Social Disadvantage, Stress, and Alcohol Use Among Black, Hispanic, and White Americans: Findings From the 2005 U.S. National Alcohol Survey*

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ABSTRACT. Objective: Despite growing evidence of the adverse health effects of social disadvantage on minority populations, few studies have investigated whether such effects extend to alcohol problems. This study examines social disadvantage as a source of stress and analyzes its association with alcohol use and problems in the three largest racial/ethnic groups in the United States. **Method:** Data on white, black, and Hispanic Americans (n = 6,631) were obtained from the 2005 U.S. National Alcohol Survey, a nationally representative telephone-based survey of adults ages 18 and older. Social disadvantage was measured by poverty level, frequency of unfair treatment, racial/ethnic stigma consciousness, and cumulative disadvantage. Outcomes included drinking status, at-risk drinking, and problem drinking. **Results:** Blacks and Hispanics reported greater exposure to social disadvantage than whites, including greater poverty, unfair treatment, racial/ethnic stigma, and cumulative disadvantage. In all three racial/ethnic groups, exposure to disadvantage was associated with problem drinking. Frequent unfair treatment, high racial stigma (among minorities), and multiple sources of extreme disadvantage corresponded to a twofold to sixfold greater risk of alcohol problems, partially explained by psychological distress. **Conclusions:** These results are consistent with other studies of stress and adverse health consequences associated with social disadvantage. Although there is a clear disparity in exposure to such hardship, experiences of disadvantage appear to have similar effects on problem drinking among both racial/ethnic minorities and whites. Future research should attempt to assess causal directions in the relationships among social and economic hardship, stress, and alcohol problems. (*J. Stud. Alcohol Drugs* **69:** 824-833, 2008)

ALTHOUGH ADVERSE HEALTH EFFECTS of poverty have long been recognized (Adler et al., 1994; Lynch and Kaplan, 2000), it is only in recent years that racial discrimination has been identified as an important source of stress influencing health and psychological well-being (Kessler et al., 1999; Krieger and Sidney, 1996; Williams et al., 2003). Further, both forms of social disadvantage—that is, poverty (Caetano and Clark, 2000; Herd, 1994; Jones-Webb et al., 1997) and racial discrimination (Herd, 1987; Jones-Webb et al., 1995)—are thought to contribute to drinking problems in minority groups. In a review of research on alcohol consumption among racial and ethnic minorities, Caetano and colleagues (1998) identified stress as a central unifying theme that underlies issues related to minority status, socioeconomic position, and acculturation.

The relevance of social disadvantage to drinking behavior may thus hinge on its theoretical and empirical connections with stress. Excessive drinking and alcohol problems have been linked with high levels of exposure to stressors in general—particularly chronic stressors—and psychological distress (Dawson et al., 2005; Hill and Angel, 2005; Moos et al., 1989; Mulia et al., 2008; Windle, 1992). But while there have been numerous studies examining stress and drinking, much of the work has focused on more universal stressors, such as stressful life events (Allan and Cooke, 1985; Jennison, 1992; King et al., 2003; Romelsjo et al., 1991) and workplace stressors (Cooper et al., 1990; Frone, 1999; Richman et al., 2002). Few investigations have closely examined the links among race/ethnicity, social disadvantage, psychological distress, and alcohol problems, yet there is reason to believe that these links might illuminate our understanding of racial/ethnic patterns of alcohol use and problems.

From the broader health field, studies have established an inverse relationship between income and psychological well-being (Adler et al., 1994; Murali and Oyebode, 2004) and have documented improvements in mental health following the alleviation of harsh economic conditions (Leventhal and Brooks-Gunn, 2003). A growing body of work also has revealed that, net of the effect of socioeconomic disadvantage, racial discrimination is associated with poorer mental health among minorities (Finch et al., 2000; Gee, 2002; Jackson et al., 1996; Williams et al., 1997).

The effects of social disadvantage on drinking behavior and problems are less firmly established. Contrary to some earlier findings of a positive relationship between income and heavy drinking (e.g., see Hilton, 1987, 1991b; Lantz et al., 2001), a number of studies find low income to be associated

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with elevated rates of heavy drinking (Dawson et al., 1995; Karlamangla et al., 2006; Midanik and Clark, 1994). Amid the sparse research on racial discrimination and drinking, we also find some indications of adverse alcohol outcomes. Yen and colleagues (1999), for instance, found that nonwhite transit operators experiencing the most racial discrimination had the highest odds of heavy drinking and alcohol dependence symptoms. A similarly positive association between discrimination and problem drinking was observed in a national study of black workers (Martin et al., 2003), yet in a recent study of young black adults, discrimination had no relationship to heavy drinking and heavy episodic drinking (Borrell et al., 2007).

