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## Organizational Downsizing and Alcohol Use: A National Study of U.S. Workers During the Great Recession

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### Abstract

Organizational downsizing, which represents the reduction of an organization's workforce, results in a stressful work environment for those who survive the downsizing. However, we know little about the association between surviving an organizational downsizing and employee alcohol use. This study explored the association between exposure to organizational downsizing and four dimensions of alcohol use during the Great Recession. Also explored were the moderating influences of length of recession exposure, state drinking culture, gender, age, education, family income, and financial demands. Data for this study came from a national telephone survey of U.S. workers that was conducted from December 2008 to April 2011 ( $N = 2,296$ ). The results revealed that exposure to organizational downsizing was positively associated with usual frequency of drinking, number of drinks consumed per usual drinking occasion, and both the frequency of binge drinking and drinking to intoxication. Length of exposure to the recession moderated the association between organizational downsizing exposure and usual number of drinks consumed. The conditional effects revealed that this association became stronger as length of exposure to the recession increased. Furthermore, age moderated the associations between organizational downsizing exposure and the usual number of drinks consumed and the frequency of binge drinking and intoxication. The conditional effects revealed that these associations were positive and significant among young survivors (ages 40 or younger), but were nonsignificant among middle-aged survivors (over 40 years of age). State drinking culture, gender, education, family income, and financial demands did not moderate the associations between organizational downsizing exposure and alcohol use.

### Keywords

alcohol; downsizing; layoff; workforce; recession; stress

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### Contributors

Michael R. Frone is the sole author of this article.

### Conflict of Interest

The author has no conflicts of interest to declare.

## 1. Introduction

A common strategy used by work organizations to cope with economic uncertainty is organizational downsizing, which represents the reduction of an organization's workforce in an effort to reduce labor costs and increase profitability, and in times of severe economic shock, to prevent organizational collapse. Regardless of the specific reason for organizational downsizing, it creates two groups of workers—(a) workers who have lost their jobs (unemployed workers) and (b) workers who have survived the downsizing (downsizing survivors). A large literature has demonstrated that involuntary unemployment is stressful, and results in a variety of negative outcomes, such as poorer physical and mental health (McKee-Ryan, Song, Wanberg, & Kinicki, 2005; Paul & Moser, 2009), as well as excessive alcohol use (e.g., Davalos, Fang, & French, 2012; de Goeij et al., 2015; Goldman-Mellor, Saxton, & Catalano, 2010). However, we know little about the association between surviving an organizational downsizing and alcohol use.

### 1.1 Downsizing Survivors and Alcohol Use

Although downsizing survivors maintain their jobs, exposure to downsizing can be stressful compared to employment in an organization that has not downsized its workforce. Research shows that, relative to employees working in organizations that did not downsize, surviving employees in downsized organizations report higher levels of job insecurity, increased workloads, lower work morale, and lower levels of physical and mental health (e.g., Bamberger et al., 2012; Brenner et al., 2014; Ferrie, Westerlund, Virtanen, Vahtera, & Kivimaki, 2008; Green, Felstead, Gallie, & Inanc, 2016; Jung, 2016; Lahner, Hayslip, McKelvy, & Caballero, 2014; Maertz, Wiley, LeRouge, & Champion, 2010; Osthus, 2007; Quinlan & Bohle, 2009; Widerszal-Bazyl & Mockallo, 2015). In addition, experiencing organizational downsizing within the context of a recession may further exacerbate its negative effects (Green et al., 2016).

Employees in firms that downsize during a recession may be especially concerned with the possibility of further layoffs and job loss because reemployment becomes much more difficult. For example, during the Great Recession and its aftermath, which provides the macroeconomic context for the present study, the monthly U.S. unemployment rate increased from 5.0% at the start of the recession in December 2007 to 10.0% in October 2009, and did not return to the prerecession rate of 5% until August 2015. The rate of long-term unemployment in the U.S., which represents the proportion of individuals who have been unemployed for 12 or more months among those unemployed in a given year, rose dramatically from 9.9% before the recession in 2007 to 31.3% in 2011, and dropped only to 18.7% by 2015 (Organisation for Economic Co-operation and Development, 2017). Finally, the number of unemployed workers per job opening rose from 1.8 in December 2007 to 6.7 in July 2009, and only dropped to 3.1 by May 2013 (U.S. Bureau of Labor Statistics, 2013).

Based on prolonged activation models of stress (Brosschot, Pieper, & Thayer, 2005; Frone, 2015) and self-medication models of alcohol use (e.g., Conger, 1956; Cooper, Frone, Russell, & Mudar, 1995; Frone, 1999, 2015; McCarthy, Curtin, Piper, & Baker, 2010), the stress experienced by downsizing survivors, especially during a recession, may motivate an increase in alcohol use in an effort to reduce the experienced affective distress, as well as

reduce perseverative cognitions that prolong psychological exposure to the negative event. Despite the possibility that downsizing survivors may drink more excessively than employees in organizations that do not downsize, research has not explored this association. Based on this discussion, the following hypothesis is tested:

**H1:** Exposure to organizational downsizing will be associated with elevated levels of alcohol use (i.e., usual frequency of use, usual number of drinks, binge drinking, and drinking to intoxication).

