RDD) studies (Midanik and Greenfield, 2003). Further, methodological studies conducted by the Alcohol Research Group investigating the impact of nonresponse in the 1995 and 2000 Surveys have, comparing independent national samples (or "replicates") with differing response rates, yielded no consistent differences associated with nonresponse. This suggests that nonresponse is unlikely to have biased NAS prevalence rates. For detailed discussion of the NAS methodology, see Clark and Hilton (1991) and Kerr et al. (2004).

2.2 Measures

2.2.1 Alcohol dependence symptoms—Dependence symptoms were measured using a 13-item scale representing symptoms in each of the 7 domains identified by the APA's Diagnostic and Statistical Manual-4th Edition (DSM-IV, American Psychiatric Association, 1994). For bivariate analyses and consistent with APA procedures, we created a dichotomous variable indicating at least one symptom in 3 or more domains (vs. fewer/none) over the past 12 months. For inferential analyses, we used the continuous count of criteria endorsed. Items have been extensively validated (Caetano and Tam, 1995).

2.2.2 Drinking consequences—Drinking consequences in the past 12 months were captured by a 15-item scale assessing problems while or because of drinking across 5

domains: social (4 items), legal (3 items), workplace (3 items), health (3 items), and injuries and accidents (2 items). Responses were yes/no. Again, for preliminary analyses, we created a dichotomous variable indicating 2+ consequences (vs. fewer/none), consistent with prior studies on this variable (Cherpitel, 2002; Greenfield et al., 2006; Midanik and Greenfield, 2000), while for inferential analyses, we used the continuous count. These items have been used in the NAS for almost 40 years (Cahalan, 1970), and in prior research, alphas for all subscales ranged from .74–.87, excepting health (Midanik and Greenfield, 2000).

2.2.3 Psychological distress—Distress (used in post-hoc analyses) was measured using an 8-item version of the Center for Epidemiological Studies Depression Scale (CES-D) (Radloff, 1977). Items assess past-week frequency of feelings of distress (e.g., feeling "depressed," "lonely," and "bothered by things that don't usually bother me"), and are highly correlated with the full scale (r=.93, based on 1995 NAS).

2.2.4 Drinking norms—Norms (also used in post-hoc analyses) were measured using 4 items assessing how much drinking is acceptable ("no drinking," "1 or 2 drinks," "enough to feel the effects but not get drunk," or "getting drunk is sometimes all right") for a man at a bar with friends, for a woman at a bar with friends, at a party at someone else's home, and with friends at home (Greenfield and Room, 1997) (α=.92). Responses were averaged.

2.2.5 Demographic variables—Demographic variables included racial/ethnic self-identification (White/Caucasian, Black/African American, or Latino/Hispanic), gender (male or female), age (continuous), marital status (married or living as married; separated, widowed, or divorced; or never married), employment status (employed full- or part-time; unemployed; or not in the workforce), annual household income in 2005 dollars ($0–$20,000; $20,001–$40,000; $40,001–$70,000; $70,001 or more; or missing), and education (less than high school; high school graduate; some college; or college degree or higher).

2.3 Analysis

Descriptive, bivariate analyses were conducted to explore racial/ethnic differences in 3+ dependence symptoms and 2+ alcohol-related consequences within survey year. Core analyses were hierarchical, negative binomial regressions modeling counts of dependence symptoms and consequences as a function of race/ethnicity (Black and Latino vs. White), survey year (2005 and 2010 vs. 2000), and interactions between race/ethnicity and survey year, first alone, and subsequently with covariates, to determine whether demographic differences could explain survey effects. Analyses were conducted among men and women separately because preliminary analyses suggested that survey and race effects were not equivalent across gender (see Tables 1 and 2); models including 3-way interactions (i.e., race/ethnicity by survey by gender) were not deemed feasible given model requirements and interpretational issues. Additional analyses were conducted to determine whether changes in psychological distress and/or drinking norms could help explain the temporal trends. Analyses were conducted using Stata (Stata Corp., 2009) to accommodate weights adjusting for sampling and non-response. Survey year was used as the weighting stratum in order to approximate the age, sex and race/ethnicity distributions of the U.S. population at the time each survey was conducted. Weights were normalized to each survey's sample size, and respondents thus were weighted to represent the average person during the respective year of data collection.

3. Results

3.1 Bivariate Analyses of Trends in Alcohol Problems

Tables 1 and 2 display, for women and men respectively, the prevalence of 3+ dependence symptoms and 2+ consequences by race/ethnicity within survey year, along with the results of logistic regressions testing associations between race/ethnicity and the prevalence of both. Table 1 suggests low rates of alcohol problems among women overall and no significant differences within surveys between Whites, Blacks, and Latinas. Still, the table does imply increases in alcohol dependence among Whites and Blacks in 2010 (vs. earlier surveys), but not Latinas, who show lower rates of dependence in 2010 than previously. Likewise, results suggest minor increases in 2+ consequences in 2010 (vs. earlier surveys), driven mostly by Whites.