In the current study, we examine the extent to which social disadvantage is a source of stress associated with alcohol use and drinking problems in black, Hispanic, and white Americans. Race/ethnicity is viewed here as a social status category, associated with differential access to opportunities, resources, and privileges (Williams et al., 1994, 1997). We thus conceptualize social disadvantage as encompassing both an economic component (e.g., as indicated by poverty level) and a social status component (i.e., disadvantaged social standing, as indicated by experiences of unfair treatment and racial/ethnic stigma). Although we expect that racial/ethnic minorities have greater exposure to social disadvantage, it is unclear whether the adverse effects of disadvantage are limited to minorities. Much of the public health research on social disadvantage, particularly racial discrimination, has logically focused on people of color, but we recognize that poverty and unfair treatment might negatively affect whites as well as minorities, as nonracial forms of discrimination have been shown to be highly salient to persons of low socioeconomic position, including low-income blacks (Stuber et al., 2003). The current study thus aims to contribute new information by (1) examining both economic and social hardship as sources of stress; (2) examining their associations with alcohol use and problems; and (3) assessing the mediating role of psychological distress in each case for the three largest U.S. racial/ethnic groups—white, Hispanic, and black Americans.

Method

This study uses data from the 2005 U.S. National Alcohol Survey (NAS), a national household computer-assisted telephone interview survey of persons ages 18 or older in the 50 U.S. states and Washington, DC. Data were collected using list-assisted random digit dialing with a sampling frame of all 50 states and the District of Columbia. In addition to this main sample, the NAS includes oversamples of black and Hispanic Americans and of individuals residing in low-population states. Interviews were conducted in either English or Spanish according to respondent preference and lasted approximately 1 hour.

The response rate was 56%, comparable to current response rates for telephone surveys (Curtin et al., 2005). Although such rates raise questions about potential nonresponse bias, recent methodological studies find that increased nonresponse in telephone surveys does not necessarily result in biased population estimates (Groves, 2006; Keeter et al., 2000, 2006). Importantly, with respect to the NAS general population survey series, Greenfield and colleagues (2006) summarized evidence that telephone-based results with this level of response are not biased in their alcohol-related variables, as compared with earlier face-to-face surveys typically achieving higher response rates. The conclusion was based on more than six published interview-mode studies linked to the shift to telephone surveys for the NAS (e.g., Midanik and Greenfield, 2003) and an analysis of the 2000 NAS's replicate subsamples with varying response rates, showing no relationship to alcohol consumption and problems (Greenfield et al., 2006).

Of the 6,919 adults completing the 2005 NAS, there were 288 persons of Asian, American Indian, or other ethnic backgrounds, who were omitted from this analysis because of their small numbers. The final sample analyzed in this study included 3,967 whites, 1,610 Hispanics, and 1,054 blacks, and among these, there were 2,810 white, 766 Hispanic, and 504 black current drinkers.

Measures

Social disadvantage. The three types of social disadvantage studied included poverty level, frequency of unfair treatment, and racial/ethnic stigma consciousness. Poverty level was defined according to U.S. federal poverty guidelines (Department of Health and Human Services, 2005). We derived income per family member from NAS items on household income and composition and then categorized it as greater than 200% of the federal poverty level, 100%-200% of the poverty level, or below the poverty level (less than 100%).

To gauge the frequency of unfair treatment, respondents were asked, "How often do you feel that you are treated unfairly?," with responses ranging on a 5-point scale from "almost never" (1) to "very often" (5). Although the use of a single item and its framing as "unfair treatment" is consistent with measures of perceived racial discrimination in many general health surveys (Gee, 2002; Schulz et al., 2000a; Williams et al., 2003; Yen et al., 1999), the item used here does not specify attribution for unfair treatment. The question may thus broadly capture unfair treatment on the basis of race as well as other dimensions of difference, such as socioeconomic position, that are relevant to both racial/ethnic minorities and whites. This appears to be likely, because our analyses of the 2005 NAS indicate that, although this item is significantly associated with minority race/ethnicity, it is also associated with homelessness (χ^2 = 196.3, 2 df,

$p < .001$) and negatively correlated with both income ($r = -.148$, $p < .001$) and education ($r = -.120$, $p < .001$).