## 1.2 Macro-Level Moderator Variables

It is possible that the strength of the association between organizational downsizing and alcohol use differs across two macro-level contextual variables—length of exposure to the Great Recession and state drinking cultures. These contextual moderator variables are discussed next.

**1.2.1 Length of Exposure to the Great Recession—**As noted earlier, many of the adverse outcomes of the Great Recession persisted for many years after the official end of the recession in June 2009. As outlined in section 2.1, data collection for the present study began in December 2008 and lasted until April 2011. Therefore, exposure to the Great recession was longer for some individuals when their employer downsized and at the time of their interview. Prolonged exposure to the stresses of the recession may increase the propensity to drink in response to organizational downsizing. Therefore, the following hypothesis is tested:

**H2:** The positive association between organizational downsizing and alcohol use (i.e., usual frequency of use, usual number of drinks, binge drinking, and drinking to intoxication) will be stronger as the length of recession exposure increases.

**1.2.2 State Drinking Culture—**U.S. states have unique characteristics (e.g., norms, policies) that result in differences in aggregate state-level alcohol consumption. Based on rates of abstinence and heavy drinking and per capita alcohol consumption, Kerr (2010) grouped U.S. states into a three-level ordinal ranking of alcohol “wetness”: (1) dry states, (2) moderately wet states, and (3) wet states. State “wetness” represents a macro-level drinking culture variable that may moderate the association between organizational downsizing exposure and employee alcohol use. This association may be stronger among individuals who live in states with more prescriptive drinking norms and cultures. Therefore, the following hypothesis is tested:

**H3:** The positive association between organizational downsizing and alcohol use (i.e., usual frequency of use, usual number of drinks, binge drinking, and drinking to intoxication) will be stronger among individuals living in “wetter” states compared to “drier” states.

## 1.3 Individual-Level Moderator Variables

The association of organizational downsizing to alcohol may differ across subgroups of the employed population based on gender, age, and several economic resources and demands

(education, total family income, and family financial demands). These individual-level moderator variables are discussed next.

**1.3.1 Gender**—The stressor-vulnerability model of alcohol use (Cooper, Russell, Skinner, Frone, & Mudar, 1992) suggests that men may be more prone than women to drink in response to negative life events, such as exposure to organizational downsizing. There are several reasons for potentially higher levels of stress-induced alcohol use among men. Compared to women, men may be more genetically predisposed to use alcohol (Hughes, Wilsnack, & Kantor, 2016), and they are socialized to externalize distress, perceive fewer social sanctions associated with drinking, and perceive alcohol use as part of their gender role (Cooper et al., 1992; Hughes et al., 2016; Nolen-Hoeksema, 2004). Some studies have reported stronger associations between stressors and alcohol use among men (e.g., Brown & Richman, 2012; Cano et al., 2017; Chaplin, Hong, Bergquist, & Sinha, 2008; Cooper et al., 1992; Frone, Cooper, & Russell, 1994). Therefore, the following hypothesis is tested:

**H4:** The positive association between organizational downsizing and alcohol use (i.e., usual frequency of use, usual number of drinks, binge drinking, and drinking to intoxication) will be stronger among men than among women.

**1.3.2 Age**—Several factors may make younger employees more likely to drink in response to organizational downsizing. First, younger workers were more likely than older workers to lose jobs during the Great Recession (Hout, Levanon, & Cumberworth, 2011). This may increase the perceived precariousness of employment among younger downsizing survivors compared to older downsizing survivors. Second, some evidence exists that organizational downsizing, and economic hardship more generally, are more strongly associated with negative affect and alcohol use among younger individuals than among older individuals (Brown, Richman, & Rospenda, 2015; Lahner et al., 2014; Mirowsky & Ross, 2001). For example, Lahner et al. (2014) reported that exposure to organizational downsizing was positively related to psychological distress among younger workers (18–36 years old), but was unrelated to psychological distress among older workers (37–66 years old). Third, compared to older workers, younger workers drink more frequently and more excessively than older workers (for a review, see Frone, 2013). Based on these prior findings, the following hypothesis is tested:

**H5:** The positive association between organizational downsizing and alcohol use (i.e., usual frequency of use, usual number of drinks, binge drinking, and drinking to intoxication) will be stronger among younger workers than among older workers.