Table 2, addressing men, reveals over twice the rates of alcohol dependence and 2+ consequences among men compared to women in each survey. Also contrary to women, significant racial/ethnic disparities emerge, with Latino men showing higher rates of dependence in both 2000 and 2005, and higher rates of 2+ consequences in 2000, compared to Whites. Paralleling the pattern for women, though, White males show a moderate increase in alcohol dependence in 2010 (vs. earlier surveys), while Black males show a minor increase and Latinos a decrease in the same. Prevalence of 2+ consequences is greatest for all groups in 2010, compared to earlier surveys. Figures 1 and 2 show changes in dependence by race/ethnicity and gender.

3.2 Main Analyses

Results of our negative binomial regressions are shown in Tables 3 and 4 for women and men respectively. Table 3 shows a highly significant increase in dependence symptoms in 2010 (vs. 2000) among White women (and by implication Black women, given the absence of a Black × 2010 interaction). A significant, negative Latina × 2010 interaction implies, conversely, a *decline* in dependence symptoms among Latinas in 2010 (vs. 2000). Effects are robust in multivariate analyses. Results also suggest an increase in alcohol-related consequences in 2010 (vs. 2000), which is marginally significant in the unadjusted model and significant in the adjusted model. This effect is not qualified by race/ethnicity, but results do suggest fewer consequences among Black (vs. White) women across analyses as well as fewer consequences among Latina (vs. White) women in the multivariate analysis. Dependence symptoms and consequences are equivalent across 2005 and 2000. Among the covariates, both younger age and indicators of living alone (i.e., never married and separated/divorced/widowed, vs. living with a partner) predicted higher rates of both consequences and dependence. Unemployment (vs. employment) was also associated with greater alcohol-related consequences, but women who were out of the workforce had lower rates of alcohol problems than those employed part- or full-time.

Table 4 addresses the results for men. Similar to women, the table shows a significant increase in dependence symptoms in 2010 (vs. 2000) among White men that generalizes to Blacks. Also similar to women, a marginally significant (p=.06), negative Latino×2010 interaction reveals that Latinos reported fewer dependence symptoms in 2010 than 2000. The significant "main effect" indicating greater dependence symptoms for Latinos is thus restricted to 2000 and 2005. Results show no effects for survey year on consequences, although effects associate Black and Latino race/ethnicity with more consequences in the unadjusted model (marginally so for Blacks). Similar to women, both younger age and indicators of living alone predicted higher rates of both consequences and dependence. Higher problem rates were also associated with being unemployed (vs. employed).

3.3 Sensitivity Analyses

It seems plausible that the observed declines in dependence among Latinos are attributable to changes in the acculturation level or ethnic composition of this population over time. Although we found that ethnic subgroup was unrelated to alcohol problems among Latinos of either gender, U.S. nativity was positively associated with dependence for women only (p<.001). Accordingly, we conducted a separate multivariate regression among Latinas examining survey effects on alcohol dependence while controlling for nativity, and found that the parameter estimate and confidence interval for 2010 (vs. 2000) were not notably different.

Another question is whether temporal changes were stronger among particular age or socioeconomic status groups, which might have implications for racial/ethnic disparities. To address this question, we ran additional multivariate models on each outcome while incorporating interactions between survey and age, but still disaggregating by gender and including race/ethnicity as a covariate. Analogous methods were applied to examine interactions between survey and indicators of SES (i.e., family income, poverty status, and unemployment). Because these analyses were exploratory, we examined individual interaction terms only after establishing a significant omnibus test. Among the 4 interaction tests involving age, only one was significant: that is, a survey×age interaction (p<.01) suggesting that the increase in dependence from 2000 to 2010 was stronger among older women (b=.03, p<.001). Among the 12 interaction tests involving SES, only one again attained significance: that is, a survey×income interaction (p<.05) suggesting decreases in consequences in 2005 (vs. 2000) among men in the second-lowest (b=−.90, p<.01) and third-lowest (b=−.76, p<.05) income categories only. Thus, results do *not* suggest that the increases in alcohol problems in 2010 were limited to particular age or SES groups, although older women were perhaps more strongly affected.

3.4 Analyses of Distress and Drinking Norms

Additional analyses were conducted to determine whether declines in mental health and/or changes in drinking norms might help explain the observed trends. Specifically, we first explored whether distress and norms changed over time. Bivariate tests confirmed that psychological distress differed significantly across survey, with the highest levels reported in 2010, followed by 2000 and then 2005. This pattern held for Whites, Blacks, and Latinos separately (all p's<.01). Meanwhile, norms became increasingly permissive, in linear fashion, across 2000, 2005, and 2010; unlike distress, however, changes were significant for Whites (p<.001) but not Blacks or Latinos (p's>.25, see Figures 3 and 4). Next, we reran the multivariate negative binomial regressions displayed in Tables 3 and 4, but now controlling for distress and norms (separately; not shown). Results for distress were inconsistent with mediation: Both survey effects and race × survey interactions were essentially unchanged in models controlling for distress, though distress was positively related to problems across analyses (p's<.001). By contrast, when controlling for norms, the effect for 2010 (vs. 2010) was diminished in the female model for dependence (from .72, p<.001, to .44, p<.01) and nonsignificant in both the female model for consequences (p=.19) and male model for dependence (p=.21). Race × survey interactions remained similar, and norms were significant across equations (p's<.001). Thus, while distress was elevated in 2010 (vs. 2000), the data suggest that *normative* changes in favor of drinking are more likely to explain the increases in alcohol problems seen, particularly among Whites, in 2010. Changes in norms among Whites were significant for both genders (p's<.001).