Racial/ethnic stigma consciousness was derived using three items from Pinel's (1999) stigma consciousness scale, selected based on Pinel's scale analyses, which identified items with high factor loadings. Respondents were asked to what extent they agree or disagree with the following statements: (1) "Stereotypes about my race or ethnic group have affected me personally," (2) "My race or ethnic group influences how people act with me," and (3) "Many people have a problem viewing my race or ethnic group as equal." A 4-point response scale was used, ranging from "disagree very much" (0) to "agree very much" (3). We summed across items, then categorized the overall score to indicate low (0-3), medium (4-6), and high (7-9) levels of stigma consciousness. Pinel (1999) demonstrated acceptable reliability for racial stigma consciousness using a longer version of the scale. The abbreviated 3-item scale employed here has acceptable internal reliability ($\alpha = .72$) and is positively related to perceptions of unfair treatment, as one would expect (Zemore et al., 2006).

Cumulative disadvantage is a composite measure based on the three indicators of social disadvantage described above. It indicates the number of sources (0-3) of *extreme* disadvantage reported by a respondent (income *below* the federal poverty level, "often or very often" being treated unfairly, and "high" racial/ethnic stigma). High cumulative disadvantage is defined as experiencing multiple sources of extreme disadvantage.

Alcohol measures. The three alcohol measures used in this study refer to drinking behavior and problems within the past 12 months; they include current drinking status, at-risk drinking, and problem drinking. Current drinking was defined as having at least one drink in the past 12 months. At-risk drinking was defined as exceeding the drinking levels recommended in the National Institute on Alcohol Abuse and Alcoholism's (NIAAA) clinician's guide (NIAAA, 2005) but *without* experiencing either negative social consequences (legal, health, relationship, and/or work) or symptoms of alcohol dependence. The maximum recommended levels are, for men, no more than 4 drinks per day and 14 drinks weekly and, for women, no more than 3 drinks per day and 7 drinks weekly.

Respondent drinking levels were derived using the graduated frequencies approach (Greenfield, 2000; Room, 1990) to obtain data on drinking pattern and frequency during the last 12 months. The graduated frequencies measure has been validated against drinking diaries (Hilton, 1989), can assess daily limits (Greenfield et al., 2006), and has been shown to capture harmful and hazardous drinking better than typical quantity-frequency measures (Rehm et al., 1999).

Problem drinking in the past 12 months was defined as having experienced one or more negative social consequences of drinking (Midanik and Greenfield, 2000) and/or multiple symptoms meeting alcohol dependence criteria (Caetano and Tam, 1995) as defined by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychiatric Association, 1994). Our use of a composite measure of alcohol problems is motivated by concerns with statistical power owing to the rarity of alcohol problems in the general population, together with the challenge of obtaining large samples of ethnic minority respondents in population-based surveys (Schmidt et al., 2006). In exploratory analyses, we decomposed this measure into one or more negative drinking consequences and two or more dependence symptoms. By selecting these relatively low thresholds, only our analysis of dependence symptoms in black drinkers was statistically underpowered, based on a rule-of-thumb suggesting one degree of freedom for every 10 cases of the outcome under investigation.

Psychological distress, our indicator of stress, was measured using an abbreviated, eight-item version of the Center for Epidemiologic Studies Depression (CES-D) scale (Radloff, 1977), which has been found reliable across the three ethnic groups (Roberts, 1980). Items captured past-week frequency of feeling bothered by things, depressed, hopeful for the future, happy, lonely, or sad; having restless sleep; and enjoying life. Responses ranged from "rarely or none of the time" to "most or all of the time" ($\alpha = .75$), and an overall score was computed by summing across items (reverse coded as appropriate, for consistency in directionality). The abbreviated eight-item version is highly correlated with the full CES-D scale ($r = .93$ based on 1995 NAS data), and the eight items overlap substantively with distress measures commonly used in studies of discrimination (e.g., see Jackson et al., 1996; Kessler et al., 1999; Schulz et al., 2000b).

Demographics. Key demographic variables included gender, age, highest level of education completed (up to and including a high school diploma or General Educational Development [GED] credential, education beyond high school, or a college degree or higher), marital status, and U.S. nativity. Racial/ethnic group was based on a single item asking respondents to report the group that best described their family of origin: black (non-Hispanic), Hispanic, and white (non-Hispanic). In the case of "other," respondents were asked to report the group that best described most of their ancestors.

Statistical analysis

Preliminary bivariate analyses were conducted to compare racial/ethnic groups and to examine associations between exposure to social disadvantage and psychological distress. For analyses of categorical variables, we report an F statistic that is equivalent to a chi-square, taking into account design effects as noted below. For bivariate analyses involving continuous outcomes, analyses of variance was used to test a difference in means across racial/ethnic groups or levels

of social disadvantage. Analyses of current drinking status were conducted using the full sample. Because of the large variation in abstinence rates across racial/ethnic groups, analyses of at-risk and problem drinking were restricted to the current drinker subsample. Multiple logistic regression was used to assess associations between social disadvantage and alcohol outcomes, controlling for potential confounders such as gender, age, education, marital status, and, among Hispanics, U.S. nativity. Poverty level, unfair treatment, racial/ethnic stigma, and cumulative disadvantage were entered into separate models predicting alcohol outcomes.