**1.3.2 Education**—Education represents an economic resource that may reduce the adverse effects of exposure to an organizational downsizing in several ways. First, workers with higher levels of education have more secure jobs; they were less likely to lose their job during the Great Recession compared to workers with lower levels of education (Hout et al., 2011). Therefore, higher levels of perceived job security among highly educated downsizing survivors may lead to less stress compared to survivors with lower levels of education. Second, those with higher levels of education have higher levels of human capital resulting in more employment options in the event of job loss. In other words, higher levels of

education lead to an advantage when competing for jobs, especially during a recession when the ratio of available workers per job opening is higher than normal. Finally, those with more education may have higher levels of psychosocial resources (e.g., mastery, social support) that can improve one's ability to cope successfully with the stresses of surviving an organization downsizing (Ross & Wu, 1995; Stronks, Van de Mheen, Looman, & Mackenbach, 1998). Therefore, the following hypothesis is tested:

**H6:** The positive association between organizational downsizing and alcohol use (i.e., usual frequency of use, usual number of drinks, binge drinking, and drinking to intoxication) will be stronger at lower levels of education than at higher levels of education.

**1.3.3 Family income**—Total family income represents another potential resource that can reduce the financial insecurities and fears that come with surviving an organizational downsizing. Potential fears about job loss and an inability to secure quickly another job may be lower among individuals with higher family income. Although higher family income is not a guarantee of financial resilience, research suggests that the ability to withstand a financial shock generally increases with increasing family income (The Pew Charitable Trusts, 2017). Therefore, the following hypothesis is tested:

**H7:** The positive association between organizational downsizing and alcohol use (i.e., usual frequency, usual number of drinks, binge drinking, and drinking to intoxication) will be stronger at lower levels of family income than at higher levels of family income.

**1.3.4 Financial Demands**—Financial demands represent a risk factor that may exacerbate the financial insecurities and fears that come with surviving an organizational downsizing. All else being equal, an individual's or family's ability to withstand a financial shock, such as job loss, will be lower as the number of financial dependents increase. Therefore, the following hypothesis is tested:

**H8:** The positive association between organizational downsizing and alcohol use (i.e., usual frequency, usual number of drinks, binge drinking, and drinking to intoxication) will be stronger at higher levels of financial demands than at lower levels of financial demands.

## 2. Method

### 2.1 Sample and Study Design

Data came from 2,975 U.S. workers who took part in a random telephone survey, called the National Survey of Work Stress and Health, which was conducted from December 2008 to April 2011. For additional information on the design of this study, see Frone (2015). The present analyses were based on participants who met three sequential selection criteria: (a) answered the question about company downsizing (510 workers were excluded because the question was added after the survey was in the field), (b) were wage and salary workers (144 owner/operators were not included), and (c) had data on all remaining variables (25 wage and salary workers were missing information on at least one other variable used in the

analyses). These selection criteria resulted in an analytic sample of 2,296 workers. The demographic characteristics of the analytic sample are present in Table 1.

## 2.2 Sampling Weights

The analyses used sampling weights that adjusted for differential probabilities of selection and nonresponse, and post-stratified the sample to average population totals for gender, race, age, and U.S. Census region. For more detail on the sampling weights, see Frone (2015).

## 2.3 Measures

**2.3.1 Organizational Downsizing**—Participants were asked if their employer had laid off employees during the preceding 12 months (not including usual seasonal layoffs). Responses were scored as 0 = no and 1 = yes.

**2.3.2 Usual Alcohol Use**—Participants reported their typical frequency of alcohol consumption and the typical number of drinks per drinking day. The frequency measure used a 6-point response scale ranging from 0 (never) to 5 (6–7 days a week) and the quantity measure used an open-ended response format.

**2.3.3 Excessive Alcohol Use**—Participants were asked about their frequency of binge drinking (consuming 5+ [men] or 4+ [women] drinks within two hours), as well as their frequency of drinking to intoxication. Both items used a 6-point response scale ranging from 0 (never) to 5 (6–7 days a week).

**2.3.4 Covariate/Moderating Variables**—To adjust for factors that might influence both the likelihood of exposure to organizational downsizing and the level of alcohol use, 14 covariates were included in the analyses. Seven of these covariates also served as moderator variables when testing the hypothesized interactions. For more detail on each covariate, see Table 1.

## 2.4 Data Analysis

All analyses were conducted using Stata (Version 15, Stata Corporation, 2017), which allowed the use of sampling weights and provided robust standard errors based on Taylor linearization (e.g., Lehtonen & Pahkinen, 2004). To explore the association of organizational downsizing exposure to the alcohol outcomes, ordinal logistic regression was used for outcomes representing frequency of use (usual, binge, and intoxication), and negative binomial regression was used for the outcome representing usual number of drinks consumed per drinking day (Long & Freese, 2014; Wooldridge, 2002). For each outcome, the covariates/moderator variables entered the regression equation on Step 1, followed by the organizational downsizing variable on Step 2, followed by the interactions between organizational downsizing and the seven moderator variables on Step 3.