4. Discussion

4.1 Summary

A reasonable observer might expect that, given both the severe 2008–9 recession and speculations that drinking norms are becoming "wetter," alcohol problems would be elevated in 2010 (vs. 2000). Consistent with this reasoning, results showed elevations in alcohol dependence among women and men of 29% and 38% respectively, as well as significantly greater alcohol-related consequences among women. These increases do not seem to be driven by shifting demographics, as effects were highly robust in analyses controlling for age, marital status, and socioeconomic status (SES). Also, effects were generally consistent across age and SES groups, though the increase in dependence was somewhat stronger among older women. However, temporal trends *were* qualified by race/ethnicity, with the increases in dependence being driven mostly by Whites, though Black women also showed some increase in dependence between 2000 and 2010.

Analyses suggested a role for increasingly permissive drinking norms (but no role for psychological distress) in explaining the increases in alcohol dependence among Whites of both genders. White culture may be shifting toward a more liberal stance toward alcohol because of increasing awareness of the potential benefits of alcohol consumption, which have been widely promoted by mainstream media (Kerr et al., in press; Renaud and deLorgeril, 1992). Changing views might also be explained by the increased promotion of alcohol: Spending on spirits advertising increased markedly during the period under study, from about $25 million in 2000 to $82 million in 2005 to $150 million in 2009 (Adams Beverage Group, 2005; The Beverage Information Group, 2010). A related issue is that the affordability of alcohol has increased since 2000, due to the decline in the real value of alcohol taxes (Xu and Chaloupka, 2011). Although we could not address affordability in the current study, this change may have further contributed to the escalation in problems either independently or by exacerbating the effect of changing norms on drinking behavior.

It is noteworthy that drinking norms became increasingly permissive for both White males and White females across 2000–2010, with men if anything showing greater change, and that men and women showed parallel increases in dependence. Also, as noted, we found no evidence that increases in dependence were stronger among younger (vs. older) women— rather, the reverse. These results are inconsistent with the conclusions of a recent review suggesting a temporal narrowing of the gender gap for heavy drinking and alcohol disorders driven by younger women (Keyes et al., 2011). However, additional analyses from our team (Kerr et al., under review) have shown increases in alcohol consumption between 2000 and 2010 that were more robust and larger in magnitude for women than men, which may suggest gender convergence for some outcomes. It is also notable that, compared to Whites, Blacks and Latinos showed consistently higher levels of psychological distress and less favorable drinking norms, suggesting countervailing influences on drinking behavior (i.e., greater stress, yet less social support for drinking).

Our data argue against a simple causal chain whereby stresses associated with the 2008–9 recession negatively affected mental health, leading to increased alcohol problems. All racial/ethnic groups showed increases in distress in 2010 (vs. 2000), but distress was associated with alcohol problems independently of the observed changes in prevalence of alcohol problems. Further, while exposure to severe economic loss (such as employment and housing loss) in the U.S. during the recession was substantially greater among Blacks and Latinos than Whites (Lopez and Cohn, 2011; Taylor et al., 2011; Zemore et al., 2013), it was primarily Whites, and not Blacks and Latinos, who showed increases in alcohol problems between 2000 and 2010. It is true that Whites may conversely have been more likely than Blacks and Latinos to experience loss of retirement savings and other investments during the

recession, but associations between alcohol problems and these more moderate forms of economic loss appear to be, overall, weak to null (vs. evidence for powerful associations between severe loss and alcohol problems; see Mulia et al., 2013 and Zemore et al., 2013). This again suggests that changing norms were more important than economic stress in driving the observed trends in alcohol problems.

It is not yet clear why changes in drinking norms and alcohol problems failed to generalize to Blacks and Latinos. Indeed, Blacks showed little change in dependence, and dependence decreased among Latinos. Thus, the 2010 survey reveals a *substantial reduction* in the long-standing disparity between Latino and White men in alcohol dependence: Dependence rates were statistically equivalent across race/ethnicity for both men and women in 2010. It is possible that media and marketing related to alcohol has more effectively reached Whites than Blacks and Latinos. An additional factor that could help explain the decline in dependence among Latinos is the increasingly negative attention that Latino immigrants have received in recent years (Pew Hispanic Center, 2007). Social pressures may have motivated increasingly conservative substance use patterns among Latinos. Latino survey respondents may also be increasingly reluctant to report on sensitive topics as a result of the increased scrutiny.