Missing income data. All results for poverty and cumulative disadvantage were based on data from respondents who reported income, which was roughly 86% of the sample. To allay concerns that this would bias study results, we conducted supplemental sensitivity analyses of the effect of poverty (not shown) with and without imputed income. The income imputation process used the user-written program ICE (Imputation by Chained Equations) in Stata (see Royston, 2004). ICE imputes missing values by using switching regression, an iterative multivariable regression technique. We found highly similar results for both analyses, thus lending confidence that the results presented (which are based on reported income only) are not likely to distort the findings for poverty.

Data were weighted to adjust for the probability of selection (number of households, multiple phone lines, and adult residents in households) and nonresponse. Poststratification weights also were applied to reflect the U.S. census-derived demographics of the U.S. population ages 18 and older, in terms of gender, age, race/ethnicity, region, and, among Hispanics, U.S. nativity. All analyses were conducted using Stata survey commands (Stata Corp, 2005) to apply appropriate standard errors adjusting for probabilities of selection and poststratification weighting.

Results

Table 1 presents key characteristics of the three racial/ethnic groups in the study. Compared with whites, the black and Hispanic samples were younger, less educated, less likely to be married, and less likely to drink. Among those who did drink, a higher proportion of blacks and Hispanics reported alcohol-related problems, including both negative social consequences and alcohol dependence symptoms.

Associations among race/ethnicity, social disadvantage, and psychological distress

Table 2 displays the prevalence of social disadvantage and its association with psychological distress across the three groups. As expected, blacks and Hispanics reported greater exposure to disadvantage. Below-poverty income was approximately three to four times more prevalent among blacks and Hispanics than among whites ($F = 142.5$, $p < .001$), and high levels of racial/ethnic stigma were three to eight times more prevalent in minority groups than in whites ($F = 186.0$, $p < .001$). Unfair treatment varied less dramatically across groups. Nevertheless, blacks (10.0%) and Hispanics (7.6%) were more likely than whites to report frequent unfair treatment (4.3%) ($F = 29.6$, $p < .001$). Given the distribution of social disadvantage, it is not surprising that blacks and Hispanics were much more likely than whites to report multiple sources of extreme disadvantage ($F = 150.1$, $p < .001$).

Table 1. Sample characteristics, by racial/ethnic group

Variable	White % (n = 3,967)	Hispanic % (n = 1,610)	Black % (n = 1,054)	Statistic
Male	47.7	51.3	44.5	$F = 4.31$, $p < .05$
Age				
18-29	16.6	32.2	25.5	$F = 51.1$, $p < .001$
30-49	39.6	46.2	40.6	
≥50	43.8	21.6	33.9	
Education				
≤High school diploma	33.3	65.0	50.8	$F = 92.3$, $p < .001$
>High school diploma	27.6	20.5	25.4	
≥Bachelor's degree	39.1	14.5	23.8	
Currently employed	65.2	63.3	60.3	$F = 3.17$, $p < .05$
Married	64.0	54.5	34.7	$F = 103.7$, $p < .001$
Current drinker	72.3	51.7	51.1	$F = 106.0$, $p < .001$
Among drinkers only	(n = 2,810)	(n = 766)	(n = 504)	
Asymptomatic at-risk drinking	34.8	34.5	19.7	$F = 15.8$, $p < .001$
Problem drinking	9.2	17.9	14.2	$F = 16.9$, $p < .001$
≥1 Negative social consequences	8.8	15.8	13.4	$F = 12.1$, $p < .001$
≥2 Dependence symptoms	6.2	12.6	10.8	$F = 13.1$, $p < .001$
DSM-IV alcohol dependence	2.9	8.4	6.0	$F = 16.3$, $p < .001$

Notes: N's are unweighted; results are weighted. The *F* statistic shown is equivalent to chi-square, taking into account design effects. DSM-IV = Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition.

