

Racial Prejudice and Unfair Treatment: Interactive Effects With Poverty and Foreign Nativity on Problem Drinking*

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ABSTRACT. Objective: Although racial and ethnic minorities are often disadvantaged in multiple ways, little research has examined the interactive effects of multiple forms of disadvantage in these populations. The current study describes the independent and interactive effects of perceived prejudice, perceived unfair treatment, poverty, and foreign nativity on problem drinking outcomes among Black and Latino adults. **Method:** The data source was Black ($n = 504$) and Latino ($n = 766$) drinkers from the nationally representative, weighted 2005 National Alcohol Survey. Perceived prejudice was assessed using a composite measure of racial stigma consciousness; perceived unfair treatment was assessed using a single item. Respondents whose per capita household income was below the 2004 poverty guidelines were coded as “poor”; nativity status was assessed among Latinos. Outcomes included past-year drinking to drunkenness, any drinking-related consequences, and two or more dependence symptoms. **Results:** In bivariate tests, higher levels of unfair treatment were significantly associated with all three outcomes among

Blacks (marginally so for drunkenness) and dependence symptoms among Latinos. Further, higher racial stigma was significantly associated with higher rates of any drinking consequences among Latinos. In multivariate logistic regressions, six significant or marginally significant interactions emerged. For each, the pattern of results suggested stronger associations between perceived prejudice/unfair treatment and problem drinking given either poverty or foreign nativity. **Conclusions:** Although findings were somewhat mixed, the pattern of results tentatively supports the hypothesis that associations between problem drinking and both prejudice and unfair treatment can be exacerbated given the presence of other stressors, particularly among Latinos. Results extend the literature on the health consequences of prejudice and discrimination, highlighting important effects of cumulative adversity and suggesting a need to focus particularly on drinkers exposed to the combined effects of multiple stressors in prevention and treatment efforts. (*J. Stud. Alcohol Drugs*, 72, 361–370, 2011)

ALTHOUGH OVERT EXPRESSIONS of racial prejudice have declined significantly since the 1950s (Firebaugh and Davis, 1988; Schuman et al., 1997; Smith, 1990; Smith and Dempsey, 1983), prejudice and discrimination are alive, if in more subtle and covert forms (Sniderman et al., 1991; Tarman and Sears, 2005). Moreover, exposure to prejudice and discrimination continues to be associated with poorer mental health outcomes, such as lower self-rated life satisfaction and happiness and greater depression (Jackson et al., 1996; Kessler et al., 1999; Paradies, 2006; Taylor and Turner, 2002; Williams et al., 1997, 2003), as well as poorer overall physical health (Borrell et al., 2006; Finch et al., 2001; Paradies, 2006; Ren et al., 1999). Still, little research to date has examined how exposure to prejudice and discrimination relate to alcohol use and problems among racial and ethnic minorities. The current study extends the research on that topic, focusing on a national sample of Blacks and Latinos in the United States.

In the current article, we define prejudice as attitudinal bias, “an avertive or hostile attitude toward a person who belongs to a group, simply because he [or she] belongs to that group” (Allport, 1979, p. 7). In contrast, discrimination is behavioral, including “practices and actions of dominant race-ethnic groups that have a differential and negative impact on subordinate race-ethnic groups” (Feagin and Eckberg, 1980, p. 9).

Prejudice, discrimination, and drinking

Several theories of alcohol use and alcoholism, including the tension reduction approach, expectancy theory, and Marlatt and Gordon’s model of relapse prevention (Marlatt, 1985), suggest that people drink alcohol in response to negative emotional states, and indeed there is substantial evidence to support this position (Goldman et al., 1999; Greeley and Oei, 1999; Maisto et al., 1999). This implies that, holding all else constant, exposure to prejudice and discrimination should be associated with greater alcohol use and misuse because such exposure is also related to greater psychological distress, as described above.

However, the research base on this question remains inconclusive, if provocative. A few studies adopting substance use variables combining tobacco, alcohol, and marijuana use have found positive associations between discrimination and substance use among Black children

