

# Effects of Economic Disruptions on Alcohol Use and Problems: Why Do African Americans Fare Worse?

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**ABSTRACT. Objective:** This study tested a model of the effects of recession-related job loss on alcohol use disorder (AUD) and examined why African Americans who lost their jobs during the 2008–2009 recession were at increased risk for AUD relative to Whites. We hypothesized that (a) job loss would be positively associated with psychological distress (i.e., higher levels of depressive symptoms) and increased drunkenness, and (b) low levels of family social support and experiences of racial stigma would exacerbate the effects of job loss on distress, especially among African Americans and Hispanics. **Method:** Data were drawn from the 2010 U.S. National Alcohol Survey (NAS), a cross-sectional survey of the U.S. general population. Using data from the 2010 NAS (telephone survey of 1,111 African American, 964 Hispanic, and 3,133 White adults), we conducted simultaneous path modeling in Mplus to test mediation and moderation hypotheses. Our key outcome was AUD as measured by the *Diagnostic and Statistical Manual of*

*Mental Disorders, Fifth Edition*. **Results:** Recession-related job loss was significantly associated with AUD through its effects on increased drunkenness, and the associations were positive for Whites, stronger for African Americans than Whites, and nonexistent for Hispanics. Job loss was associated with distress in the overall sample, and distress was positively associated with drunkenness among African Americans only, suggesting that distress is another pathway by which job loss affects AUD among African Americans. Higher levels of family social support mitigated the effects of job loss on psychological distress, and this relationship did not differ by race/ethnicity. **Conclusions:** During economic downturns, increased stress and heavy drinking are important pathways through which recession-related job loss can lead to greater AUD among African Americans relative to Whites. (*J. Stud. Alcohol Drugs*, 77, 261–271, 2016)

THE 2008–2009 RECESSION was one of the longest and by most measures worst recessions since the Great Depression (Center on Budget and Policy Priorities, 2015). In 2009, more than 7.2 million Americans lost their jobs (Isidore, 2010). Recession affects everyone, but especially the poor and socially marginalized groups who work in jobs that are often more vulnerable to economic downturns. African Americans, for example, were especially hard hit by the recession. In 2009, the unemployment rate was higher for African Americans than for Hispanics, Whites, and Asians (14.8%, 12.1%, 8.5%, and 7.3%, respectively; U.S. Bureau of Labor Statistics, 2012).

## *Job loss, alcohol consumption, and alcohol problems*

Job loss during economic downturns can exacerbate social problems (Wilson, 1987). Some studies, for example,

have found that job loss is associated with increased drinking and alcohol problems (Catalano et al., 1993; Dávalos et al., 2012; Dooley & Prause, 1998; Mossakowski et al., 2008), but other studies have reported mixed (Ettner, 1997; Hammer, 1992; Lahelma et al., 1995; Lo & Cheung, 2013) or null results (Gallo et al., 2001; Morris et al., 1992). The mixed findings in the literature on job loss and alcohol use and problems may reflect methodological differences (e.g., in the samples studied) but also population differences in factors that might exacerbate or ameliorate the recession's impact.

African Americans may be at especially increased risk for alcohol problems during an economic downturn because they are more adversely affected than other racial/ethnic groups by changes in the economy (Kochhar et al., 2011; Wilson, 1987). African Americans are often employed in sectors of the economy that are susceptible to economic downturns (i.e., jobs that are low wage or require lower educational requirements), and they work in jobs that are concentrated in urban areas where job opportunities are limited and unemployment rates are high (U.S. Bureau of Labor Statistics, 2012; Wilson, 1987). A few of studies have investigated the effects of the 2008–2009 U.S. recession on alcohol consumption and alcohol problems (Bor et al., 2013; Lo & Cheung, 2013). Only one study has explored whether African Americans who lost their jobs

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during the recession were at differentially increased risk for alcohol problems. Using data from the 2009 and 2010 National Alcohol Survey, Zemore and colleagues (2013) investigated whether African Americans and Hispanics reported greater exposure to economic loss (e.g., job loss, housing loss) than Whites during the recession and whether African Americans and Hispanics who experienced economic loss reported increased alcohol consumption and greater alcohol-related problems than their White counterparts. They found that African Americans and Hispanics indeed were more likely than Whites to report job loss during the recession, and that African Americans who reported severe economic loss (including job loss) during the recession were more likely than their White counterparts to report increased odds of two or more drinking consequences and alcohol dependence. Severe economic loss was not associated with poor alcohol outcomes among Hispanics. The study by Zemore and colleagues (2013) highlights how exposure and response to economic downturns may differ among racial/ethnic groups, but it did not examine the specific mechanisms or pathways by which job loss leads to poorer alcohol outcomes among African Americans. Developing conceptual models that clarify the mechanisms by which job loss leads to poor alcohol use outcomes—particularly among African Americans—may help identify important points of intervention for clinicians and policymakers.

*Job loss, psychological distress, family social support, racial stigma, alcohol consumption, and alcohol problems*

Stress, appraisal, and coping theory (Lazarus & Folkman, 1984) may provide valuable insight into the specific mechanisms by which job loss leads to poor alcohol use outcomes, and why some groups may fare worse when job loss occurs. This theory hypothesizes that appraisal and coping are important pathways by which stress influences health outcomes. It further suggests that job loss is an important stressor that can result in poor health outcomes for individuals. In this article, we explore how three constructs based on this theory may be useful in understanding why African Americans may be at greater risk for poor alcohol outcomes during an economic downturn. The constructs of interest are psychological distress, racial stigma, and social support, and each is discussed in more detail in the sections that follow.

*Psychological distress.* African Americans experienced greater job loss during the 2008–2009 recession, and a large body of literature has consistently shown that unemployment is associated with increased signs of psychological distress (Catalano et al., 2011; McKee-Ryan et al., 2005; Wanberg, 2012). Paul and Moser (2009), in a meta-analysis, reported that the average effect size associating unemployment (vs. employment) with higher distress/lower well-being across 237 cross-sectional studies was  $d = 0.54$  (a medium effect).

Further, in rigorous factory closure studies, the mean effect of unemployment on psychological distress was significant, at  $d = 0.38$ , suggesting that unemployment is causally related to psychological distress.

*Racial/ethnic stigma.* According to stress, appraisal, and coping theory, the effects of job loss on psychological stress should depend on an individual's appraisal of the significance of the job loss (primary appraisal) and his or her perceptions regarding the level of control over a job loss (secondary appraisal). For example, African Americans and Hispanics may be more likely than Whites to face discrimination in the workplace, attribute their job loss to racial stigma, and perceive that they have less control over future employment opportunities. These could increase psychological distress and alcohol consumption and exacerbate their vulnerability to alcohol problems (Hunte & Barry, 2012; Jackson et al., 1996; Kessler et al., 1999; Mulia et al., 2008; Williams et al., 2003). To date, no studies have examined the role of racial stigma in explaining the effects of job loss on alcohol outcomes in a large and racially/ethnically diverse sample as we do in the current analysis. Previous studies have largely focused on the role of racial stigma in explaining alcohol outcomes (Mulia & Zemore, 2012; Zemore et al., 2011).