Adjusted odd ratios (OR) are reported for the ordinal logistic regression analyses. The ORs represent the relative odds of being in the next higher frequency of use category on an alcohol outcome variable for a one unit increase in a given predictor adjusting for all other predictors entered in the same step, as well as all other predictors entered in earlier steps.

Adjusted incidence rate ratios (IRR) are reported for the negative binomial regression analysis. The IRRs represent the factor by which the outcome variable changed, or alternately the percentage change in the outcome variable  $((IRR-1) \times 100)$ , for a one unit increase in a given predictor adjusting for all other predictors entered in the same step, as well as all other predictors entered in earlier steps. For example, for usual number of drinks, an IRR of 1.0 represents no association between a predictor and number of drinks; an IRR of 1.5 represents a positive association where a one unit increase in a predictor leads to a 50% increase in the number of drinks consumed; and an IRR of 0.5 represents a negative association where a one unit increase in a predictor leads to a 50% reduction in the number of drinks consumed.

For significant interactions, conditional ORs or IRRs are reported for the association between organizational downsizing and the alcohol outcomes at several levels of the moderator variable (e.g., Hayes, 2013). For example, the second column of Table 4 reports the conditional IRRs for the association between organizational downsizing and usual number of drinks consumed at specific ages. As can be seen in this table, exposure to organizational downsizing was associated with a 57% increase in the usual number of drinks consumed among 18 years olds (IRR = 1.57).

### 3. Results

#### 3.1 Prevalence of Exposure to Downsizing

As shown in Table 1, a large proportion of U.S. employees (36.7%) reported that their employer had laid off workers during the preceding 12 months.

#### 3.2 Regression Analyses

The regression analyses for the four alcohol outcomes are presented in Tables 2, 3, and 4. In Table 2, the Step 2 results indicate that, while adjusting for the demographic covariates, exposure to organizational downsizing was positively associated with all four alcohol outcomes: usual frequency of drinking (OR = 1.35,  $p < .01$ ), usual number of drinks per drinking day (IRR = 1.22,  $p < .01$ ), frequency of binge drinking (OR = 1.40,  $p = .055$ ), and frequency of intoxication (OR = 1.39,  $p < .01$ ). These results support H1.

The Step 3 results in Table 2 show that the four associations between organizational downsizing and alcohol use were not moderated by state drinking culture, gender, education, family income, and financial demands. Therefore, H3, H4, H6, H7, and H8 were not supported. However, the Step 3 results in Table 2 show that length of recession exposure moderated the association between organizational downsizing and usual number of drinks per drinking day (IRR = 1.05,  $p < .05$ ). The conditional associations between organizational downsizing and usual number of drinks across the calendar quarters in which participants were interviewed are shown in Table 3. These conditional associations show that, with the exception of the 1<sup>st</sup> and 2<sup>nd</sup> quarters of 2009, organizational downsizing was significantly and positively related to usual number of drinks per drinking day in the seven calendar quarters from the 3<sup>rd</sup> quarter of 2009 to the 1<sup>st</sup> quarter of 2011. Nonetheless, consistent with

H2, the strength of the association between organizational downsizing and usual number of drinks increased with increasing exposure to the recession and its aftermath.

Additionally, the Step 3 results in Table 2 show that age moderated the organizational downsizing associations involving usual number of drinks per drinking day (IRR = 0.99,  $p < .05$ ), frequency of binge drinking (OR = .97,  $p < .05$ ), and frequency of intoxication (OR = 0.97,  $p < .05$ ). Table 4 shows the conditional associations between organizational downsizing and the three alcohol outcomes at various ages. These conditional associations show a similar pattern for all three alcohol outcomes. Supporting H5, organizational downsizing was significantly and positively associated with number of usual drinks and the frequency of binge drinking and intoxication among younger workers (ages 40 or younger), but was unrelated to these three alcohol outcomes among older workers (over 40 years of age).

## 4.0 Discussion

This study provides new information regarding the prevalence of exposure to organizational downsizing and its association to four dimensions of employee alcohol use (i.e., usual frequency, usual number of drinks, binge drinking, and drinking to intoxication) during the Great Recession. A large proportion of the workforce (37% or 43.1 million workers) reported that their employers had laid off workers during the preceding 12 months. Moreover, the present study showed that alcohol use was higher among survivors of organizational downsizing compared to those working in organizations that did not downsize. Specifically, surviving a downsizing increased the frequency of alcohol use among all workers. In addition, the number of drinks usually consumed per drinking day and the frequency of binge drinking and drinking to intoxication were higher among younger downsizing survivors. Because the number of drinks consumed per drinking day and the frequency of excessive alcohol use (binge drinking and intoxication) are more important than the frequency of alcohol use per se for detrimental health and behavioral outcomes, employers need to be concerned about the adverse effects of downsizing among younger employees who are in the process of developing families, developing work-related skills, and building careers.