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and adults (Gibbons et al., 2004; Resnicow et al., 1999). A few studies on Black and Latino adults have also examined alcohol outcomes per se in relation to prejudice or discrimination. Among them, Yen et al.'s (1999a, 1999b) studies on transit operators in San Francisco were seminal, showing significant associations between higher levels of racial discrimination and higher monthly volume, odds of heavy drinking, odds of dependence, and negative drinking consequences among the "non-White" (majority Black) sample. A more recent study, sampling from four urban centers, likewise found that Blacks who experienced discrimination in three or more (of seven) domains had more than twice the odds of any alcohol use in the past year compared with Blacks reporting discrimination in fewer domains (Borrell et al., 2007). A fourth study on physicians in training concluded that men who encountered negative comments about their racial or ethnic background drank more and experienced more drinking-related problems than men who did not encounter such comments (Richman et al., 1996). Finally, our own group's prior analyses of the 2005 National Alcohol Survey (NAS; Mulia et al., 2008) showed that, among Black drinkers, greater exposure to both perceived racial stigma and perceived unfair treatment predicted higher odds of any drinking consequences and two or more dependence symptoms; among Latino drinkers, the pattern of associations was similar. Further analyses of problem drinking suggested that associations with racial stigma and unfair treatment were partially mediated by psychological distress, measured using a scale of depression symptoms. In that study, unfair treatment was measured as the frequency of unfair treatment not specific to race; the measure was not a measure of racial discrimination exclusively. However, in other studies on Asian American samples, perceived unfair treatment, measured similarly, was likewise associated with smoking, illicit and prescription drug use, and alcohol-related disorders (Chae et al., 2008a, 2008b; Gee et al., 2007).

Key limitations of these earlier studies on prejudice, discrimination, and alcohol outcomes are that almost none have focused on Latinos and that almost all have focused exclusively on overt discrimination. Consequently, very little is known about how alcohol use and problems are related to prejudice and discrimination among Latinos, and whether the mere expectation of bias is a marker and possible cause of problem drinking, as is exposure to overt discrimination. This latter question deserves attention because the implications for prevention and treatment (as well as the presumed causal pathways) may differ depending on the answer.

Another limitation of prior studies is that none have explored potential interactive effects involving prejudice or discrimination, despite the fact that racial and ethnic minorities often face multiple hardships (e.g., discrimination and poverty). A few studies, however, have examined interactive effects between race or ethnicity and socioeconomic

disadvantage. For example, analyzing 1984 NAS data, a study by Jones-Webb et al. (1997) found that associations between neighborhood poverty and alcohol problems were stronger among Blacks than Whites. Similarly, other studies have reported stronger associations between low income and alcohol problems among Black men than among White men (Barr et al., 1993) and between low education and remission from alcohol problems among Blacks and Hispanics compared with Whites (Caetano and Kaskutas, 1996). Assuming that minority race is a marker of social disadvantage, these findings tentatively suggest that the effects of disadvantage in one domain can be stronger given disadvantage in other domains. Thus, the findings are consistent with theory on "cumulative adversity," which emphasizes the need to consider the cumulative impact of multiple forms of disadvantage on health outcomes (e.g., Turner and Lloyd, 1995, 2003). However, it remains unknown whether the effects of prejudice and discrimination are exacerbated in the presence of other stressors and, if so, which stressors. These questions are important because neglecting potential interactions could lead to underestimation of the effects of prejudice and discrimination if interactive effects do exist.

Current study

The current study, presenting a new analysis of Black and Latino respondents to the 2005 NAS, extends earlier research on prejudice and discrimination and our article on the 2005 NAS (Mulia et al., 2008) specifically in three ways. We (a) include both Latinos and Blacks; (b) examine both perceived prejudice and perceived unfair treatment; and (c) test whether associations between problem drinking and both prejudice and unfair treatment depend on exposure to poverty and, among Latinos, foreign nativity. The strengths of the present study include the survey's nationally representative samples of Black and Latino respondents and precise, well-validated outcome measures. We acknowledge that relationships between foreign nativity and mental and physical health outcomes among Hispanics are complex and that, in many cases, foreign nativity may be protective against negative health outcomes, including heavy drinking (Caetano, 1987; Escobar et al., 2000; Lara et al., 2005; Vega and Amaro, 2002; Zemore, 2005, 2007). However, foreign nativity may also exacerbate the effects of exposure to prejudice and discrimination on distress because recent migrants may be especially sensitive to the attitudes of the host culture and particularly vulnerable, both socially and economically, to their effects.

Hypotheses were that (a) higher levels of both perceived racial stigma and perceived unfair treatment should predict higher odds of heavy drinking and alcohol-related problems; and (b) the foregoing relationships should be stronger for Black and Latino respondents below (vs. above) the poverty line and for foreign-born (vs. U.S.-born) Latinos.

Method

Data source

Data are from the 2005 NAS, which involved computer-assisted telephone interviews with a national probability sample of adults ages 18 years and older. Respondents were selected through single-stage random digit dialing, and the survey included a main sample and oversamples of sparsely populated U.S. states, Blacks (obtained by targeting geographic areas with high densities of Black residents), and Latinos (obtained by contacting individuals with Hispanic surnames).