*Social support.* Stress, appraisal, and coping theory also hypothesizes that the effects of stress on health vary by coping resources, such as social support. Social support has been shown to ameliorate the impact of acute and chronic financial strain on psychological well-being, thus reducing its impact on heavy drinking and alcohol problems (Peirce et al., 1996). Family social support in particular may provide important coping resources (e.g., both emotional and instrumental support) to mitigate effects of job loss on psychological distress. There is some research to suggest that there are racial/ethnic differences in extended family support. For instance, Sarkisian and Gerstel's (2004) analysis of data from the National Survey of Families and Households found that African Americans are more involved in instrumental or practical support, whereas Whites report greater financial and emotional family support. However, some research suggests that economic hardship such as job loss may limit an extended family's ability to provide social support (McLoyd, 1990). Thus, low levels of family support may exacerbate the effects of job loss on distress, especially among those hardest hit by an economic downturn.

In this article, we test a model of effects of recession-related job loss on alcohol problems and examine why African Americans who lost their jobs during the 2008–2009 recession were at particularly increased risk for alcohol use disorders (AUDs). We hypothesized that (a) job loss would be positively associated with both psychological distress and drinking to drunkenness and (b) low levels of family support and experiences of racial stigma would exacerbate the effects of job loss on distress, especially among African Americans

and Hispanics. The article builds on our earlier work (Zemore et al., 2013), which found that African Americans who reported economic loss during the 2008–2009 recession were more likely than their White counterparts to report alcohol problems. To complement our earlier analyses, here we focus on the mechanisms by which job loss can lead to poor alcohol use outcomes for African Americans and others. Thus, results from this study may help explain how job loss leads to alcohol problems and where to target prevention and treatment efforts for those most adversely affected by economic downturns.

## Method

### Data

Data were drawn from the 2010 National Alcohol Survey (NAS), which is a random digit dial, computer-assisted telephone interview survey of a nationally representative sample of U.S. adults ages 18 and older. The sample was drawn using a dual-frame design that included both landline and cellular phones, covering more than 97% of U.S. households (Blumberg & Luke, 2009). Targeted oversamples of African Americans, Hispanics, and residents of low-population states were included. Interviews were conducted in either English or Spanish; 6% of the full sample and 32% of Hispanics completed the interview in Spanish. Additional details on survey data collection are provided by Greenfield and colleagues (2014).

The present analysis used data from complete cases from the landline sample. Detailed information about recession-related losses was not collected on the cellular phone survey instrument because of time constraints. Prevalence of negative effects of the recession were similar across the two samples, although slightly more of the cellular phone sample (57%) reported an unspecified negative effect of the recession compared with those in the landline sample (51%).

The cooperation rate for the landline sample was approximately 50%, which is respectable for current telephone surveys (Pew Research Center, 2012). Because telephone break-offs often occur before identification of the study topic, low response rates in telephone surveys may introduce less bias than they would in face-to-face interviews (Groves, 2006). This appears to be the case in the 2010 NAS. In an analysis comparing respondent demographic characteristics and key alcohol measures across sample replicates (i.e., groups of randomly selected telephone numbers used for sampling throughout a study) that had varying response rates, we found no correlation between the replicate response rate and respondent demographics or estimates of alcohol consumption or problems (data available on request). This suggests that the response rate is not associated with significant biases in estimates of alcohol outcomes in this sample.

### Measures

*Recession-related job loss.* Respondents who indicated that they, or someone in their household, had been negatively affected by the recession (starting January 2008) were asked follow-up questions to ascertain whether anyone had lost their job, and, if so, whether it had happened to the respondent and/or someone else, and whether the job loss occurred in the past 12 months. The present analysis focuses on those respondents who reported a personal recession-related job loss in the year before the survey, compared to those respondents without such a loss.

*Social support.* Social support was measured with items drawn from the Family Subscale of the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988). The questions assessed whether (a) respondents get emotional help and support needed from their family, (b) respondents can talk about problems with their family, (c) their family tries to help them, and (d) their family accepts them the way they are. Responses were scored on a scale from 0 (*not at all*) to 3 (*quite a lot*), and a total score was summed across the four items (range: 0–12). Total scores were highly skewed, so the measure was transformed for analysis using a reflected natural log. The transformed score was then centered around the sample mean because it was being used in interaction with job loss (Aiken & West, 1991). The four-item measure is associated with reduced alcohol-related consequences and fewer dependence symptoms (Murphy et al., 2014).

*Racial/ethnic stigma.* Stigma was measured with three items drawn from Pinel's (1999) scale of racial stigma consciousness, which assesses the extent someone expects to be stereotyped by others on the basis of race. The items in the scale do not ask participants about job loss or whether they thought their experience with job loss was attributable to racial stigma. Rather, the questions assessed how much respondents agreed that (a) stereotypes about their race/ethnic group have affected them personally, (b) their race/ethnic group influences how people act with them, and (c) many people have a problem viewing their race/ethnic group as equal. Responses were scored on a scale from 0 (*disagree very much*) to 3 (*agree very much*). Scores across the three items were averaged, and the measure was log transformed for analysis. The transformed score was centered around the sample mean for use in interaction with job loss (Aiken & West, 1991). The three-item measure is associated with reporting greater negative alcohol-related consequences (Mulia et al., 2008; Zemore et al., 2011).

*Psychological distress.* Distress was measured with eight items from the Center for Epidemiologic Studies Depression scale (CES-D; Radloff, 1977). The items assessed how often respondents in the past week felt (a) bothered by things that don't usually bother them, (b) depressed, (c) hopeful about the future, (d) happy, (e) lonely, or (f) sad; or (g) had restless sleep and (h) enjoyed life. Responses were scored on a

scale from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). Items were reverse scored as needed, such that higher scores indicated higher levels of distress. Scores were averaged, and the measure was log transformed for analysis. The transformed score was centered around the sample mean for use in interaction with family social support (Aiken & West, 1991). Research comparing 5-, 8-, and 10-item CES-D scales to the full 20-item version suggests that items can be dropped without much loss in sensitivity or specificity (Shrout & Yager, 1989).

*Days of drunkenness.* Drunkenness was based on one item assessing how often in the last 12 months respondents drank enough to feel drunk. Responses were scored on a nine-point scale, ranging from *never in the last 12 months to every day or nearly every day*. Point values were assigned to each response category based on the approximate number of days per year represented. For example, *every day* was coded as 360 days, *3–4 times per week* was coded as 180 days, and *1–3 times a month* was coded as 24 days. The score was log transformed for analysis.