Although length of recession exposure moderated the association between surviving a layoff and the number of drinks consumed per drinking day, it did not act as a general boundary condition across multiple alcohol outcomes. The remaining moderators (state drinking culture, gender, education, family income, and financial demands) showed no evidence of moderating effects. Collectively, the present results suggest that only age acted as an important boundary condition affecting the extent to which employees use alcohol to cope with surviving an organizational downsizing.

More generally, the present findings make several other contributions to the literature on employee health and alcohol use. First, they provide additional unique support for self-medication (Conger, 1956; Cooper et al., 1995; McCarthy et al., 2010) and stress-vulnerability (Cooper et al., 1992) models of alcohol use. Second, the results extend the large body of literature showing a positive association between unemployment and alcohol



use (e.g., Davalos et al., 2012; de Goeij et al., 2015; Goldman-Mellor et al., 2010) by showing that alcohol use may increase even among employees who survive an organization downsizing. Third, the results extend the potential adverse outcomes of organizational downsizing on survivors beyond work stressor exposure, negative work attitudes, and poor physical and mental health demonstrated in prior research (e.g., Bamberger et al., 2012; Brenner et al., 2014; Ferrie et al., 2008; Green et al., 2016; Jung, 2016; Lahner et al., 2014; Maertz et al., 2010; Osthus, 2007; Quinlan & Bohle, 2009; Widerszal-Bazyl & Mockallo, 2015). Finally, the observed moderating effect of age in this study extends prior findings that younger workers (18–36 years old) are more affectively reactive to organizational downsizing than older workers (37–66 years old; Lahner et al., 2014).

#### 4.1 Limitations

The present study has several limitations that should be considered when interpreting the reported findings. First, this study relied on self-reports of alcohol use. Although self-reports may not always be accurate, often there may be no better measurement method with behaviors that may be hidden (Baldwin, 2000; Turkkan, 2000), and research generally supports the reliability and validity of self-reported alcohol use (Del Boca & Darkes, 2003; Del Boca, Darkes, & McRee, 2016). Second, the data were cross-sectional. This reduces the ability to conclude that organizational downsizing exposure causes increased alcohol use. Nonetheless, when reporting on the experience of downsizing in their work organizations, individuals were reporting on an objective and observable event. It seems unlikely that the alcohol use of employees who survived a downsizing caused the organization's decision to downsize. Third, because the Great Recession and its aftermath provided the macroeconomic context for the present study, it is not clear if the observed associations between organizational downsizing and several dimensions of alcohol use will generalize to nonrecessionary periods.

#### 4.2 Implications for Research and Practice

Because the present study occurred during a major recession, additional research should explore the association of organizational downsizing and survivor alcohol use during nonrecessionary periods to explore organizational downsizing as a more general source of stress-induced drinking. In addition to downsizing due to major economic shocks, organizations often downsize due to financial problems, and as a response to organizational restructuring and mergers, that occur in nonrecessionary periods. Because the timing of a recession is not predictable, exploring downsizing that occurs during nonrecessionary periods may allow the use of longitudinal (panel and daily-process) research designs where data collection can begin before the downsizing occurs and extend for some period of time after the downsizing event. Such studies also should include comparable organizations that do not downsize during the study period.

An increase in excessive alcohol use after organizational downsizing should be of concern to employers and policymakers for two reasons. The first reason for concern is that the higher levels of alcohol use suggest that the stress and negative personal outcomes associated with layoffs extend beyond those who lose employment. The second reason for concern is that increases in excessive alcohol consumption among younger workers may interfere with

responsibilities at work and at home, and may be more strongly associated with negative acute and long term personal, family, and career-related consequences. The present results, therefore, suggest that those managing work organizations need to be cognizant of the negative impact of downsizing on their remaining workforce and need to consider the implementation of interventions to prevent and reduce associated stress and negative outcomes. This can begin with how the downsizing process is implemented and managed by employers (Brenner et al., 2014; Brockner, 1992; Cameron, 1994). Intervention efforts also can build from a broader research literature on employee assistance programs and workplace wellness programs (for reviews, see Ames & Bennett, 2011; Frone, 2013).

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### Highlights

- This study explored the association between surviving an organizational downsizing and alcohol use.
- Data were collected from a national probability sample of U.S. workers during the Great Recession ( $N = 2,296$ ).
- Surviving an organizational downsizing was associated with more frequent overall alcohol use among all workers.
- Surviving an organizational downsizing was associated with higher levels of excessive alcohol use among younger workers (ages 40 or younger), but not older workers (over 40 years of age).