TABLE 2. Exposure to social disadvantage and its associations with psychological distress, by racial/ethnic group

Indicator of disadvantage	White (n = 3,967) Prev. %	White (n = 3,967) Distress Mean (SE)	Hispanic (n = 1,610) Prev. %	Hispanic (n = 1,610) Distress Mean (SE)	Black (n = 1,054) Prev. %	Black (n = 1,054) Distress Mean (SE)
% of federal poverty level						
>200%	75.0	2.90 (0.077)	36.1	3.36 (0.242)	53.5	3.32 (0.245)
100%-200%	16.2	3.62 (0.181)	25.3	4.34 (0.250)	20.1	4.22 (0.328)
<100%	8.8	5.22 (0.339)	38.5	5.36 (0.209)	26.3	5.00 (0.335)
	F = 27.0, p < .001		F = 19.7, p < .001		F = 8.48, p < .001	
Frequency of unfair treatment						
Never/seldom	76.6	2.69 (0.069)	64.9	3.59 (0.123)	57.9	3.09 (0.183)
Sometimes	19.1	4.49 (0.180)	27.5	5.27 (0.229)	32.1	4.58 (0.314)
Often/very often	4.3	8.70 (0.586)	7.6	7.83 (0.772)	10.0	6.80 (0.534)
	F = 92.0, p < .001		F = 33.3, p < .001		F = 26.4, p < .001	
Racial/ethnic stigma						
Low	77.5	3.04 (0.077)	50.3	3.90 (0.155)	32.3	3.97 (0.261)
Medium	19.3	4.01 (0.181)	37.1	4.49 (0.198)	41.3	3.82 (0.275)
High	3.3	3.95 (0.444)	12.6	6.12 (0.446)	26.4	4.18 (0.282)
	F = 13.6, p < .001		F = 12.1, p < .001		F = 0.44, NS	
Sources of extreme disadvantage						
None	85.7	2.90 (0.073)	50.8	3.28 (0.149)	48.7	3.33 (0.266)
One	12.6	4.65 (0.237)	39.4	5.07 (0.205)	39.7	3.97 (0.233)
Multiple	1.6	10.1 (1.03)	9.8	7.54 (0.624)	11.6	6.47 (0.536)
	F = 48.4, p < .001		F = 41.4, p < .001		F = 13.8, p < .001	

Notes: N's are unweighted; results are weighted. Prev. = prevalence. NS = not significant.

Consistent with these findings, blacks and Hispanics also had higher levels of overall distress than whites. Mean distress scores were 3.96, 4.38, and 3.27 in blacks, Hispanics, and whites, respectively (F = 33.0, p < .001, data not shown). Within each of the three groups, however, greater social disadvantage tended to correspond to greater psychological distress (see Table 2), the exception being the null relationship between racial/ethnic stigma and distress among blacks. Upon further investigation, we found that racial/ethnic stigma among blacks is positively associated with education (r = .21, p < .001), which, in turn, is negatively associated with distress (r = -.20, p < .001). In other words, more highly educated blacks reported the highest levels of racial stigma, but they also reported the lowest levels of psychological distress, a finding that we take up in the Discussion.

The relationship between social disadvantage and drinking behavior within racial/ethnic groups

We next examined the extent to which social disadvantage is associated with current drinking status, at-risk drinking, and problem drinking using multivariate models adjusting for demographic covariates. We found that social disadvantage was unrelated to at-risk drinking (data not shown) and that its relationship to current drinking status was primarily limited to the effects of poverty. Persons with severe economic hardship, that is, incomes below the federal poverty level, were least likely to be current drinkers (for whites, adjusted odds ratio [AOR] = 0.33, 95% confidence interval [CI]: 0.25-0.44; for blacks, AOR = 0.52, CI: 0.33-0.80; and for Hispanics, AOR = 0.62, CI: 0.41-0.92). This strong effect for poverty appeared to be driving the association also observed between cumulative disadvantage and current drinking status, as there were null effects for unfair treatment and racial stigma on current drinking (data not shown).

As can be seen in Table 3, a clearer pattern of association was found between social disadvantage and problem drinking, that is, reports of one or more negative drinking consequence or symptoms of DSM-IV alcohol dependence in the past 12 months. Below-poverty income was associated with an elevated risk of problem drinking in blacks, Hispanics, and whites, but this was not statistically significant.

The effects of unfair treatment, racial/ethnic stigma, and cumulative disadvantage on problem drinking were more pronounced. Compared with those who never or seldom experienced unfair treatment, blacks and whites reporting frequent unfair treatment had a twofold to fourfold greater risk of problem drinking. Among minorities, high levels of racial/ethnic stigma were associated with a twofold greater risk of problem drinking compared with those reporting low stigma. And across all three racial/ethnic groups, cumulative disadvantage was a significant predictor of problem drinking. Compared with those with no exposure to extreme disadvantage, persons reporting multiple sources of extreme economic or social hardship had a roughly three to six times greater odds of reporting problem drinking.