*Alcohol use disorders.* Past-year AUD was based on criteria in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5; American Psychiatric Association, 2013). There are 11 symptom domains (failure to fulfill role obligations; drinking despite social or interpersonal problems; drinking when physically hazardous; tolerance; withdrawal; using more than or for longer than intended; persistent desire to cut down/control use; giving up important activities; spending a lot of time getting alcohol, using, or recovering from use; drinking despite physical or psychological problems; and craving). Varying levels of severity are defined for mild (symptoms in 2–3 domains), moderate (4–5 domains), and severe AUD (6 or more domains; American Psychiatric Association, 2013). The present analysis focuses on those respondents who reported symptoms in at least two domains (at least mild AUD), compared to those with symptoms in only one or none of the domains. In this sample, 91% had no AUD diagnosis, 5.8% met criteria for mild AUD, 2.2% met criteria for moderate AUD, and 1% met criteria for severe AUD.

*Demographic control variables.* Prior analyses with these data suggested that two indicators of alcohol-related history were significantly associated with both recession-related job loss and past-year drinking (Mulia et al., 2014). Thus, we accounted for alcohol-related problems before the recession (calculated using the respondent's current age and the age at which drinking first affected his or her health, with onset before 2008 coded as beginning before recession) and parental history of alcohol problems (based on self-report that biological mother and/or father had ever been a "problem drinker or alcoholic"). The path models also adjusted for age (two dummy variables for ages 18–29 and ages 30–49; with 50 or older as reference), marital status (two dummy variables for never married and separated, divorced or widowed;

with currently living with spouse or partner as reference), education (three dummy variables for less than high school, high school graduate, and some college; with college degree as reference), and household income (four dummy variables for \$20,000 or less in the past year; \$20,001–40,000; \$40,001–60,000; and missing income; with \$60,001 or more as the reference). We coded race/ethnicity with two mutually exclusive dummy variables for African American, which took precedence over ethnicity, and Hispanic/Latino (with non-Hispanic White as reference), because preliminary analyses of racial/ethnic stigma suggested that Black Hispanics were more similar to non-Hispanic African Americans than they were to White Hispanics.

### *Analysis strategy*

We conducted simultaneous, multivariate path modeling using Mplus (Muthén & Muthén, 2011) to test our study hypotheses. Given our dichotomous predictor of interest (recession-related job loss) and the dichotomous outcome (DSM-5 AUD), we used the robust weighted least squares estimator (WLSMV; Muthén & Muthén, 2011). The final model was selected through comparison of nested models based on the DIFFTEST procedure, because standard chi-square difference testing is not valid when using WLSMV estimation (Muthén & Muthén, 2011). Statistically nonsignificant control variables were trimmed to preserve degrees of freedom, and changes were confirmed to preserve model fit based on the comparative fit index (CFI), Tucker–Lewis fit index (TLI), and the root mean square error of approximation (RMSEA). Mediated effects were estimated using the MODEL INDIRECT subcommand.

A mediation model was fit first, and then the interaction terms were added to assess moderation effects. To facilitate interpretation of moderation effects, significant interactions were graphed to depict predicted probabilities of AUD or predicted days of drunkenness for groups defined by average (at mean), low (1 *SD* below mean), and high (1 *SD* above mean) levels on continuous variables such as family social support and distress (Aiken & West, 1991). After each full model was specified, we examined differences by race/ethnicity. We used multiple group analysis and difference tests to evaluate whether allowing paths to vary by racial/ethnic group significantly improved the fit over models where paths were constrained to be equal for all groups. All analyses used weighted survey data to adjust for sampling and nonresponse.

## **Results**

### *Descriptive analyses*

The weighted sample (5,208 observations; weighted  $N = 4,988$ ) was 49% male, 13% African American (including



TABLE 1. Sample characteristics, 2010 U.S. National Alcohol Survey landline respondents

Variable	Whites ( <i>n</i> = 3,133) % <sup>b</sup>	African Americans <sup>a</sup> ( <i>n</i> = 1,111) % <sup>b</sup>	Hispanics ( <i>n</i> = 964) % <sup>b</sup>
Male	48.4	49.2	50.1
Mean age**	48.2	42.5	39.8
18–29	17.1	28.0	28.5
30–49	37.9	38.8	46.5
≥50	45.0	33.2	25.0
Marital status**			
Married/partnered	67.9	42.7	68.2
Separated/divorced/widowed	14.8	19.3	10.6
Never married	17.3	38.0	21.2
Income <sup>c</sup> **			
≤\$20,000	17.0	41.6	30.4
\$20,001–\$40,000	19.7	18.6	24.2
\$40,001–\$60,000	13.7	10.2	10.8
>\$60,000	36.5	17.5	17.0
Missing	13.1	12.1	17.6
Education**			
Less than high school	10.1	20.1	35.8
High school graduate	31.0	35.3	27.5
Some college education	29.1	23.6	26.6
College degree or more	29.8	21.0	10.1
Biological parent with history of alcohol problem	24.2	23.3	28.4
Alcohol-related health problem before recession	14.9	12.3	15.3
Personal recession-related job loss in past year*	7.0	9.0	11.5
DSM-5 AUD, ≥2 symptom domains in past year	9.1	9.9	7.4
DSM-5 moderate or severe AUD, ≥4 symptom domains past year	2.9	4.4	3.4

Notes: DSM-5 = *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; AUD = alcohol use disorder. <sup>a</sup>Includes Hispanic Blacks/African Americans. <sup>b</sup>All percentages are weighted; weighted *n*'s: 3,676 Whites; 668 Blacks; 644 Hispanics. <sup>c</sup>In U.S. dollars. \*Significant racial/ethnic differences, *p* < .05; \*\*significant racial/ethnic differences, *p* < .01.

Hispanic Blacks, hereafter “African Americans”), 13% Hispanic White (hereafter “Hispanics”), and 74% non-Hispanic White (hereafter “Whites”), with an average age of 46 years. Most respondents (65%) were married or living with a partner, 55% reported incomes less than \$60,000/year, 15% had less than a high school education, and 26% had a college degree.

Table 1 shows demographic characteristics for the three racial/ethnic groups. There were several significant racial/ethnic differences: Hispanics and African Americans were significantly younger and more likely to be never married than Whites, and Whites had higher incomes and higher levels of education. Overall, 8.0% of respondents reported a recession-related job loss in the past year, and this prevalence varied by race/ethnicity, with African Americans (9.0%) and Hispanics (11.5%) significantly more likely to indicate that they lost their job during the recession than Whites (7.0%). African Americans and Whites reported more days of drunkenness in the past year than Hispanics (*M* = 10.4 for African Americans, 7.4 for Whites, and 3.4 for Hispanics; Table 2), and they also were more likely to report two or more past-

year AUD symptoms than Hispanics (9.9%, 9.1%, 7.4%, respectively; Table 1), although racial/ethnic differences in AUD prevalence were not statistically significant.