Table 1

## Sample characteristics

Variable	Unweighted <i>N</i>	Weighted Percentage or Mean (SD) [range]
Gender		
Male	912	52.0%
Female	1,384	48.0%
Race		
White, Non-Hispanic	1,847	68.4%
Black, Non-Hispanic	209	13.2%
Hispanic	114	9.6%
Other	126	8.8%
Age	2,296	40.3 (12.7) [18–65]
Education <sup>a</sup>	2,296	5.9 (2.2) [1–10]
Family Income <sup>b</sup>	2,296	\$66,000 (\$122,338) [\$2,000–\$4 million]
Financial Demands <sup>c</sup>	2,296	1.0 (1.4) [0–12]
Occupations		
Management/business/financial	334	13.5%
Professional	823	32.1%
Service	284	14.8%
Sales	172	7.9%
Office/administrative support	360	14.5%
Construction/extraction/farming/fishing/forestry	47	3.0%
Installation/maintenance/repair	68	3.7%
Production	87	3.7%
Transportation/material moving	121	6.8%
Organization size (# of employees) <sup>d</sup>	2,296	6.4 (3.4) [1–11]
Job Tenure (years)	2,296	5.4 (6.3) [1 month–44.8 years]
Number of Weekly Work Hours	2,296	40.8 (11.5) [2–60 or more]
Seasonal Job		
No	2,188	93.8%
Yes	108	6.2%
Union Member		
No	1,852	82.6%
Yes	444	17.4%
State Drinking Culture <sup>e</sup>	2,296	2.0 (0.7) [1–3]

Variable	Unweighted <i>N</i>	Weighted Percentage or Mean (SD) [range]
Length of Recession Exposure <sup>f</sup>	2,296	4.4 (2.3) [1–9]
Organization Downsizing		
No	1,471	63.3%
Yes	825	36.7%

<sup>a</sup> Education was assessed with a 10-category ordinal item ranging from 1 = did not attend high school to 10 = doctoral level degree.

<sup>b</sup> Median family income is reported.

<sup>c</sup> Financial demands represent the number of other people (e.g., spouse, children, siblings, parents, other relatives) who currently rely on the respondent financially, whether or not they live with the respondent.

<sup>d</sup> Organization size was assessed with an 11-category ordinal item ranging from 1 = 1 to 9 employees to 11 = 10,000 or more employees.

<sup>e</sup> State drinking culture was assessed with a 3-category ordinal measure of state “wetness” developed by (Kerr, 2010): 1 = dry states (AL, AR, GA, IN, KY, MS, NC, OK, TN, UT, VA, WV), 2 = moderately wet states (AZ, CA, CT, DC, DE, FL, ID, LA, MD, NJ, NM, NV, NY, OR, PA, SC, TX, WA), and 3 = wet states (CO, IL, IA, KS, ME, MA, MI, MN, MO, MT, OH, NE, NH, ND, RI, SD, VT, WI, WY). No participants were sampled from Alaska (wet) and Hawaii (moderately wet) in this study.

<sup>f</sup> Length of recession exposure represented the contiguous calendar quarter in which participants were interviewed, which ranged from 1 = 1<sup>st</sup> Quarter 2009 to 9 = 1<sup>st</sup> Quarter 2011. The 34 respondents who completed the survey during December 2008 were combined with participants who completed the survey during the 1<sup>st</sup> quarter of 2009.