The survey response rate was approximately 56%. Although this rate is lower than that for many face-to-face surveys, it is considered typical of recent U.S. telephone surveys in a time of increasing barriers to random-digit-dialing studies (Midanik and Greenfield, 2003b). Further, two types of evidence suggest that nonresponse bias, if any, should have had little impact on the results. First, an extensive series of methodological studies comparing identical questions in telephone and in-person surveys has found comparable estimates across modalities for alcohol consumption (Greenfield, 2000; Greenfield et al., 2000; Midanik and Greenfield, 2003a, 2003b) and only modest and inconsistent mode effects for alcohol harms (Midanik et al., 2001), despite higher response rates for in-person surveys. Second, an analysis examining consumption estimates in the 2000 NAS sample replicates (each replicate being a random subsample with a specific response rate varying around the overall mean of 58%) found no association between replicate response rate and total volume of alcohol consumed. This again suggests that nonresponse bias should not have substantially affected NAS consumption or problem rate estimates. For detailed discussions of the NAS methodology, see Clark and Hilton (1991), Kerr et al. (2004), and Midanik and Greenfield (2003a).

Sample characteristics

Of the total sample of 6,919 respondents, 15% self-identified as Black ($n = 1,054$, of which 55% were female) and 23% self-identified as Hispanic or Latino ($n = 1,610$, of which 48% were female). Current drinkers comprised 51% ($n = 504$) and 56% ($n = 766$) of the Black and Latino samples, respectively. Because the current study focused on drinkers only, sample descriptives (below) were likewise limited to drinkers only.

Among the Latinos, 40% were interviewed in Spanish, and 45% were foreign born. The majority self-identified as Mexican or Mexican American (59%), but others identified as South/Central Latin American (15%), Puerto Rican (7%), Cuban (4%), and "other Hispanic" (15%). About half of both the Black and the Latino drinkers (47% and 50%, respectively) reported a high school education or less, and

more than one third (44% and 36%, respectively) reported that their household income in 2004 was \$30,000 or less, with 17% of Blacks and 20% of Latinos reporting incomes below the poverty level. Both Black and Hispanic drinkers reported a mean age of 41 years (range: 18–99 years for Blacks, 18–84 years for Latinos). Rates of alcohol problems were significantly higher (all $ps < .01$) among Black and Latino drinkers than among White drinkers. Among Blacks, Latinos, and Whites, rates of any consequences were 13%, 15%, and 9%, respectively; rates of two or more dependence symptoms were 11%, 12%, and 6%, respectively; and rates of dependence, as classified by the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV; American Psychiatric Association, 1994), were 6%, 8%, and 3%, respectively.

Measures

Perceived prejudice. Consistent with Mulia et al. (2008), we assessed perceived prejudice using 3 items from Pinel's (1999) 10-item scale of racial stigma consciousness, defined as the extent to which one expects to be stereotyped by others on the basis of race (Pinel, 1999). We consider racial stigma to be conceptually equivalent to racial prejudice because both involve exposure to negative attitudes as a function of racial group membership (Stuber et al., 2008). Items were selected based on high factor loadings in prior analytic work (Pinel, 1999), and were considered to have excellent face validity. Using a scale ranging from 1 (*disagree very much*) to 4 (*agree very much*), respondents rated the extent to which they agreed with the following statements: (a) "Stereotypes about my race or ethnic group have affected me personally," (b) "My race or ethnic group influences how people act with me," and (c) "Many people have a problem viewing my race or ethnic group as equal." To create a continuous, aggregate score, responses were averaged. Ten-item versions of the scale have demonstrated acceptable reliability in prior work on gender, sexual orientation, and racial stigma consciousness (Pinel, 1999). Further, higher stigma consciousness has been associated with lower trust in people, higher private self-consciousness, higher public self-consciousness, higher social anxiety, and greater perceived discrimination (Pinel, 1999), supporting scale validity.

Perceived unfair treatment. Perceived unfair treatment was measured using a single item assessing how often the respondent felt that he or she was treated unfairly, with responses ranging from 1 (*almost never*) to 5 (*very often*). This variable was used as a continuous predictor. The measure is not limited to unfair treatment on the basis of race, and hence it cannot be interpreted as a direct measure of racial discrimination. However, it does tap discrimination and was a strong predictor of alcohol problems in our previous work (Mulia et al., 2008), arguing for its relevance to alcohol outcomes and conceptual similarity to racial discrimination.