Correlations between past-year AUD symptom counts, job loss, social support, racial/ethnic stigma, and the proposed mediators are presented in Table 2. In the full sample, AUD symptoms were positively correlated with job loss, stigma, distress, and drunkenness; they were negatively correlated with social support. When stratified by race/ethnicity, stigma was not correlated with AUD symptoms for either African Americans or Hispanics, but it was for Whites.

*Path analyses*

*Mediation effects.* In the overall sample, the mediation model achieved excellent fit (RMSEA = .009; CFI = .990; TLI = .972) and explained 49% of the total variance in past-year AUD. Job loss was associated with higher levels of distress (standardized β = .29, *p* < .001), but distress was not related to drunkenness (standardized β = -.034, *p* > .10). However, there was a significant indirect effect of job loss on

TABLE 2. Descriptive statistics and correlations, by race/ethnicity

Variable	<i>M (SD)</i>	Correlations				
		Job loss	Social support	Stigma	Distress	Drunkness
Full sample ( <i>N</i> = 5,208; weighted <i>N</i> = 4,988)						
Social support <sup>a</sup>	10.5 (2.7)	-.08**				
Racial stigma <sup>b</sup>	2.7 (2.6)	.05*	-.15**			
Psychological distress <sup>c</sup>	4.5 (4.8)	.12**	-.36**	.13**		
Days of drunkenness in past year <sup>d</sup>	7.2 (33.9)	.15**	-.07*	-.04	-.003	
Past-year DSM-5 symptom count <sup>e</sup>	0.39 (1.2)	.15**	-.12**	.05*	.11**	.63**
Whites ( <i>n</i> = 3,133; weighted <i>n</i> = 3,676)						
Social support	10.6 (2.3)	-.08*				
Racial stigma	2.1 (2.0)	.04	-.16**			
Psychological distress	4.3 (4.3)	.11**	-.35**	.12**		
Days of drunkenness in past year	7.4 (28.0)	.14**	-.06	-.005	-.02	
Past-year DSM-5 symptom count	0.39 (1.06)	.15**	-.12**	.06*	.11**	.63**
African Americans <sup>f</sup> ( <i>n</i> = 1,111; weighted <i>n</i> = 668)						
Social support	9.9 (3.8) <sup>§</sup>	-.13 <sup>†</sup>				
Racial stigma	5.0 (3.3) <sup>§</sup>	.03	-.04			
Psychological distress	4.8 (6.5)	.17**	-.41**	-.02		
Days of drunkenness in past year	10.4 (68.3)	.24 <sup>†</sup>	-.11 <sup>†</sup>	-.01	.14**	
Past-year DSM-5 symptom count	0.43 (1.5)	.35**	-.14**	.01	.17**	.69**
Hispanics ( <i>n</i> = 964; weighted <i>n</i> = 644)						
Social support	10.3 (3.4)	-.02				
Racial stigma	3.9 (2.8) <sup>‡</sup>	.07	-.09 <sup>†</sup>			
Psychological distress	5.1 (5.7) <sup>‡</sup>	.16**	-.37**	.17**		
Days of drunkenness in past year	3.4 (25.1) <sup>‡</sup>	.09	-.14*	-.02	.07	
Past-year DSM-5 symptom count	0.36 (1.2)	.04	-.16*	.02	.17**	.60**

Notes: DSM-5 = *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*. <sup>a</sup>Social support was measured with four items from the Family Subscale of the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988); scores range from 0 to 12, with higher scores indicating greater family social support. <sup>b</sup>Racial stigma was measured with three items from Pinel's (1999) scale of racial stigma consciousness; scores range from 0 to 9, with higher scores indicating a greater extent that the respondent expects to be stereotyped by others on the basis of race. <sup>c</sup>Psychological distress was measured with eight items from the Center for Epidemiologic Studies Depression scale (CES-D; Radloff, 1977); scores range from 0 to 24, with higher scores indicating higher levels of distress in the past week. <sup>d</sup>Days of drunkenness was based on one item assessing how often in the last 12 months respondents drank enough to feel drunk; scores range from 0 to 360 days of drunkenness in the past year. <sup>e</sup>Past-year DSM-5 symptoms were a count of alcohol use disorder criteria endorsed; scores range from 0 to 11, with varying levels of severity defined for mild (symptoms in 2–3 domains), moderate (4–5 domains), and severe AUD (6 or more domains; American Psychiatric Association, 2013). <sup>f</sup>Includes Hispanic Blacks/African Americans.

<sup>†</sup> $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; <sup>§</sup>White vs. African American difference,  $p < .01$ ; <sup>‡</sup>White vs. Hispanic difference,  $p < .01$ .

increased odds of AUD that involved increased drunkenness. That is, individuals who lost their jobs during the recession reported increased drunkenness and, in turn, also reported more AUD symptoms (standardized  $\beta = .21$ ,  $p < .001$ , for the indirect effect). The full set of path coefficients from the simple mediation model is available on request.

**Moderation effects.** The moderation model also achieved acceptably good fit (see fit statistics on Figure 1) and explained 49% of the total variance in past-year AUD. Figure 1 shows standardized coefficients from the moderation model, with significant indirect effects from family social support and job loss through drunkenness to AUD highlighted by bold arrows. All paths, including additional coefficients for the control variables, are presented in Table 3.

There was a significant interaction of social support and job loss on distress in the overall sample ( $p = .05$ ). Family social support mitigated the effects of job loss on psychological distress (i.e., recession-related job loss was associated with lower levels of psychological distress among those with higher levels of family social support). There was no interaction of racial/ethnic stigma and job loss on distress ( $p = .49$ ).

In addition, there was a marginally significant interaction of social support and distress on drunkenness ( $p = .07$ ). The relationship between distress and drunkenness was positive among those with low social support, flat among those with moderate levels of social support (suggesting no relationship between distress and drunkenness for this group), and negative among those with high social support.

We also observed two notable indirect effects on AUD in this moderation model. A marginally significant indirect effect suggested that the interaction of social support and distress was associated with decreased drunkenness and, in turn, reduced odds of AUD (standardized  $\beta = -.04$ ,  $p = .07$ ). There was another significant indirect effect of social support on AUD that also involved decreased drunkenness (standardized  $\beta = -.05$ ,  $p < .001$ ).