**Table 2**

Regression results for usual and excessive alcohol use

Predictors	Usual Frequency of Alcohol Use		Usual Number of Drinks per Drinking Day		Frequency of Binge Drinking		Frequency of Intoxication	
	OR	95% CI	IRR	95% CI	OR	95% CI	OR	95% CI
<b>STEP 1</b>								
<b>Covariates:</b>								
<b>Race</b>								
White, Non-Hispanic	RG		RG		RG		RG	
Black, Non-Hispanic	0.53 <sup>***</sup>	[0.38; 0.74]	0.71 <sup>*</sup>	[0.53; 0.95]	0.35 <sup>**</sup>	[0.17; 0.74]	0.45 <sup>**</sup>	[0.27; 0.76]
Hispanic	0.82	[0.57; 1.19]	1.01	[0.81; 1.25]	1.19	[0.65; 2.18]	0.58 <sup>*</sup>	[0.34; 0.99]
Other	0.64 <sup>*</sup>	[0.42; 0.97]	0.88	[0.67; 1.15]	0.81	[0.34; 1.88]	0.95	[0.51; 1.79]
<b>Occupations</b>								
Management/business/financial	RG		RG		RG		RG	
Professional	0.57 <sup>***</sup>	[0.42; 0.77]	0.79 <sup>**</sup>	[0.69; 0.92]	0.65	[0.39; 1.07]	0.66 <sup>*</sup>	[0.45; 0.96]
Service	0.69	[0.46; 1.03]	0.94	[0.72; 1.23]	0.95	[0.47; 1.95]	0.70	[0.41; 1.20]
Sales	0.73	[0.47; 1.13]	1.04	[0.80; 1.36]	0.90	[0.43; 1.87]	1.14	[0.67; 1.96]
Office/administrative support	0.79	[0.55; 1.15]	1.01	[0.84; 1.22]	1.04	[0.58; 1.88]	0.93	[0.57; 1.53]
Construction/extraction/farming/fishing/forestry	0.86	[0.40; 1.86]	1.25	[0.82; 1.89]	1.24	[0.49; 3.12]	2.55	[0.91; 7.21]
Installation/maintenance/repair	1.15	[0.61; 2.12]	1.04	[0.78; 1.40]	1.00	[0.22; 2.31]	1.50	[0.71; 3.22]
Production	0.42 <sup>**</sup>	[0.22; 0.81]	0.73	[0.46; 1.14]	0.88	[0.39; 2.00]	0.62	[0.27; 1.40]
Transportation/material moving	0.66	[0.36; 1.20]	0.87	[0.63; 1.19]	1.12	[0.43; 2.89]	0.76	[0.35; 1.65]
Organization size (# of employees)	1.02	[0.99; 1.06]	1.02 <sup>*</sup>	[1.00; 1.04]	1.03	[0.98; 1.08]	1.03	[0.99; 1.06]
Job Tenure (years)	1.00	[0.98; 1.01]	0.99	[0.99; 1.00]	0.99	[0.97; 1.02]	0.99	[0.97; 1.01]
Number of Weekly Work Hours	1.01	[1.00; 1.02]	1.00	[1.00; 1.01]	1.00	[0.99; 1.02]	1.00	[0.99; 1.02]
Seasonal Job (yes)	1.08	[0.67; 1.74]	1.08	[0.81; 1.43]	1.42	[0.73; 2.76]	0.96	[0.53; 1.77]
Union Member (yes)	0.92	[0.71; 1.18]	1.08	[0.91; 1.29]	0.86	[0.56; 1.33]	0.91	[0.66; 1.25]



Predictors	Usual Frequency of Alcohol Use			Usual Number of Drinks per Drinking Day			Frequency of Binge Drinking			Frequency of Intoxication		
	OR	95% CI	IRR	OR	95% CI	IRR	OR	95% CI	OR	95% CI	OR	95% CI
<b>Macro-Level Moderators:</b>												
Length of Recession Exposure	0.94**	[0.90; 0.99]	0.97**		[0.95; 0.99]		0.95	[0.89; 1.01]	0.96	[0.91; 1.01]		
State Drinking Culture	1.38***	[1.20; 1.58]	1.09		[0.99; 1.20]		1.46***	[1.18; 1.82]	1.38***	[1.16; 1.64]		
<b>Individual-Level Moderators:</b>												
Gender (men)	1.63***	[1.32; 2.02]	1.42***		[1.24; 1.64]		1.70**	[1.22; 2.38]	1.68**	[1.29; 2.18]		
Age	1.00	[0.99; 1.01]	0.98***		[0.98; 0.99]		0.96***	[0.95; 0.97]	0.95***	[0.94; 0.96]		
Education	1.10**	[1.03; 1.17]	0.97		[0.94; 1.01]		0.92	[0.85; 1.01]	1.00	[0.93; 1.08]		
Family Income	1.01*	[1.00; 1.02]	1.00		[1.00; 1.00]		1.01***	[1.00; 1.02]	1.00	[1.00; 1.00]		
Financial Demands	0.92*	[0.87; 0.99]	0.97		[0.92; 1.03]		0.89	[0.79; 1.00]	0.89*	[0.81; 0.98]		
<b>STEP 2</b>												
Organizational Downsizing (OD)	1.35**	[1.09; 1.67]	1.22**		[1.08; 1.38]		1.40 <sup>†</sup>	[0.99; 1.98]	1.39*	[1.06; 1.84]		
<b>STEP 3</b>												
OD × Length of Recession Exposure	1.08	[0.98; 1.18]	1.05*		[1.01; 1.11]		1.03	[0.89; 1.18]	1.10	[0.99; 1.24]		
OD × State Drinking Culture	0.87	[0.66; 1.14]	1.01		[0.83; 1.23]		1.36	[0.87; 2.13]	0.90	[0.63; 1.28]		
OD × Gender	0.88	[0.59; 1.31]	0.91		[0.73; 1.14]		0.75	[0.39; 1.43]	0.86	[0.51; 1.43]		
OD × Age	0.99	[0.98; 1.01]	0.99*		[0.98; 0.99]		0.97*	[0.95; 0.99]	0.97*	[0.95; 0.99]		
OD × Education	0.95	[0.86; 1.05]	0.95		[0.90; 1.01]		0.90	[0.78; 1.03]	1.01	[0.89; 1.14]		
OD × Family Income	1.01	[0.99; 1.03]	1.00		[1.00; 1.01]		1.01	[1.00; 1.01]	1.00	[1.00; 1.01]		