Poverty status and foreign nativity. Poverty status was a dichotomous variable indicating whether the respondent's per capita household income was below or above the 2004 poverty guidelines issued by the U.S. Department of Health and Human Services (2005). Likewise, we used a dichotomous variable to indicate foreign (vs. U.S.) nativity. Puerto Rican-born individuals were considered foreign born.

Drinking outcomes. Heavy drinking was operationalized as *drinking to drunkenness*, measured with the item, "How often in the past year did you drink enough to feel drunk?" Response options ranged from 1 (*never*) to 9 (*every day or nearly every day*). We used a dichotomous variable to indicate any (vs. no) drunkenness in the past 12 months. Frequency of drunkenness has been strongly associated with drinking-related consequences, dependence symptoms, and harms in prior research, and some evidence suggests it is a better indicator of problem drinking than apparently more objective measures, such as 5+ drinking (Greenfield, 1998; Zemore, 2005). *Negative drinking consequences* were captured by a dichotomous variable indicating whether the respondent had experienced any of 15 consequences while or because of drinking in the past 12 months, across several domains: social (4 items, such as getting into arguments while drinking), legal (3 items, such as being warned by a police officer because of drinking), workplace (3 items, such as drinking hurting a chance for promotion), health (3 items, such as illness from drinking), and injuries and accidents (3 items, such as someone getting hurt or property damaged because of drinking). These items have been used successfully in the NAS for almost 40 years (Cahalan, 1970); in prior research, α 's for all subscales ranged from .74 to .87, with the exception of health (Midanik and Greenfield, 2000). *Dependence symptoms* were measured using a dichotomous variable indicating the presence of 2 or more of 13 symptoms of alcohol dependence in the past 12 months. Symptoms represent the seven domains identified by the DSM-IV. Items from our dependence scale have been validated in prior NAS data sets (Caetano and Tam, 1995).

We examined two or more dependence symptoms rather than dependence per se (i.e., three or more domains) largely in response to power limitations. Prevalence of DSM-IV dependence among Black and Latino drinkers combined, at 7.4%, was too low to provide adequate power for our logistic regressions because, with a total sample of 1,270 drinkers, prevalence must be at or above 8.5% to detect small odds ratios (ORs; ~ 1.3) with power = .80, $\alpha = .05$ (Hsieh, 1989). Similar considerations drove cutpoints for the consequences scale. Cutpoints for these scales were also strongly motivated by the choices made in our previous article (Mulia et al., 2008) and our desire for comparability with that article. Among drinkers in the current sample, the number of dependence symptoms in the past year was correlated with negative consequences of alcohol use ($r = .62, p < .001$). All outcome variables were dichotomized because their distribu-

tions were highly skewed and leptokurtic and could not be normalized using variable transformations.

Control variables. Our multivariate analyses controlled for gender and other key predictors of alcohol use, including age (continuous), education (graduated from high school, attended some college, or graduated from college vs. less than high school), and marital status (married/living as married vs. not). Disaggregated models (see below) additionally controlled for poverty status (if disaggregating by nativity) or nativity status (if disaggregating by poverty).

Analyses

Data were weighted to adjust for the probability of selection (i.e., number of phone lines in the household, adults in the household, and households in the state) and differential response rates by state. Post-stratification weights were also applied to match the sample to the U.S. census on gender; age; region; and, among Latinos, nativity. (Weighted sample sizes are included in the tables.) All analyses were conducted using Stata (StataCorp LP, College Station, TX) to incorporate standard errors appropriate to the design and weights. All analyses included drinkers only for both Black ($n = 504$) and Latino ($n = 766$) samples, since our main interest focused on how prejudice and unfair treatment may affect the pattern and consequences of drinking among drinkers rather than drinker status per se.

Chi-square tests were applied to examine the overall relationships between racial stigma and unfair treatment, on the one hand, and 12-month rates of drinking to drunkenness, any drinking consequences, and two or more dependence symptoms, on the other. Multivariate logistic regressions were used to examine these relationships while controlling for demographic characteristics and to test for interactions between stigma/unfair treatment and both poverty status and foreign nativity. To avoid collinearity (i.e., instability in parameter estimates introduced by simultaneously entering both racial stigma and unfair treatment, which were correlated), we applied separate models to test direct and moderated associations between racial stigma and outcomes and between unfair treatment and outcomes. Nonsignificant interaction terms were dropped to facilitate interpretation of the remaining parameters. Given a significant interaction, we applied disaggregated multivariate models to compare the effect of the main predictor (i.e., racial stigma or perceived unfair treatment) across relevant subgroups (i.e., those above vs. below the poverty line, or foreign-born vs. native-born Hispanics, as appropriate). These models allowed us to compare how associations varied across subgroups.