**Subgroup differences.** Subgroup analyses revealed some differences by race/ethnicity with respect to our hypotheses. We found that the relationship between job loss and days of drunkenness was significant and positive for Whites ( $p = .001$ ), even stronger for African Americans ( $p = .002$ ), but not statistically significant for Hispanics ( $p$

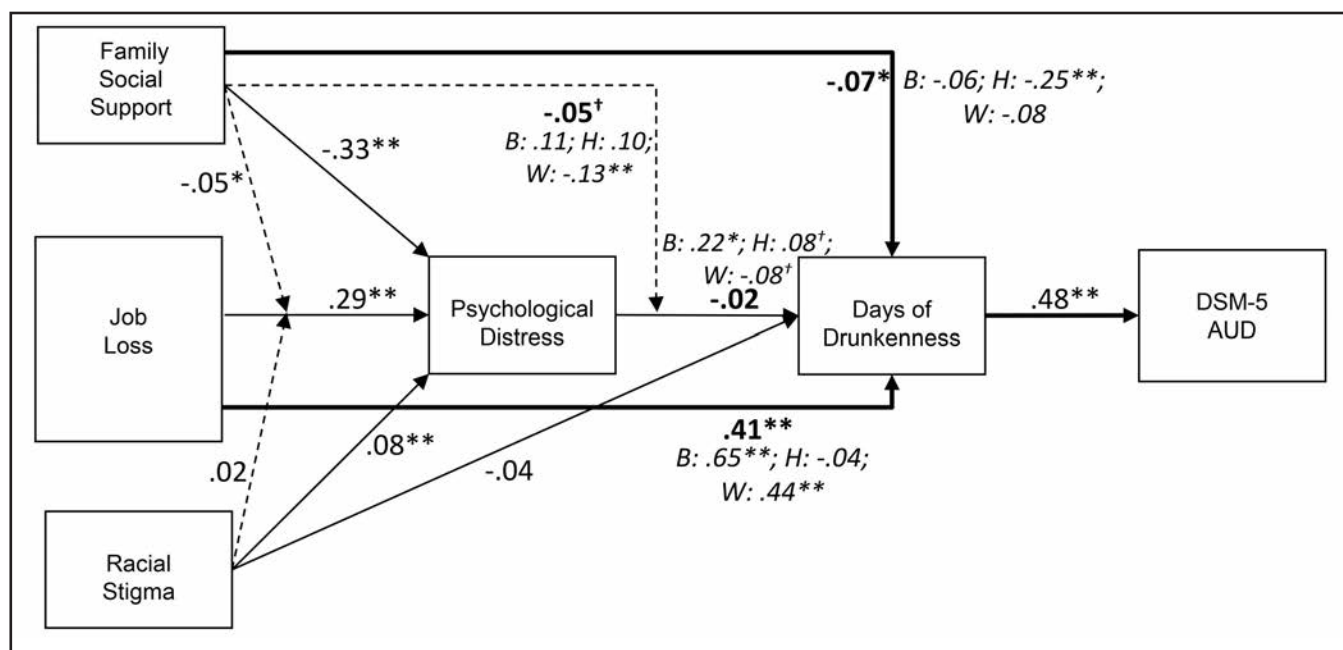


FIGURE 1. Standardized coefficients from overall model, with significant racial/ethnic differences indicated in **bold** and *italic*. B = Black/African American, including Hispanic Blacks; H = Hispanic; W = White; DSM-5 = *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; AUD = alcohol use disorder. Demographic controls included race/ethnicity, age, income, education, gender, alcohol problems prior to recession, and parental alcoholism. Interactions of job loss with stigma and social support (and with social support and distress) are indicated with dashed lines. Significant indirect effects are indicated with bold lines. Model fit statistics: root mean square error of approximation = .027; comparative fit index = .904; Tucker–Lewis index = .753. † $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ .

= .85; see coefficients in Figure 1). Although psychological distress was not associated with days of drunkenness in the overall sample, distress was significantly associated with more days of drunkenness for African Americans ( $p = .01$ ), marginally more days of drunkenness for Hispanics ( $p = .08$ ), and marginally fewer days of drunkenness among Whites ( $p = .06$ ).

There also were significant racial/ethnic differences in the effects of the interaction of social support and distress on drunkenness, with the strongest effects evident for Whites ( $p = .008$ ). Figure 2 shows that the protective effect of social support primarily occurs for Whites at high levels of distress. For Hispanics, the protective effects of social support are strongest at low levels of distress. For African Americans, there is very little evidence that social support mitigates effects of distress on drunkenness during an economic downturn.

**Discussion**

We tested a model to examine effects of recession-related job loss on alcohol problems and to assess why African Americans who lost their jobs during the 2008–2009 recession were at increased risk for AUD. We hypothesized that (a) job loss would be positively associated with psychological distress and increased drunkenness, and (b) low family social support and experiences with racial stigma would

exacerbate effects of job loss on distress, especially among African Americans and Hispanics. Our hypotheses were partially supported.

Job loss was significantly associated with AUD through its effects on increased drunkenness, and this association was positive for Whites, stronger for African Americans than for Whites, and nonexistent for Hispanics. Our findings suggest that increased drinking to drunkenness is an important pathway through which recession-related job loss can lead to alcohol problems, particularly among African Americans. Previous studies also have found that personal job loss is associated with heavy drinking (Catalano et al., 1993; Dooley & Prause, 1998; Mossakowski, 2008; Stuckler et al., 2009).

Job loss was significantly associated with psychological distress in the overall sample, and psychological distress was significantly associated with number of days of drunkenness among African Americans only. Thus, psychological distress is another mechanism by which job loss can lead to alcohol problems among African Americans. Job loss during a recession is stressful for everyone, but especially for African Americans, who may have fewer economic resources to cope with job loss when it occurs. Stress, appraisal, and coping theory holds that individuals who experience stress (here, because of job loss) may increase their alcohol consumption to cope with the stressor. Drunkenness is associated with more escapist drinking, and some studies have shown that African

TABLE 3. Standardized coefficients from moderation model

Variable	Psychological distress		Days of drunkenness		DSM-5 AUD	
	Estimate	<i>p</i>	Estimate	<i>p</i>	Estimate	<i>p</i>
Job loss	.29	<.01	.41	<.01		
Psychological distress			-.02	.48		
Days of drunkenness					.48	<.01
Racial stigma	.07	<.01	-.04	.17		
Social support	-.33	<.01	-.07	.02		
Job Loss × Support	-.05	.05				
Job Loss × Stigma	.02	.49				
Support × Distress			-.05	.07		
Alcohol-related problems before recession	.18	<.01	.31	<.01	.48	<.01
Parental alcohol problems			.22	<.01	.26	<.01
Age <sup>a</sup>						
18–29			.59	<.01	.79	<.01
30–49			.31	<.01	.42	<.01
Male	-.15	<.01	.30	<.01		
Race/ethnicity <sup>b</sup>						
African American (includes Hispanics)	-.20	<.01	-.20	.01		
Hispanic	.01	.92	-.28	<.01		
Income <sup>c,d</sup>						
<\$20,000	.29	<.01	-.24	<.01		
\$20,001–\$40,000	.14	.02	-.18	.02		
\$40,001–\$60,000	.04	.58	-.07	.41		
Missing income	.04	.59	-.39	<.01		
Education <sup>e</sup>						
Less than high school	.28	<.01	-.10	.34		
High school graduate	.19	<.01	-.13	.06		
Some college	.14	.01	-.19	.01		
Marital status <sup>f</sup>						
Separated/divorced/widowed			.11	.19		
Never married			.28	<.01		
<i>R</i> <sup>b</sup>		.21		.20		.49

Notes: DSM-5 = *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; AUD = alcohol use disorder. <sup>a</sup>Age 50 and older is reference. <sup>b</sup>White is reference. <sup>c</sup>In U.S. dollars. <sup>d</sup>Income over \$60,000 is reference. <sup>e</sup>College degree is reference. <sup>f</sup>Married/living with partner is reference.