Additional findings revealed that (in bivariate models) Latino and Black men reported more alcohol-related consequences than White men, though the Black-White difference was only marginally significant, with little change in this disparity over time. Post-hoc analyses (not shown) suggest that the younger age distribution of Blacks and Latinos (vs. Whites), combined with the higher rate of unpartnered status of Blacks, are largely responsible for these disparities. Black women persistently reported fewer alcohol-related consequences than White women, but equivalent levels of dependence.

4.2 Limitations and Final Conclusions

All data are self-report, and motivations to deny alcohol problems could vary by race/ethnicity (Keyes et al., 2010; Smith et al., 2010). Survey response rates were moderate, and sample sizes were not large enough to examine differences by age or SES within racial/ethnic group. Nevertheless, the NAS provide reliable, national estimates of alcohol problems, and the incorporation of cell phone users and data weighting bolster representivity. The study offers a valuable update on racial/ethnic disparities, examined last on data a decade old (Chartier and Caetano, 2011; Grant et al., 2004), and shows significant racial/ethnic differences in temporal trends. Meanwhile, the substantial elevations in alcohol problems overall suggest a need for increasing attention to prevention and treatment strategies nationally.

Acknowledgments

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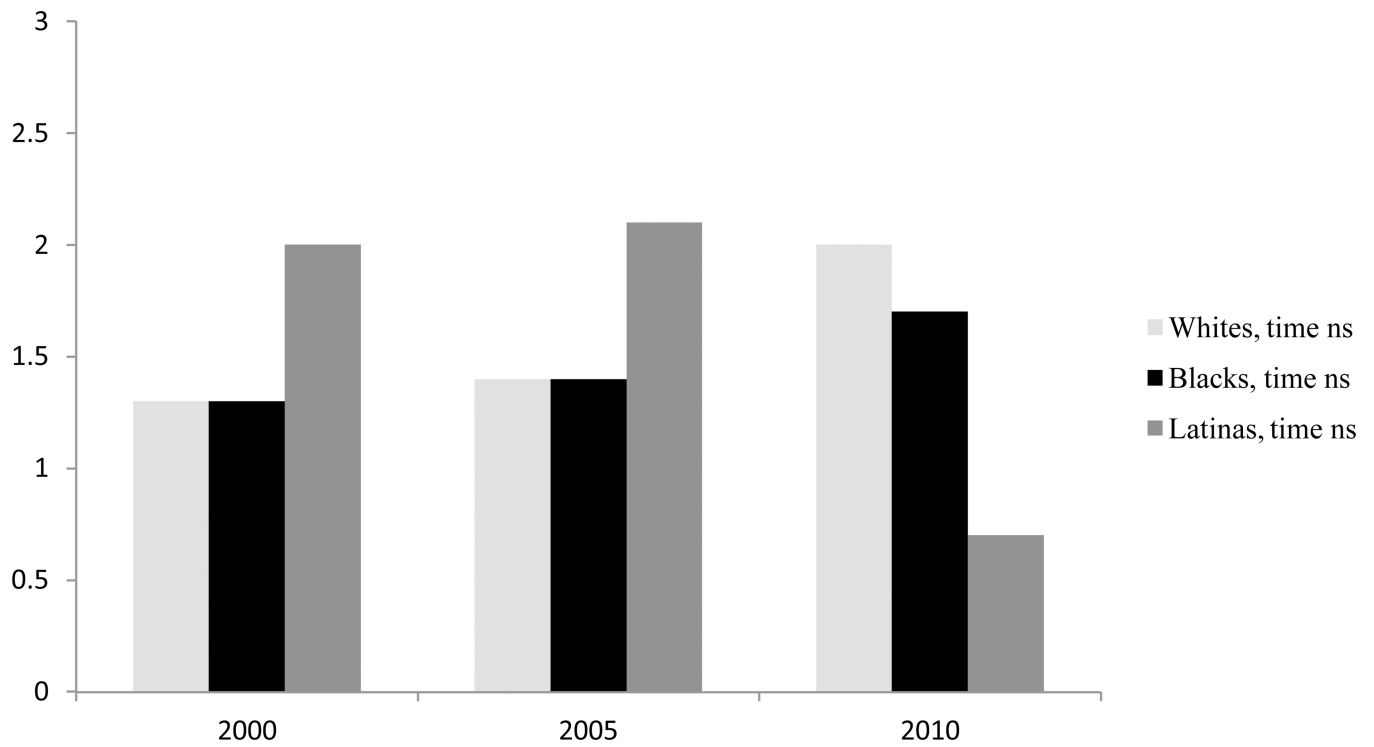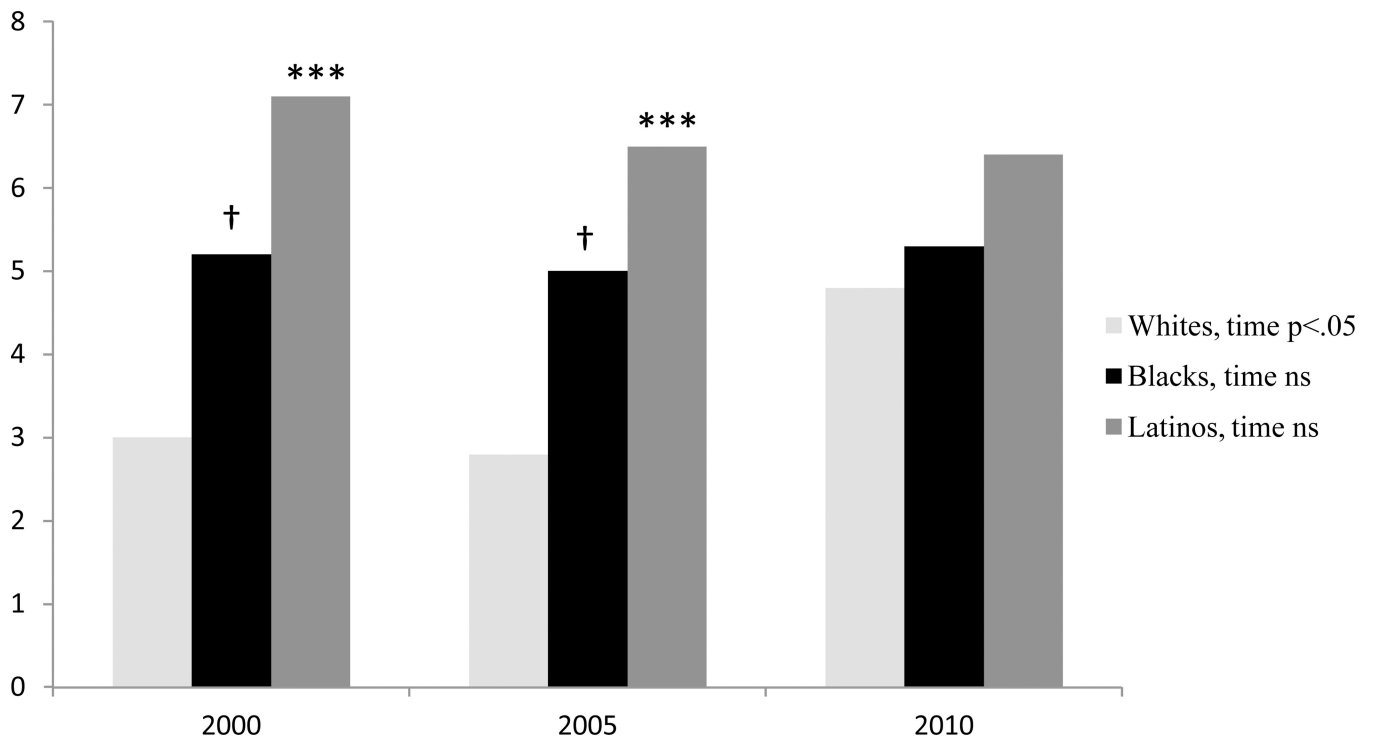