Predictors	Usual Frequency of Alcohol Use		Usual Number of Drinks per Drinking Day		Frequency of Binge Drinking		Frequency of Intoxication	
	OR	95% CI	IRR	95% CI	OR	95% CI	OR	95% CI
OD × Financial Demands	1.02	[0.90; 1.15]	0.96	[0.88; 1.06]	0.85	[0.68; 1.06]	0.96	[0.80; 1.15]

Note:  $N = 2,296$ . OR = odds ratio. IRR = incidence rate ratio. CI = confidence interval. RG = reference group. The OR or IRR for a given predictor is adjusted for all other predictors entered in the same step, as well as all other predictors entered in earlier steps. The unit change for family income was rescaled to represent an increment of \$10,000. See Methods section for a discussion of the regression models used for the various alcohol outcomes.

<sup>†</sup>  $p = .055$ ;

\*  $p < .05$ ;

\*\*  $p < .01$ ;

\*\*\*  $p < .001$ .

**Table 3**

Conditional associations of organization downsizing to the alcohol outcomes by length of recession exposure

Length of Exposure to the Recession at the Time of Interview	Usual Number of Drinks per Drinking Day	
	IRR	95% CI
1 <sup>st</sup> Quarter 2009	1.04	[0.85; 1.28]
2 <sup>nd</sup> Quarter 2009	1.10	[0.93; 1.29]
3 <sup>rd</sup> Quarter 2009	1.15 <sup>*</sup>	[1.00; 1.32]
4 <sup>th</sup> Quarter 2009	1.21 <sup>**</sup>	[1.07; 1.37]
1 <sup>st</sup> Quarter 2010	1.27 <sup>***</sup>	[1.12; 1.44]
2 <sup>nd</sup> Quarter 2010	1.33 <sup>***</sup>	[1.15; 1.55]
3 <sup>rd</sup> Quarter 2010	1.40 <sup>***</sup>	[1.17; 1.67]
4 <sup>th</sup> Quarter 2010	1.47 <sup>***</sup>	[1.18; 1.83]
1 <sup>st</sup> Quarter 2011	1.54 <sup>***</sup>	[1.19; 2.00]

Note:  $N = 2,296$ . IRR = incidence rate ratio. CI = confidence interval. The IRRs for the conditional associations of organizational downsizing to the alcohol outcome by levels of recession exposure (i.e., calendar quarter of interview) are adjusted for all other covariates/moderators shown in Table 2.

<sup>\*</sup>  $p < .05$ ,

<sup>\*\*</sup>  $p < .01$ ,

<sup>\*\*\*</sup>  $p < .001$ .

**Table 4**

Conditional associations of organization downsizing to the alcohol outcomes by age

Age	Usual Number of Drinks per Drinking Day		Frequency of Binge Drinking		Frequency of Intoxication	
	IRR	95% CI	OR	95% CI	OR	95% CI
18 years old	1.57**	[1.16; 2.14]	2.48**	[1.22; 5.04]	2.41**	[1.27; 4.58]
25 years old	1.44**	[1.14; 1.83]	2.00**	[1.15; 3.45]	2.00**	[1.22; 3.27]
30 years old	1.36**	[1.12; 1.65]	1.71*	[1.10; 2.67]	1.74**	[1.17; 2.59]
35 years old	1.28***	[1.10; 1.48]	1.47*	[1.02; 2.11]	1.52**	[1.11; 2.09]
40 years old	1.20**	[1.07; 1.35]	1.26	[0.92; 1.72]	1.33*	[1.02; 1.73]
45 years old	1.13*	[1.02; 1.25]	1.08	[0.92; 1.72]	1.16	[0.89; 1.50]
50 years old	1.06	[0.95; 1.19]	0.92	[0.63; 1.35]	1.01	[0.75; 1.37]
55 years old	1.00	[0.87; 1.16]	0.79	[0.49; 1.26]	0.88	[0.60; 1.29]
60 years old	0.94	[0.78; 1.14]	0.68	[0.38; 1.21]	0.77	[0.48; 1.24]
65 years old	0.87	[0.70; 1.12]	0.58	[0.29; 1.16]	0.67	[0.38; 1.20]

Note: N = 2,296. OR = odds ratio. IRR = incidence rate ratio. CI = confidence interval. The ORs or IRRs for the conditional associations of organizational downsizing to the alcohol outcomes by levels of age are adjusted for all other covariates/moderators shown in Table 2.

\*  $p < .05$ ,

\*\*  $p < .01$ ,

\*\*\*  $p < .001$ .