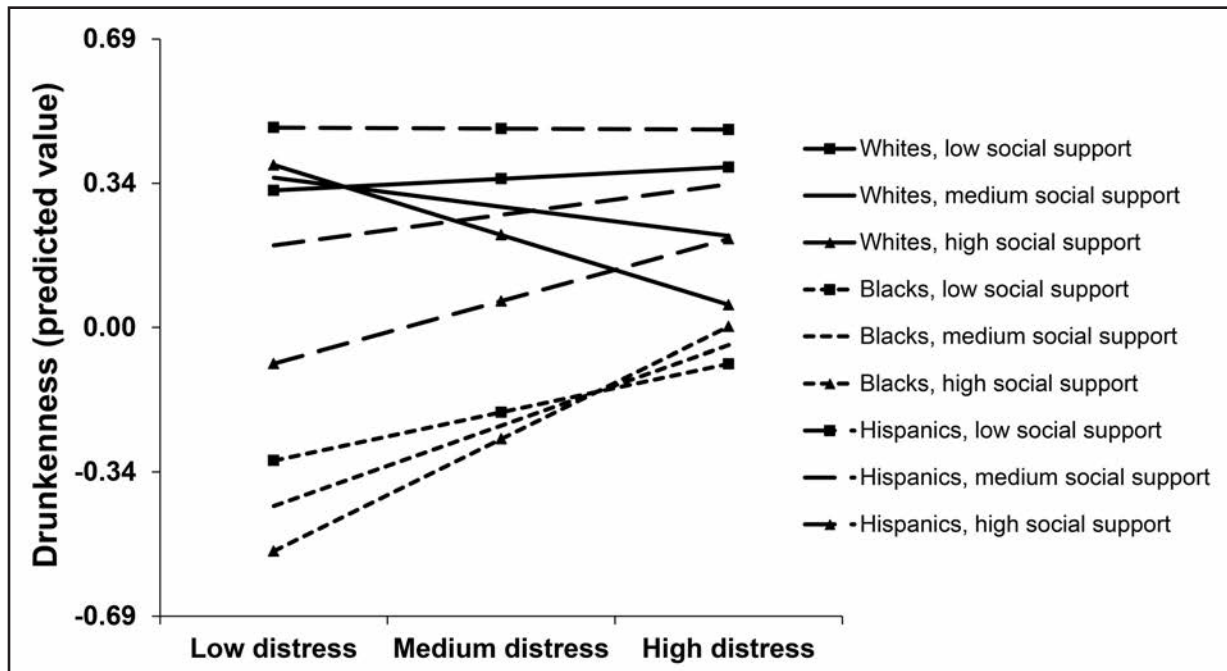


FIGURE 2. Interaction of social support and psychological distress on days of drunkenness, by race/ethnicity



Americans are more likely than Whites to consume alcohol to cope with anxiety and depressive symptoms (Jones-Webb et al., 1996; Peirce et al., 1994).

Social support mitigated effects of job loss on psychological distress in the overall sample, suggesting that family social support may be important for reducing stress associated with the recession. Interestingly, in race-specific analyses, family social support also mitigated the effects of psychological distress on number of days of drunkenness among Whites and Hispanics, but not among African Americans. In our sample, African Americans reported significantly lower levels of family support than Whites and Hispanics, and, as noted earlier, other studies have shown that African Americans generally report lower levels of emotional and financial support than Whites (Sarkisian & Gerstel, 2004).

Perceptions of racial stigma did not exacerbate effects of job loss on psychological distress as hypothesized. However, the 2008–2009 recession had an impact on millions of Americans, and most people know someone who was affected by the recession. Thus, in this unusual context, attributions of job loss to racial/ethnic stigma might have been no different among African Americans and Hispanics, as compared with Whites.

#### *Limitations and directions for future research*

Our study is not without limitations. First, our results are based on cross-sectional data, making causal inference difficult. Consequently, the directionality of associations between job loss, psychological distress, and alcohol outcomes remains unclear. For example, we found that number of days of drunkenness was associated with AUD, but the reverse may also be true, in that AUD may be associated with increased drunkenness or with job loss. Future studies may wish to use naturalistic experiments that include large multi-ethnic samples to evaluate effects of recession-related job loss on alcohol outcomes over time.

Second, our telephone cooperation rate was moderately high, raising questions about the representativeness of our sample or external validity of our findings. Some methodological studies suggest minimal impact of nonresponse bias on estimates of alcohol use and problems. For example, studies have found only modest and inconsistent differences across telephone and in-person surveys in responses to alcohol consumption and consequences questions, despite the much higher response rates for in-person surveys (Midanik & Greenfield, 2003; Midanik et al., 2001).

Third, we only measured family social support. Support from friends and other individuals also may be important in mitigating the effects of job loss on distress, particularly among those without close family ties or from economically disadvantaged extended families. Future studies may wish to include other types of social support (such as support from friends and community members). In addition,

our study focused on emotional and instrumental support from family members and lacked measures of financial support, which are an important form of help in the context of job (and income) loss. Given prior research suggesting that Whites are more likely to give and receive financial support (Sarkisian & Gerstel, 2004), it may be that our findings of racial/ethnic differences in the protective effects of social support are conservative. In addition, informational support, for instance information about job opportunities provided through extended social networks, may also be important for coping with job loss and securing new employment.

Fourth, the NAS did not include questions regarding the timing of job loss within the past 12 months, or reemployment. African Americans have lower reemployment rates than Whites during economic downturns (Kletzer, 1991), and the 2008–2009 recession was no exception (Singh, 2015). Thus, other factors not included in this study may account for why job loss had stronger effects on AUD among African Americans than Whites.

Finally, the survey measured perceptions of racial/ethnic stigma and did not ask participants whether they perceived that their job loss was related to certain stereotypes about their race or ethnicity. Thus, our measure of racial stigma was limited. In addition, the measure of racial/ethnic stigma was based on three items, and these items are unlikely to fully capture the many dimensions of racial stigmatization. Future studies may wish to use more precise measures of racial/ethnic stigma.