Figure 1.
Dependence rates among women over time (y axis is %).
Note. Significance levels tested for (a) Black-White and Latina-White differences within year, indicated above bars (none significant here) and (b) trends over time, indicated in the legend. See Table 1 for associated logistic regression results.
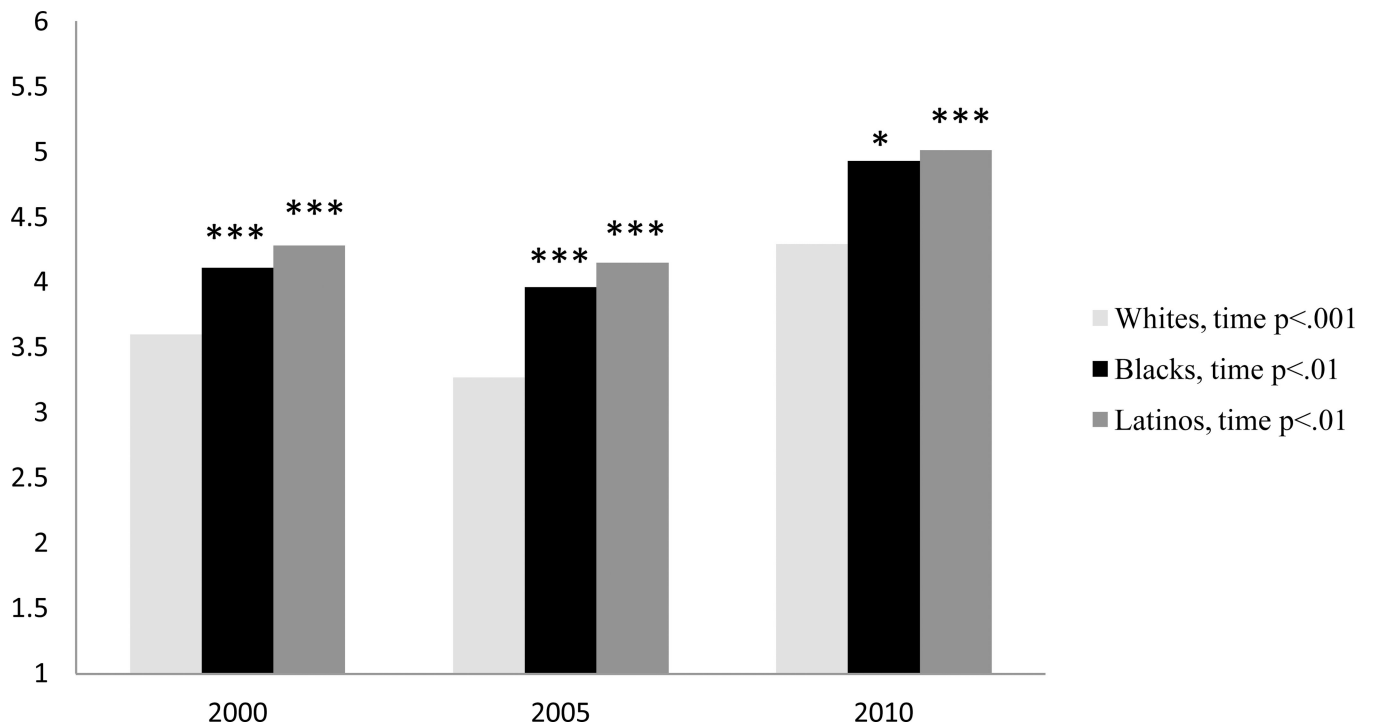***p<.001, **p<.01, *p<.05, †p < .10, ns nonsignificant.
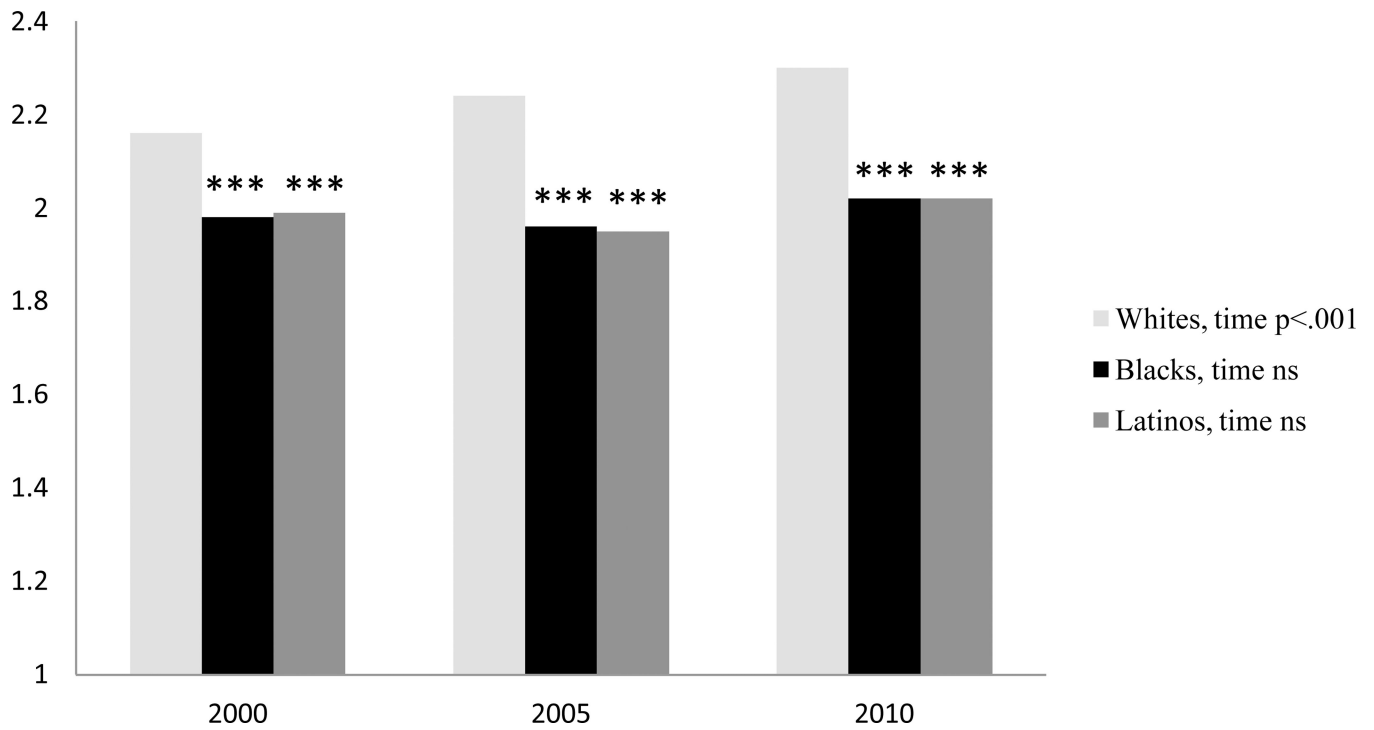
Figure 2.
Dependence rates among men over time (y axis is %).
Note. Significance levels tested for (a) Black-White and Latino-White differences within year, indicated above bars and (b) trends over time, indicated in the legend. See Table 1 for associated logistic regression results.
***p<.001, **p<.01, *p<.05, †p < .10, ns nonsignificant.