Results

We hypothesized that both perceived racial stigma and perceived unfair treatment would be positively associated

with past-year drinking to drunkenness and alcohol problems. Further, we expected that these associations would be stronger among Black and Latino respondents below (vs. above) the poverty line and among foreign-born (vs. U.S.-born) Latinos.

Bivariate (chi-square) tests

Table 1 shows the bivariate associations between alcohol outcomes and both racial stigma and unfair treatment. Consistent with expectations, higher levels of both racial stigma and unfair treatment were in general (but not without exception) incrementally related to higher rates of past-year drunkenness and alcohol problems among both Blacks and Latinos. Still, fewer than half of the associations attained significance. Significant coefficients emerged for associations between unfair treatment and both drinking consequences and dependence symptoms among Blacks, while the association between unfair treatment and drinking to drunkenness among Blacks was marginally significant. Among Latinos, significant coefficients emerged for associations between racial stigma and drinking consequences, and between unfair treatment and dependence symptoms.

Multivariate logistic regressions

Table 2 displays the results of multivariate logistic regressions testing the effects of racial stigma and unfair treatment in interaction with poverty and nativity status while controlling for other demographic characteristics. Considering main effects first, these models show significant main effects for racial stigma on dependence symptoms and for unfair treatment on drinking consequences, both among Black respondents. Further, and consistent with our hypotheses, several interaction effects emerged. Among Black respondents, a significant interaction emerged between unfair treatment and poverty status in predicting dependence symptoms. Mean-

while, Latino respondents showed two significant and three marginally significant interaction effects. Interaction effects surfaced for drinking to drunkenness as well as drinking consequences and dependence symptoms, and for both racial stigma and unfair treatment.

Main effects for poverty status and nativity were also interesting (Table 2). All tests of direct associations between poverty status and alcohol outcomes produced ORs greater than 1, suggesting that poverty is a risk factor for heavy drinking and alcohol problems among drinkers, although none, with the exception of drinking to drunkenness among Black respondents (OR = 1.69, $p < .10$), was significant at $p < .10$. Among Latinos, results conversely suggest protective effects for foreign nativity overall, with marginally significant protective effects emerging for drinking to drunkenness in the unfair treatment model (OR = 0.71, $p < .10$) and for drinking consequences in both the unfair treatment model (OR = 0.60, $p < .10$) and the stigma model (OR = 0.59, $p < .10$).

Disaggregated models examining the pattern of effects in subgroups

We applied disaggregated models, as described above, to examine the pattern of effects associated with each significant or marginally significant interaction term in Table 2. These tests supported our expectations that associations between racial stigma and problem drinking, and between unfair treatment and problem drinking, would be stronger among respondents disadvantaged in other ways. Thus, among Black respondents, unfair treatment was strongly and significantly associated with dependence symptoms among those below the poverty line, but unrelated to the same among those above it (below poverty: OR = 2.20, $p < .01$; above poverty: OR = 1.28, $p > .10$; not shown). Similarly, among Latinos (Table 3), numerous associations emerged involving poor and foreign-born respondents, whereas there

TABLE 1. Bivariate associations between indicators of perceived prejudice and alcohol outcomes

Variable	Past-year drinking to drunkenness		≥1 drinking consequence		≥2 dependence symptoms	
	Blacks (n = 504)	Latinos (n = 766)	Blacks (n = 504)	Latinos (n = 766)	Blacks (n = 504)	Latinos (n = 766)
Racial stigma						
Low, 0–3, % (n)	42.9% (66)	46.0% (202)	11.7% (18)	12.1% (54)	7.3% (11)	10.3% (46)
Medium, 4–6, % (n)	44.8% (99)	53.8% (181)	11.5% (26)	14.9% (51)	10.8% (24)	12.4% (42)
High, 7–9, % (n)	40.8% (65)	58.2% (58)	18.0% (29)	25.6% (26)	14.4% (23)	18.0% (18)
$\chi^2(2)$	0.6	6.3	3.8	10.1*	3.9	3.9
Unfair treatment						
Never/seldom, % (n)	42.5% (129)	50.9% (298)	9.9% (30)	13.5% (81)	7.7% (23)	8.9% (53)
Sometimes, % (n)	38.9% (62)	45.0% (103)	14.0% (22)	16.0% (37)	9.6% (15)	15.3% (35)
Often/very often, % (n)	60.9% (36)	65.2% (38)	30.5% (18)	19.8% (12)	30.0% (18)	24.7% (15)
$\chi^2(2)$	8.2†	6.8	16.9**	1.9	24.5***	14.6*

Notes: Percentages and ns are weighted. The *df* for the chi-square scores is 2.