#### *Implications*

Despite these limitations, our results have implications for where to target alcohol prevention and treatment efforts. These findings suggest that individuals who experience recession-related job loss and who report increased drunkenness may require a variety of alcohol and mental health services as well as more informal sources of social support. In our study, individuals who lost their jobs reported higher levels of psychological distress, and, among African Americans, psychological distress was associated with increased drunkenness. In our final model, family social support played a larger role in explaining variability in AUD than we initially hypothesized. Clinical staff should give greater attention to the role of social support as a protective factor in mitigating the effects of job loss on distress. For African Americans, this may include identifying sources of social support outside the family, such as friends, neighbors, pastors, and community elders. Our results on the role of psychological distress and social support may also have implications for preventing alcohol problems among other groups at risk for alcohol problems during economic downturns (e.g., low-skill workers, individuals who consumed more alcohol before their job loss; Deb et al., 2011).

## Conclusions

We proposed a model to better understand the effects of job loss on AUD during economic downturns. The model identified key constructs important in understanding pathways by which job loss affects AUD and reasons some groups may fare worse than others. Our model is intended to spur further research on the subject, provide a guide for clinicians working with African American and other racial/ethnic minority populations, and help policy makers develop policies to reduce future alcohol problems during economic downturns. However, future work is needed to refine our model and confirm results from our study.

## References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.
- Blumberg, S. J., & Luke, J. V. (2009). *Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, July-December 2008*. Hyattsville, MD: National Center for Health Statistics. [Archived by WebCite® at <http://www.webcitation.org/68Q6oLoEC>].
- Bor, J., Basu, S., Coutts, A., McKee, M., & Stuckler, D. (2013). Alcohol use during the great recession of 2008-2009. *Alcohol and Alcoholism*, *48*, 343-348. doi:10.1093/alcalc/agt002.
- Catalano, R., Dooley, D., Wilson, G., & Hough, R. (1993). Job loss and alcohol abuse: A test using data from the Epidemiologic Catchment Area project. *Journal of Health and Social Behavior*, *34*, 215-225. doi:10.2307/2137203.
- Catalano, R., Goldman-Mellor, S., Saxton, K., Margerison-Zilko, C., Subaraman, M., LeWinn, K., & Anderson, E. (2011). The health effects of economic decline. *Annual Review of Public Health*, *32*, 431-450. doi:10.1146/annurev-publhealth-031210-101146.
- Center on Budget and Policy Priorities. (2015). *Chart book: The legacy of the Great Recession*. Retrieved from <http://www.cbpp.org/cms/index.cfm?fa=view&id=3252>.
- Dávalos, M. E., Fang, H., & French, M. T. (2012). Easing the pain of an economic downturn: Macroeconomic conditions and excessive alcohol consumption. *Health Economics*, *21*, 1318-1335. doi:10.1002/hec.1788.
- Deb, P., Gallo, W. T., Ayyagari, P., Fletcher, J. M., & Sindelar, J. L. (2011). The effect of job loss on overweight and drinking. *Journal of Health Economics*, *30*, 317-327. doi:10.1016/j.jhealeco.2010.12.009.
- Dooley, D., & Prause, J. (1998). Underemployment and alcohol misuse in the National Longitudinal Survey of Youth. *Journal of Studies on Alcohol*, *59*, 669-680. doi:10.15288/jsa.1998.59.669.
- Ettner, S. L. (1997). Measuring the human cost of a weak economy: Does unemployment lead to alcohol abuse? *Social Science & Medicine*, *44*, 251-260. doi:10.1016/S0277-9536(96)00160-8.
- Gallo, W. T., Bradley, E. H., Siegel, M., & Kasl, S. V. (2001). The impact of involuntary job loss on subsequent alcohol consumption by older workers: Findings from the health and retirement survey. *Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, *56*, S3-S9. doi:10.1093/geronb/56.1.S3.
- Greenfield, T. K., Karriker-Jaffe, K. J., Giesbrecht, N., Kerr, W. C., Ye, Y., & Bond, J. (2014). Second-hand drinking may increase support for alcohol policies: New results from the 2010 National Alcohol Survey. *Drug and Alcohol Review*, *33*, 259-267. doi:10.1111/dar.12131.
- Groves, R. M. (2006). Nonresponse rates and nonresponse bias in household surveys. *Public Opinion Quarterly*, *70*, 646-675. doi:10.1093/poq/nfl033.
- Hammer, T. (1992). Unemployment and use of drug and alcohol among young people: A longitudinal study in the general population. *British Journal of Addiction*, *87*, 1571-1581. doi:10.1111/j.1360-0443.1992.tb02665.x.
- Hunte, H. E., & Barry, A. E. (2012). Perceived discrimination and DSM-IV-based alcohol and illicit drug use disorders. *American Journal of Public Health*, *102*, e111-e117. doi:10.2105/AJPH.2012.300780.
- Isidore, C. (2010, January 8). *Job growth returns—then fades*. Retrieved from [http://money.cnn.com/2010/01/08/news/economy/jobs\\_december/](http://money.cnn.com/2010/01/08/news/economy/jobs_december/)
- Jackson, J. S., Brown, T. N., Williams, D. R., Torres, M., Sellers, S. L., & Brown, K. (1996). Racism and the physical and mental health status of African Americans: A thirteen year national panel study. *Ethnicity & Disease*, *6*, 132-147.
- Jones-Webb, R., Jacobs, D. R., Jr., Flack, J. M., & Liu, K. (1996). Relationships between depressive symptoms, anxiety, alcohol consumption, and blood pressure: Results from the CARDIA Study. *Alcoholism: Clinical and Experimental Research*, *20*, 420-427. doi:10.1111/j.1530-0277.1996.tb01069.x.
- Kessler, R. C., Mickelson, K. D., & Williams, D. R. (1999). The prevalence, distribution, and mental health correlates of perceived discrimination in the United States. *Journal of Health and Social Behavior*, *40*, 208-230. doi:10.2307/2676349.
- Kletzer, L. G. (1991). Job displacement, 1979-86: How blacks fared relative to whites. *Monthly Labor Review*, July, 17-25. Retrieved from <http://www.bls.gov/mlr/1991/07/art2full.pdf>
- Kochhar, R., Fry, R., & Taylor, P. (2011). *Wealth gaps rise to record highs between Whites, Blacks and Hispanics*. Washington, DC: Pew Research Center. [Archived by WebCite® at <http://www.webcitation.org/6WDDlhWd>].
- Lahelma, E., Kangas, R., & Manderbacka, K. (1995). Drinking and unemployment: Contrasting patterns among men and women. *Drug and Alcohol Dependence*, *37*, 71-82. doi:10.1016/0376-8716(94)01054-O.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal and coping*. New York, NY: Springer.
- Lo, C. C., & Cheng, T. C. (2013). Heavy drinking during periods of high unemployment: 15-year trend study of the role of race/ethnicity. *Drug and Alcohol Dependence*, *133*, 383-390. doi:10.1016/j.drugalcdep.2013.06.018.
- McKee-Ryan, F., Song, Z., Wanberg, C. R., & Kinicki, A. J. (2005). Psychological and physical well-being during unemployment: A meta-analytic study. *Journal of Applied Psychology*, *90*, 53-76. doi:10.1037/0021-9010.90.1.53.
- McLoyd, V. C. (1990). The impact of economic hardship on Black families and children: Psychological distress, parenting, and socioemotional development. *Child Development*, *61*, 311-346. doi:10.2307/1131096.
- Midanik, L. T., & Greenfield, T. K. (2003). Telephone versus in-person interviews for alcohol use: Results of the 2000 National Alcohol Survey. *Drug and Alcohol Dependence*, *72*, 209-214. doi:10.1016/S0376-8716(03)00204-7.
- Midanik, L. T., Greenfield, T. K., & Rogers, J. D. (2001). Reports of alcohol-related harm: Telephone versus face-to-face interviews. *Journal of Studies on Alcohol*, *62*, 74-78. doi:10.15288/jsa.2001.62.74.
- Morris, J. K., Cook, D. G., & Shaper, A. G. (1992). Non-employment and changes in smoking, drinking, and body weight. *British Medical Journal*, *304*, 536-541. doi:10.1136/bmj.304.6826.536.
- Mossakowski, K. N. (2008). Is the duration of poverty and unemployment a risk factor for heavy drinking? *Social Science & Medicine*, *67*, 947-955. doi:10.1016/j.socscimed.2008.05.019.
- Mulia, N., Ye, Y., Zemore, S. E., & Greenfield, T. K. (2008). Social disadvantage, stress, and alcohol use among Black, Hispanic, and White Americans: Findings from the 2005 U.S. National Alcohol Survey. *Journal of Studies on Alcohol and Drugs*, *69*, 824-833. doi:10.15288/jasad.2008.69.824.