Figure 3.
Psychological distress over time (y axis is mean; range 1–32).
Note. Significance levels tested for (a) Black-White and Latino-White differences within year, indicated above bars and (b) trends over time, indicated in the legend.
***p<.001, **p<.01, *p<.05, †p < .10, ns nonsignificant.

Figure 4.
Drinking norms over time (y axis is mean; range 1–4).
Note. Significance levels tested for (a) Black-White and Latino-White differences within year, indicated above bars and (b) trends over time, indicated in the legend.
***p<.001, **p<.01, *p<.05, †p <.10, ns nonsignificant.

Table 1

Prevalence of alcohol problems by race/ethnicity within survey year; women only (total N = 11,973)

Survey Year	Subgroup	% Alc. Dep.	Odds Ratio (95% Confidence Interval) Alcohol Dependence	% 2+ Alc. Consq.	Odds Ratio (95% Confidence Interval) Alcohol-related Consequences
2000	White	1.3	Ref.	1.9	Ref.
	Black	1.3	1.00 (0.47, 2.12)	1.2	0.61 (0.28, 1.32)
	Latinas	2.0	1.55 (0.72, 3.30)	1.4	0.72 (0.30, 1.76)
	Total	1.4	--	1.8	--
2005	Whites	1.4	Ref.	1.5	Ref.
	Blacks	1.4	1.01 (0.40, 2.54)	1.2	0.76 (0.28, 2.12)
	Latinas	2.1	1.50 (0.64, 3.53)	1.4	0.93 (0.34, 2.53)
	Total	1.5	--	1.5	--
2010	Whites	2.0	Ref.	2.3	Ref.
	Blacks	1.7	0.84 (0.21, 3.33)	1.0	0.45 (0.13, 1.50)
	Latinas	0.7	0.35 (0.06, 1.93)	1.9	0.84 (0.24, 2.98)
	Total	1.8	--	2.0	--

Notes. No significant differences.

Table 2

Prevalence of alcohol problems by race/ethnicity within survey year; men only (total N 9,105)

Survey Year	Subgroup	% Alc. Dep.	Odds Ratio (95% Confidence Interval) Alcohol Dependence	% 2+ Alc. Consq.	Odds Ratio (95% Confidence Interval) Consequences
2000	White	3.0	Ref.	4.9	Ref.
	Black	5.2	1.77 (0.99, 3.17)[†]	6.3	1.30 (0.79, 2.14)
	Latinos	7.1	2.46 (1.55, 3.91)***	8.0	1.69 (1.12, 2.54)*
	Total	3.7	--	5.4	--
2005	Whites	2.8	Ref.	4.2	Ref.
	Blacks	5.0	1.84 (0.96, 3.50)[†]	5.7	1.38 (0.77, 2.46)
	Latinos	6.5	2.42 (1.46, 4.01)***	4.5	1.07 (0.66, 1.73)
	Total	3.6	--	4.4	--
2010	Whites	4.8	Ref.	5.3	Ref.
	Blacks	5.3	1.12 (0.50, 2.55)	6.8	1.29 (0.60, 2.76)
	Latinos	6.4	1.37 (0.68, 2.75)	8.3	1.60 (0.81, 3.17)
	Total	5.1	--	5.9	--

Notes.

*** $p<.001$,

* $p<.05$,

[†] $p<.10$.

Table 3

Multivariate negative binomial regressions of alcohol problems by race/ethnicity and survey year; women only (N = 11,025).

	Alcohol Dependence Criteria		Alcohol-related Consequences	
	Unst. beta	95% CI	Unst. beta	95% CI
Unadjusted Models				
Black (vs. White)	**−0.09**	**−0.56, 0.38**	**−0.37**[*]	**−0.73, −0.01**
Latina (vs. White)	**0.24**	**−0.18, 0.66**	**−0.06**	**−0.51, 0.40**
2005 (vs. 2000)	**0.09**	**−0.20, 0.38**	**−0.20**	**−0.53, 0.14**
2010 (vs. 2000)	**0.57**[***]	**0.29, 0.85**	**0.30**[†]	**−0.05, 0.65**
Black × 2005	**0.10**	**−0.54, 0.75**	---	---
Black × 2010	**−0.06**	**−0.80, 0.67**	---	---
Latina × 2005	**−0.01**	**−0.66, 0.65**	---	---
Latina × 2010	**−0.82**[*]	**−1.53, −0.10**	---	---
Adjusted Models				
Black (vs. White)	**−0.33**	**−0.81, 0.15**	**−0.84**[***]	**−1.21, −0.48**
Latina (vs. White)	**−0.09**	**−0.53, 0.35**	**−0.45**[*]	**−0.86, −0.04**
2005 (vs. 2000)	**0.16**	**−0.13, 0.45**	**−0.01**	**−0.32, 0.30**
2010 (vs. 2000)	**0.72**[***]	**0.40, 1.04**	**0.45**[*]	**0.10, 0.79**
Black × 2005	**−0.03**	**−0.68, 0.62**	---	---
Black × 2010	**−0.23**	**−0.93, 0.48**	---	---
Latina × 2005	**0.04**	**−0.58, 0.66**	---	---
Latina × 2010	**−0.83**[*]	**−1.56, −0.10**	---	---
Age	−0.05[***]	−0.06, −0.04	−0.05[***]	−0.07, −0.05
Never married (vs. partnered)	0.38[*]	0.05, 0.71	0.44[*]	0.04, 0.84
Sep./wid./divorced (vs. partnered)	0.59[***]	0.35, 0.83	0.41[*]	0.08, 0.74
Unemployed (vs. employed)	0.34	−0.18, 0.85	0.55[*]	0.05, 1.05
Out of the workforce (vs. employed)	−0.39[**]	−0.64, −0.13	−0.47[**]	−0.81, −0.14
Income $0–20,000 (vs. $70,001+)	0.17	−0.18, 0.52	0.31	−0.18, 0.80
Income $20,001–40,000 (vs. $70,001+)	−0.21	−0.55, 0.13	−0.10	−0.59, 0.39
Income $40,001–70,000 (vs. $70,001+)	−0.07	−0.42, 0.28	−0.13	−0.62, 0.35
Income missing (vs. $70,001+)	−0.45[*]	−0.89, 0.00	−0.56	−1.17, 0.05
Lt. HS education (vs. college grad.)	−0.27	−0.66, 0.13	0.27	−0.25, 0.78
HS education (vs. college grad.)	−0.23	−0.51, 0.06	0.21	−0.18, 0.60
Some college (vs. college grad.)	−0.01	−0.28, 0.26	0.18	−0.18, 0.54