† $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

TABLE 2. Multivariate models testing main and interactive effects of prejudice indicators with poverty and nativity status

Group and variable	Past-year drinking to drunkenness		≥1 drinking consequence		≥2 dependence symptoms	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Black respondents (n = 504)						
Stigma model						
Racial stigma	1.02	[0.93, 1.12]	1.13	[0.98, 1.29]	1.20*	[1.03, 1.39]
Below poverty	1.69†	[0.93, 3.08]	1.40	[0.60, 3.24]	2.01	[0.79, 5.13]
Stigma × Poverty	–	–	–	–	–	–
Unfair treatment model						
Unfair treatment	1.03	[0.83, 1.26]	1.40**	[1.09, 1.79]	1.27	[0.91, 1.76]
Below poverty	1.57	[0.86, 2.88]	1.12	[0.49, 2.55]	0.83	[0.26, 2.64]
Unfair treatment × Poverty	–	–	–	–	1.95*	[1.04, 3.64]
Latino respondents (n = 766)						
Stigma model						
Racial stigma	0.95	[0.82, 1.10]	1.04	[0.91, 1.19]	0.95	[0.82, 1.12]
Foreign born	0.73	[0.48, 1.11]	0.59†	[0.34, 1.04]	0.72	[0.41, 1.26]
Below poverty	1.21	[0.76, 1.95]	1.12	[0.62, 2.01]	1.13	[0.61, 2.09]
Stigma × Foreign born	1.18†	[0.99, 1.40]	–	–	–	–
Stigma × Poverty	–	–	1.24*	[1.00, 1.54]	1.26†	[0.99, 1.61]
Unfair treatment model						
Unfair treatment	0.92	[0.68, 1.25]	1.16	[0.89, 1.50]	0.97	[0.65, 1.43]
Foreign born	0.71†	[0.47, 1.07]	0.60†	[0.34, 1.05]	0.63	[0.34, 1.20]
Below poverty	1.24	[0.79, 1.96]	1.32	[0.75, 2.33]	1.27	[0.67, 2.42]
Unfair treatment × Foreign born	–	–	–	–	2.05**	[1.18, 3.59]
Unfair treatment × Poverty	1.54†	[0.97, 2.43]	–	–	–	–

Notes: OR = odds ratio; 95% CI = 95% confidence interval. Models were adjusted for sex, age, education, and marital status. Racial stigma and unfair treatment were assessed in separate models. Nonsignificant ($p > .10$) interaction terms were removed from models.
 † $p < .10$; * $p < .05$; ** $p < .01$.

were no associations between either racial stigma or unfair treatment and any alcohol outcome for Latinos who were either above the poverty line or U.S. born. (Note that, in Table 3, relationships addressing the interaction effects in Table 2 are in bold type, but additional disaggregated analyses were conducted for exploratory purposes and are also presented.) Table 3 shows that exposure to racial stigma was (a) significantly associated with both drinking consequences and dependence symptoms among poor Latinos, and (b) significantly associated with past-year drunkenness among foreign-born Latinos. Further, unfair treatment was (a) marginally associated with past-year drunkenness, drinking consequences, and dependence symptoms among the poor, and

(b) significantly associated with both drinking consequences and dependence symptoms among those who were foreign born. We do not present the same exploratory analyses for the Black sample because the Black sample was substantially smaller and showed low prevalence rates on these outcomes, suggesting that exploratory analyses could be misleading. Note that in the above results, and following Chinn (2000), significant ORs ranged from 1.12 to 1.91, corresponding to an effect size range of $d = .06$ to $d = .36$, or small to small-to-medium, where $d = .20$ is small, $d = .50$ is medium, and $d = .80$ is large (Cohen, 1988). These effect sizes correspond to 1-point increases in the continuous scales for both racial stigma (4-point scale) and unfair treatment (5-point scale).