- Mulia, N., & Zemore, S. E. (2012). Social adversity, stress, and alcohol problems: Are racial/ethnic minorities and the poor more vulnerable? *Journal of Studies on Alcohol and Drugs, 73*, 570–580. doi:10.15288/jsad.2012.73.570.
- Mulia, N., Zemore, S. E., Murphy, R., Liu, H., & Catalano, R. (2014). Economic loss and alcohol consumption and problems during the 2008 to 2009 U.S. recession. *Alcoholism: Clinical and Experimental Research, 38*, 1026–1034. doi:10.1111/acer.12301.
- Murphy, R. D., Zemore, S. E., & Mulia, N. (2014). Housing instability and alcohol problems during the 2007-2009 US recession: The moderating role of perceived family support. *Journal of Urban Health, 91*, 17–32. doi:10.1007/s11524-013-9813-z.
- Muthén, L. K., & Muthén, B. O. (2011). *Mplus version 6.11*. Los Angeles, CA: Authors.
- Paul, K. I., & Moser, K. (2009). Unemployment impairs mental health: Meta-analyses. *Journal of Vocational Behavior, 74*, 264–282. doi:10.1016/j.jvb.2009.01.001.
- Peirce, R. S., Frone, M. R., Russell, M., & Cooper, M. L. (1994). Relationship of financial strain and psychosocial resources to alcohol use and abuse: The mediating role of negative affect and drinking motives. *Journal of Health and Social Behavior, 35*, 291–308. doi:10.2307/2137211.
- Peirce, R. S., Frone, M. R., Russell, M., & Cooper, M. L. (1996). Financial stress, social support, and alcohol involvement: A longitudinal test of the buffering hypothesis in a general population survey. *Health Psychology, 15*, 38–47. doi:10.1037/0278-6133.15.1.38.
- Pew Research Center. (2012). *Assessing the representativeness of public opinion surveys*. Washington, DC. [Archived by WebCite® at <http://www.webcitation.org/6WDcTE4P1>].
- Pinel, E. C. (1999). Stigma consciousness: The psychological legacy of social stereotypes. *Journal of Personality and Social Psychology, 76*, 114–128. doi:10.1037/0022-3514.76.1.114.
- Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*, 385–401. doi:10.1177/014662167700100306.
- Sarkisian, N., & Gerstel, N. (2004). Kin support among Blacks and Whites: Race and family organization. *American Sociological Review, 69*, 812–837. doi:10.1177/000312240406900604.
- Shrout, P. E., & Yager, T. J. (1989). Reliability and validity of screening scales: Effect of reducing scale length. *Journal of Clinical Epidemiology, 42*, 69–78. doi:10.1016/0895-4356(89)90027-9.
- Singh, A. (2015). Globalization and trends in inequality in the United States in the last decade. In S. Haymes, M. Vidal de Haymes, & R. Miller (Eds.), *The Routledge handbook of poverty in the United States* (pp. 43–55). New York, NY: Routledge: Taylor & Francis Group.
- Stuckler, D., Basu, S., Suhrcke, M., Coutts, A., & McKee, M. (2009). The public health effect of economic crises and alternative policy responses in Europe: An empirical analysis. *The Lancet, 374*, 315–323. doi:10.1016/S0140-6736(09)61124-7.
- U.S. Bureau of Labor Statistics. (2012). *The Recession of 2007–2009*. Washington, DC. Retrieved from [http://www.bls.gov/spotlight/2012/recession/pdf/recession\\_bls\\_spotlight.pdf](http://www.bls.gov/spotlight/2012/recession/pdf/recession_bls_spotlight.pdf)
- Wanberg, C. R. (2012). The individual experience of unemployment. *Annual Review of Psychology, 63*, 369–396. doi:10.1146/annurev-psych-120710-100500.
- Williams, D. R., Neighbors, H. W., & Jackson, J. S. (2003). Racial/ethnic discrimination and health: Findings from community studies. *American Journal of Public Health, 93*, 200–208. doi:10.2105/AJPH.93.2.200.
- Wilson, W. J. (1987). *The Truly Disadvantaged: The inner city, the underclass and public policy*. Chicago, IL: University of Chicago Press.
- Zemore, S. E., Karriker-Jaffe, K. J., Keithly, S., & Mulia, N. (2011). Racial prejudice and unfair treatment: Interactive effects with poverty and foreign nativity on problem drinking. *Journal of Studies on Alcohol and Drugs, 72*, 361–370. doi:10.15288/jsad.2011.72.361.
- Zemore, S. E., Mulia, N., Jones-Webb, R. J., Liu, H., & Schmidt, L. (2013). The 2008–2009 recession and alcohol outcomes: Differential exposure and vulnerability for Black and Latino populations. *Journal of Studies on Alcohol and Drugs, 74*, 9–20. doi:10.15288/jsad.2013.74.9.
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment, 52*, 30–41. doi:10.1207/s15327752jpa5201\_2.