Notes.

***
p<.001,

**
p<.01,

*
p<.05,

†
p<.10.

Table 4

Multivariate negative binomial regressions of alcohol problems by race/ethnicity and survey year; men only (N = 8,567).

	Alcohol Dependence Criteria		Alcohol-related Consequences	
	Unst. beta	95% CI	Unst. beta	95% CI
Unadjusted Models				
Black (v. White)	**0.28**	**−0.09, 0.64**	**0.30**[†]	**−0.03, 0.62**
Latino (v. White)	**0.70**[***]	**0.42, 0.98**	**0.43**[**]	**0.15, 0.70**
2005 (v. 2000)	**−0.05**	**−0.29, 0.19**	**−0.10**	**−0.36, 0.15**
2010 (v. 2000)	**0.32**[*]	**0.07, 0.56**	**0.17**	**−0.10, 0.43**
Black × 2005	**0.11**	**−0.43, 0.66**	**---**	**---**
Black × 2010	**−0.07**	**−0.66, 0.51**	**---**	**---**
Latino × 2005	**−0.18**	**−0.58, 0.21**	**---**	**---**
Latino × 2010	**−0.41**[†]	**−0.88, 0.06**	**---**	**---**
Adjusted Models				
Black (v. White)	**0.08**	**−0.23, 0.49**	**0.04**	**−0.28, 0.36**
Latino (v. White)	**0.47**[*]	**0.05, 0.89**	**−0.02**	**−0.46, 0.43**
2005 (v. 2000)	**0.09**	**−0.14, 0.32**	**0.08**	**−0.16, 0.32**
2010 (v. 2000)	**0.36**[**]	**0.11, 0.62**	**0.20**	**−0.10, 0.51**
Black × 2005	**0.29**	**−0.33, 0.91**	**---**	**---**
Black × 2010	**−0.48**	**−1.09, 0.13**	**---**	**---**
Latino × 2005	**−0.36**	**−0.85, 0.13**	**---**	**---**
Latino × 2010	**−0.59**[†]	**−1.21, −0.03**	**---**	**---**
Age	−0.05[***]	−0.06, −0.04	−0.05[***]	−0.06, −0.04
Never married (vs. partnered)	0.57[***]	0.30, 0.84	0.37[*]	0.05, 0.70
Sep./wid./divorced (vs. partnered)	0.29[*]	0.09, 0.50	0.23	−0.05, 0.51
Unemployed (vs. employed)	0.48[**]	0.12, 0.83	0.43[†]	−0.01, 0.87
Out of the workforce (vs. employed)	−0.17	−0.44, 0.09	−0.09	−0.49, 0.32
Income $0–20,000 (vs. $70,001+)	0.23	−0.04, 0.50	0.18	−0.16, 0.51
Income $20,001–40,000 (vs. $70,001+)	0.08	−0.18, 0.35	0.02	−0.32, 0.36
Income $40,001–70,000 (vs. $70,001+)	0.04	−0.23, 0.30	0.13	−0.24, 0.49
Income missing (vs. $70,001+)	−0.29	−0.65, −0.07	−0.49[*]	−0.92, −0.03
Lt. HS education (vs. college grad.)	0.28[†]	−0.02, 0.59	0.29	−0.12, 0.71
HS education (vs. college grad.)	0.12	−0.12, 0.36	0.14	−0.21, 0.48
Some college (vs. college grad.)	0.13	−0.10, 0.36	−0.05	−0.38, 0.28

Notes.

***
p<.001,

**
p<.01,

*
p<.05,

†
p<.10.