A closer look at social disadvantage and alcohol-related problems

As our measure of problem drinking encompasses both negative drinking consequences and DSM-IV alcohol

TABLE 3 Social disadvantage and alcohol problems, by race/ethnicity, current drinkers only (adjusted odds ratios and 95% confidence intervals shown)

	Problem drinking			Problem drinking adjusted for distress			≥1 Negative consequences			≥2 Dependence symptoms		
Social disadvantage	White (n = 2,810)	Hispanic (n = 766)	Black (n = 504)	White (n = 2,810)	Hispanic (n = 766)	Black (n = 504)	White (n = 2,810)	Hispanic (n = 766)	Black (n = 504)	White (n = 2,810)	Hispanic (n = 766)	Black (n = 504)
% of federal poverty level (ref.: >200%)												
100%-200%	1.07	1.17	1.07	0.96	0.99	1.09	1.03	1.08	1.20	0.65	0.91	1.42
	(0.63-1.80)	(0.61-2.25)	(0.46-2.49)	(0.54-1.72)	(0.49-1.98)	(0.46-2.55)	(0.60-1.77)	(0.54-2.16)	(0.51-2.83)	(0.34-1.27)	(0.43-1.93)	(0.56-3.59)
<100%	1.60	1.33	1.60	1.45	1.11	1.42	1.40	1.42	1.56	1.79	1.38	2.19
	(0.87-2.92)	(0.72-2.47)	(0.68-3.77)	(0.81-2.58)	(0.58-2.15)	(0.60-3.37)	(0.74-2.63)	(0.75-2.70)	(0.64-3.81)	(0.90-3.54)	(0.71-2.70)	(0.83-5.79)
Unfair treatment (ref.: Never/seldom)												
Sometimes	1.85†	1.20	1.74	1.56*	1.02	1.36	1.95†	1.28	1.61	1.93†	1.89*	1.45
	(1.22-2.80)	(0.71-2.02)	(0.83-3.64)	(1.02-2.39)	(0.59-1.76)	(0.64-2.93)	(1.29-2.96)	(0.74-2.20)	(0.76-3.45)	(1.18-3.14)	(1.02-3.49)	(0.63-3.37)
Often/very often	4.29‡	1.88	2.76*	2.36*	1.01	1.51	3.80‡	2.09	2.30§	3.75‡	5.13†	3.97†
	(2.37-7.80)	(0.70-5.04)	(1.12-6.81)	(1.21-4.57)	(0.38-2.68)	(0.55-4.11)	(2.04-7.06)	(0.78-5.58)	(0.92-5.75)	(1.87-7.50)	(2.00-13.1)	(1.54-10.2)
Racial/ethnic stigma (ref.: Low)												
Medium	1.67†	1.19	1.16	1.45	1.12	0.99	1.63*	1.23	1.19	1.95†	1.16	1.85
	(1.14-2.45)	(0.72-1.99)	(0.54-2.53)	(0.98-2.16)	(0.67-1.89)	(0.44-2.23)	(1.10-2.42)	(0.72-2.10)	(0.53-2.66)	(1.20-3.15)	(0.65-2.07)	(0.72-4.76)
High	1.17	2.04*	2.10§	1.07	1.66	1.97	0.82	2.39*	2.40*	2.19	1.72	2.72*
	(0.48-2.86)	(1.03-4.04)	(0.97-4.57)	(0.46-2.50)	(0.80-3.44)	(0.89-4.38)	(0.29-2.30)	(1.18-4.82)	(1.09-5.30)	(0.86-5.58)	(0.77-3.85)	(1.07-6.96)
Sources of extreme disadvantage (ref.: None)												
One	1.56	1.11	1.76	1.34	0.95	1.98§	1.36	1.24	2.01§	2.05*	1.36	1.22
	(0.95-2.56)	(0.63-1.94)	(0.81-3.82)	(0.81-2.22)	(0.54-1.65)	(0.90-4.35)	(0.81-2.30)	(0.69-2.22)	(0.91-4.47)	(1.18-3.55)	(0.70-2.66)	(0.51-2.95)
Multiple	6.64†	2.77*	3.93†	2.71*	1.59	2.61§	5.02†	3.47†	3.64*	5.28*	4.24†	4.43†
	(2.24-19.7)	(1.22-6.28)	(1.48-10.5)	(1.06-6.91)	(0.66-3.81)	(0.93-7.36)	(1.60-15.8)	(1.52-7.94)	(1.33-9.99)	(1.47-19.0)	(1.73-10.4)	(1.56-12.6)

Notes: N's are unweighted; results are weighted. Each indicator of social disadvantage represents a separate model, adjusting for gender, age, marital status, education, and, for Hispanics, U.S. nativity. Ref. = reference.