TABLE 3. Disaggregated multivariate models examining the pattern of interactive effects among Latinos, with relationships relevant to significant interactions in Table 2 in bold type

Variable	Past-year drinking to drunkenness				≥1 drinking consequence				≥2 dependence symptoms			
	Below poverty		Above poverty		Below poverty		Above poverty		Below poverty		Above poverty	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Racial stigma	1.02	[0.87, 1.21]	1.03	[0.92, 1.15]	1.31**	[1.09, 1.57]	1.05	[0.91, 1.19]	1.20*	[1.01, 1.42]	0.94	[0.81, 1.11]
Unfair treatment	1.44†	[0.99, 2.11]	0.92	[0.68, 1.25]	1.42†	[0.96, 2.11]	1.09	[0.79, 1.49]	1.43†	[0.93, 2.20]	1.20	[0.81, 1.80]
Variable	Foreign born		U.S. born		Foreign born		U.S. born		Foreign born		U.S. born	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Racial stigma	1.12*	[1.01, 1.23]	0.96	[0.83, 1.11]	1.06	[0.93, 1.22]	1.11	[0.93, 1.31]	0.99	[0.86, 1.16]	0.99	[0.81, 1.21]
Unfair treatment	1.07	[0.83, 1.37]	0.97	[0.65, 1.44]	1.41*	[1.02, 1.95]	1.00	[0.71, 1.41]	1.91*	[1.34, 2.71]	0.88	[0.58, 1.34]

Notes: OR = odds ratio; 95% CI = 95% confidence interval. Models were adjusted for sex, age, education, and marital status. Racial stigma and unfair treatment were assessed in separate models.
 † $p < .10$; * $p < .05$; ** $p < .01$.

Discussion

Summary

The current study extends previous work on relationships between alcohol outcomes and prejudice and discrimination in several ways. First, the results add to the sparse evidence base suggesting that exposure to racial prejudice and discriminatory treatment is associated with heavy drinking and alcohol problems among Blacks and Latinos generally (Mulia et al., 2008; Richman et al., 1996; Yen et al., 1999a, 1999b). Bivariate analyses showed an overall pattern of incremental increases in past-year drunkenness, any drinking consequences, and two or more dependence symptoms at increasing levels of both perceived racial stigma and perceived unfair treatment, although there were exceptions to this rule, and not all of the associations were significant.

More importantly, the current study provides tentative evidence that associations between problem drinking and exposure to both perceived prejudice and perceived unfair treatment can be stronger when individuals are poor (for both Blacks and Latinos) and foreign born (for Latinos). In fact, we found that wherever racial stigma and unfair treatment were associated with heavy drinking and alcohol problems, those associations were often, although not always, stronger among or limited to groups disadvantaged in other ways—especially for Latinos. Among Latinos, five of the six multivariate models produced significant or marginally significant interactions, and all such interactions indicated that effects for racial stigma or unfair treatment and problem drinking outcomes were stronger among, or limited to, the poor or foreign born. (There was no main effect for unfair treatment in the sixth model.) Effects for nativity status suggested, strikingly, that foreign nativity can both operate as an overall protective factor in relation to heavy drinking and drinking problems (although effects were marginal here) and simultaneously exacerbate the negative impact of racial stigma or unfair treatment on the same. Among Blacks, results were more mixed, with only one significant interaction and two unqualified main effects emerging. Still, examination of the interaction effect revealed stronger associations between unfair treatment and dependence symptoms among Blacks below (vs. above) the poverty line.

To our knowledge, very little research on alcohol has reported interactive effects for multiple forms of disadvantage. In exceptions to this pattern, some studies have shown stronger associations between lower socioeconomic status and alcohol outcomes among Blacks and Hispanics compared with Whites, as noted in the introduction (Barr et al., 1993; Caetano and Kaskutas, 1996; Jones-Webb et al., 1997). Meanwhile, two studies have established interactive effects for indicators of disadvantage in predicting drug and mortality outcomes. In one, Boardman et al. (2001) examined drug use among a racially mixed sample in the 1995 Detroit

Area Study. Results showed that neighborhood disadvantage was moderately associated with drug-related behaviors, in part via increased exposure to social stressors and higher levels of psychological distress. Further, the relationship between neighborhood disadvantage and drug use was most pronounced among individuals with low (vs. high) incomes. A second study (Borrell et al., 2004) produced a similar pattern of effects among Black and White participants from four communities in the United States. Here, the relationship between neighborhood disadvantage and all-cause mortality was stronger among individuals with low (vs. high) incomes, although the interaction term was not significant. Similarly, a study on low-income Latino couples found that the positive association between poor family functioning and depression was stronger among women high in acculturative stress (Sarmiento and Cardemil, 2009).