§$p < .10$ (shown for Hispanics and blacks owing to their smaller sample sizes); *$p < .05$; †$p < .01$; ‡$p < .001$.

dependence, a question arises as to whether social disadvantage is associated with both consequences and dependence symptoms. To address this, we conducted exploratory analyses that decomposed problem drinking into one or more negative drinking consequences and two or more dependence symptoms. We found similar relationships between social disadvantage and both of these outcomes, although there appeared to be some differences in the magnitude of effects (see Table 3, third and fourth major columns pertaining to negative consequences and dependence symptoms).

Among Hispanics and blacks, frequent unfair treatment appeared to be more strongly associated with alcohol dependence symptoms than with negative drinking consequences. Also, in both groups the effect of unfair treatment on dependence appeared greater than the effect of racial/ethnic stigma. In Hispanics, racial/ethnic stigma was significantly associated only with negative drinking consequences, but in blacks, stigma posed a risk for both dependence and drinking consequences.

The role of distress in problem drinking

Earlier we considered whether social disadvantage is a source of psychological distress and provided some support for this in the bivariate results shown in Table 1. We next considered whether distress associated with disadvantage helps to explain the associations observed between unfair treatment, racial/ethnic stigma, and cumulative disadvantage on the one hand, and problem drinking on the other. As can be seen in the second major column in Table 3, including psychological distress in the models reduced the odds of problem drinking associated with frequent unfair treatment in all three racial/ethnic groups. It also reduced the risk associated with high levels of stigma in Hispanics, and to a lesser extent in blacks, as well as the risk associated with high cumulative disadvantage in whites, blacks, and Hispanics.

Discussion

In recent years, a growing literature has highlighted social disadvantage as an important determinant of minority health. In the current study, we examined the extent to which social disadvantage is related to alcohol use and problems in blacks and Hispanics as well as in whites. As expected, we found a profound disparity in exposure to economic and social hardship, with minorities experiencing greater poverty, unfair treatment, racial/ethnic stigma, and cumulative disadvantage. But among persons exposed to these hardships, we observed similar adverse effects on psychological well-being and problem drinking.

Across all three racial/ethnic groups, greater disadvantage corresponded to greater psychological distress. The one exception was a null association between racial stigma and distress in blacks. Consistent with our results, other studies have found that highly educated blacks are more likely to encounter interracial tensions (Borrell et al., 2007) and have suggested that their greater mobility in predominantly white, middle-class social spheres might account for this (Neckerman et al., 1999). At the same time, however, having greater socioeconomic resources is associated with protective or stress-buffering effects (Mirowsky and Ross, 1986; Turner and Noh, 1983; Turner et al., 1995). The observed null finding may thus reflect countervailing effects of education on racial stigma and distress among blacks.

Importantly, our study found that blacks, Hispanics, and whites who are exposed to social disadvantage—particularly unfair treatment or, in the case of minorities, racial/ethnic stigma—are at greater risk for problem drinking. These findings extend prior research focused on racial discrimination and its negative impacts on minority drinking problems. Interestingly, although we used a broad measure of unfair treatment that differs from measures of racial discrimination used by Yen et al. (1999) and Martin et al. (2003), the observed associations with problem drinking are of similar magnitude across these studies, corresponding to a twofold increased risk in minority populations. This suggests that social hardship of this nature may have robust effects on problem drinking among black and Hispanic Americans.

Our nonsignificant results concerning poverty were surprising and should be interpreted with caution, given that the associated odds of problem drinking, negative drinking consequences, and dependence symptoms were consistently elevated among those living in poverty. Other research has found poverty to be associated with alcohol problems, particularly neighborhood-level poverty and long-term poverty (Jones-Webb et al., 1997; Khan et al., 2002; Kost and Smyth, 2002).

As we expected, psychological distress appears to play a role in the risk of problem drinking associated with frequent unfair treatment in all three groups, and with high racial/ethnic stigma in Hispanics and blacks. Several points should be noted. First, the mediating role of psychological distress appears more pronounced for unfair treatment than for racial stigma and reflects the stronger association observed between unfair treatment and distress. Second, because education appeared to confound the relationship between racial stigma and distress in blacks, we controlled for education and found that distress was still more highly correlated with unfair treatment than with racial stigma among blacks (partial r = .27 and .06, respectively). It is possible that the perception of concrete, unfair acts against oneself may have greater salience and psychological impact than a general awareness of negative attitudes and beliefs about oneself based on membership in a racial/ethnic group. Supporting this, Martin et al. (2003) found that discriminatory experiences—but not perceptions of prejudice—were related to alcohol problems in their study of black workers.