The findings across these studies and our own suggest that the effects of a given stressor on mental and physical health outcomes can be exacerbated if the individual is a racial or ethnic minority, poor, foreign born, or otherwise low on acculturation. This makes sense assuming that coping resources are finite and that the relationship between exposure to stress and distress may therefore be more logarithmic than linear. Also, and perhaps more important, individuals from these disadvantaged and stigmatized groups may tend to have restricted access to personal, social, and economic resources and, hence, face particular challenges in avoiding, combating, and otherwise coping with various stressors. This seems especially likely for poor and foreign-born Hispanics, who may be unusually vulnerable to the effects of unfair treatment and other social and economic stressors because of limitations in their cultural knowledge and resources, as well as their immigrant status. Meanwhile, the effect of exposure to racism on psychological distress specifically may be compounded among the poor because the stereotypes and prejudices associated with racial or ethnic minority status are qualitatively different, and more negative overall, for Black and Latino people who are also poor (Dottolo and Stewart, 2008; Espinoza and Willis-Esqueda, 2008; Collins, 1991; Lott and Saxon, 2002; Weeks and Lupfer, 2004). Similarly, foreign-born Latinos are likely to be exposed to anti-immigrant sentiments and other intense negative reactions that are not experienced by native-born Latinos (Weisman de Mamani et al., 2007). It is hard to know why the interactive effects between prejudice, unfair treatment, and poverty appeared to be stronger for Latinos than for Blacks in our study. It may be that protective resources, such as proscriptive drinking norms and religiosity, dampen the effects of exposure to prejudice and discrimination on distress and drinking among poor Black populations. However, it seems equally or more likely that limitations in power explain why the pattern was not more consistent across racial/ethnic groups and outcomes. Future studies will be crucial in providing more data on these questions.

Given the lean evidence base to date, the current findings merit attention. These findings (and this literature base in general) help build a case for considering indicators of disadvantage in the context of other such indicators (Robert, 1999) because they suggest that the effects of exposure to disadvantage on drinking outcomes may be underestimated if potential interactions are ignored. The findings also have important implications for intervention. Although they are tentative at this point, these findings do suggest that there may be a special need to target drinkers experiencing multiple forms of disadvantage in prevention efforts, including the poor, the unacculturated, and those who are especially vulnerable to prejudice and discrimination. The results may also suggest a need for adaptation of current treatment interventions, which typically devote little attention to helping individuals cope with poverty, acculturation stress, and the effects of racial and ethnic stigmatization. Nevertheless, substantial caution is warranted in interpreting these results because the pattern was quite mixed and some of the effects were marginal (as discussed in the following).

Study limitations and future research

Findings from the current study tentatively suggest important and interactive roles for social stressors in the epidemiology of alcohol problems. However, the findings do call for replication in additional, and preferably very large, data sets. It is concerning that the pattern of results was not consistent across predictors (i.e., racial stigma and unfair treatment), outcomes, and samples (i.e., Blacks and Latinos). Also, some of the findings were only marginally significant, and parameter estimates could be unstable. Given the exploratory stage of research on this topic and our relatively small sample, we evaluated the overall pattern of results as well as conventionally significant effects in forming our conclusions, which have emphasized the likelihood that our small samples explain the inconsistencies. But future research is needed to help establish whether the pattern of interactions observed sporadically here is indeed general or qualified in some systematic way (e.g., if in reality poorer vs. wealthier Blacks are particularly vulnerable to developing heavy drinking and alcohol problems in reaction to both racial prejudice and unfair treatment, or if their vulnerability is limited to certain stressors related to stigmatization or certain alcohol-related outcomes).

Future work should also be directed toward better describing the causal pathways between exposure to prejudice and unfair treatment and the development of alcohol problems. Because the current data are cross-sectional, they are not sufficient to establish that exposure to racial prejudice or unfair treatment causes the development of alcohol problems, much less why. Indeed, associations between drinking-related consequences and markers of prejudice and unfair treatment could be explained by the fact that prejudicial attitudes and

behavior are *inferred from* (rather than cause) the experience of drinking-related consequences. For example, respondents who have been questioned by police or admonished at work because of their drinking may report high levels of unfair treatment because they attribute these same consequences to discrimination, and not because the discrimination itself is causing the problem drinking. It seems unlikely that such mechanisms entirely explain the associations here, however, particularly because our previous research found evidence for mediational pathways involving psychological distress (Mulia et al., 2008) and given the associations involving dependence and drinking to drunkenness, which are harder to explain away. Still, ideally, questions of causal ordering would be addressed in longitudinal research, where the current findings might form the starting point for more comprehensive models of how social and environmental stressors interact to affect how disadvantaged groups drink and whether they develop alcohol problems. Future work exploring direct measures of racial discrimination among Latinos in particular would also be valuable and would extend the work here on unfair treatment.

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