The other two alcohol outcomes examined in this study, current drinking status and at-risk drinking, were unrelated to social disadvantage. The null findings for drinking status suggest that people do not take up drinking in response to economic and social hardship. This is not surprising. People drink alcohol for many reasons, most commonly for social reasons (Greenfield et al., in press). It is also likely that a variety of other factors, such as religious, health, and financial considerations, influence whether individuals abstain from or cease to drink alcohol (Greenfield et al., 1989; Hilton, 1986). That the very poor were least likely to be current drinkers, as commonly observed (Dawson et al., 1995; Greenfield et al., 2000; Hilton, 1991a), highlights this complexity and suggests that poverty could be both a stressor and a marker of economic access to alcohol in this case.

The lack of a relationship between social disadvantage and at-risk drinking among drinkers was somewhat unexpected, given that several studies have reported a positive relationship to heavy drinking (Mulia, 2003; Yen et al., 1999; Zemore et al., 2006). However, the operationalization of heavy drinking has varied across studies, and the at-risk drinking measure used here applies relatively low cutpoints, consistent with NIAAA's clinician guidelines (NIAAA, 2005). Moreover, rather than being defined as a simple threshold (above versus below the safe drinking limits), the measure used here is restricted to persons without alcohol problems, as persons with alcohol problems could no longer be considered "at risk" for such problems. Our measure may thus have a more constrained distribution of heavy consumption, possibly accounting for the discrepancy with prior research.

There are several limitations to the present study that should be considered. First, this cross-sectional study cannot address causal directionality. Although researchers have argued that social disadvantage is a source of stress that contributes to problem drinking, reverse or reciprocal causation is plausible. That is, alcohol-related problems could conceivably result in unfair treatment and heightened perceptions of racial/ethnic stigma. Future studies should examine longitudinal relationships between social disadvantage and alcohol problems to clarify these pathways. Second, the 56% response rate for the NAS, although comparable to other telephone surveys, raises questions about the possibility of biased estimates. Offsetting this concern somewhat, as noted earlier, is that our extensive methodological research indicates that the NAS telephone surveys yield alcohol-related estimates similar to those from in-person surveys with higher response rates.

Additional limitations concern our measures. In an effort to broaden the study of social disadvantage, we assessed "unfair treatment" and were thus able to discern its relationship with problem drinking among whites. But because of this, our study does not offer a direct comparison to studies of racial discrimination. It should also be noted that our use of a single-item measure of unfair treatment might underestimate its prevalence (Martin et al., 2003; Williams and Williams-Morris, 2000) and offer less reliability than multi-item measures (Krieger et al., 2005). Future work should attempt to capture experiences of discrimination attributable to race and other dimensions of difference by employing multi-item measures that allow respondents to indicate multiple attributions for unfair treatment (e.g., see Stuber et al., 2003).

Finally, as noted earlier, our nonsignificant findings for poverty are not consistent with prior research and might reflect the lack of information on important aspects of the experience of poverty, for example, neighborhood poverty and the duration of poverty.

These limitations notwithstanding, our study finds that social disadvantage is highly relevant to psychological distress and problem drinking among black, Hispanic, and, notably, also white Americans. This has implications for future efforts to understand racial/ethnic disparities in alcohol problems, particularly in relation to debates concerning differential exposure and differential vulnerability to stress. It has been suggested that minority groups may be particularly vulnerable to the effects of stress on drinking problems, in part owing to fewer coping resources, avoidant styles of coping, and coping motives for drinking (Cooper et al., 1992, 1995; Russell et al., 1999). Alternatively, some have argued that it may not be differential vulnerability so much as differential exposure (i.e., exposure to stressors of a different nature and/or with greater frequency or intensity) that accounts for differences in psychological distress and substance abuse problems (Kessler et al., 1999; Turner and Lloyd, 1995). Our finding that blacks and Hispanics have similar, if not lower, risks of problem drinking associated with disadvantage, as compared with whites, runs contrary to the first argument.

Indeed, if we were to assume, not unreasonably, that racial/ethnic minorities' experiences of unfair treatment or the conditions of poverty are qualitatively more severe than those of whites, then we would expect minorities to have much higher levels of associated distress and a greater risk of problem drinking than whites. We found neither. This suggests to us that there might be adaptive or protective mechanisms operating that help to offset minorities' individual-level risk of adverse psychological and behavioral responses (for similar arguments, see Grzywacz et al., 2004; Turner and Lloyd, 2003).

These findings further suggest that the more widespread exposure to social disadvantage among racial/ethnic minority groups might be a key factor underlying population-level differences in drinking problems. Future research should assess the extent to which alcohol-related disparities might be eliminated given a more even distribution of social and economic advantages across racial groups in the United States. To the extent that social and economic inequities account for disparities in drinking problems, individual-level interventions are likely to reap short-term benefits in the absence of

broader, societal-level efforts to address what appear to be fundamental and enduring causes of health and disease (Link and Phelan, 1995; Syme, 2008).

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