RUNNING HEAD: Alcohol and the College-to-Work Transition

When the Party Continues: Impulsivity and the Effect of Employment on Young Adults'

Post-College Alcohol Use

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Abstract

BACKGROUND: The transition from college to work is both an exciting and potentially high risk time for young adults. As students transition from academic settings to full-time employment, they must navigate new social demands, work demands, and adjust their drinking behaviors accordingly. Research has shown that there are both protective factors and risk factors associated with starting a new job when it comes to alcohol use, and individual differences can moderate these factors. **METHOD:** 1361 students were recruited from 4 geographically diverse universities and followed 1 month pre- and 1 month post-graduation. Drinking frequency, quantity, consequences, and impulsivity were assessed. **RESULTS:** Full-time employment was related to increased drinking quantity but not related to changes in other drinking outcomes. However, impulsivity moderated the relationship between employment and drinking. For those reporting higher levels of impulsivity at baseline, full-time employment was associated with an increase in drinking variables (quantity and frequency), whereas drinking was unaffected by full-time employment status among those reporting lower levels of impulsivity. Implications for future research are discussed.

KEYWORDS: college-to-work transition; full-time employment; impulsivity; alcohol use

The college years represent a period of high-risk drinking (1,2) and related problems (3,4). While upon graduation, many college graduates mature out of heavy drinking, a minority continue or increase drinking (5-7). Given the significance of the transition into employment, it is important to understand the role it may play in the maintenance, intensification, or reduction in drinking and the factors potentially conditioning these transition-related effects (8).

Graduates entering the full-time workforce face pressures to assimilate into a new culture, learning both their job roles and the social expectations of the organization (9,10), which may be most intense during the first weeks on the job. New responsibilities and performance-related impression management concerns may motivate some graduates to reduce alcohol consumption. But others may increase drinking to facilitate social integration and meet perceived or real workplace performance expectations (11, 9, 12) or as a maladaptive coping mechanism (13,14). How new hires navigate these conflicting demands for work performance, social integration, and stress management is important in that the failure to effectively self-regulate alcohol-related behavior can have significant implications on productivity, absenteeism and injury risk, and ultimately, job loss.

Although research has explored the implications of workplace and workforce drinking (15), findings are equivocal (16), and little is known about whether and how the transition from college to work influences drinking behavior. We know even less about the individual difference factors potentially conditioning such effects. This study examines (a) the main effects of full-time employment (vs. unemployment) on changes in drinking frequency, quantity, and problems during the transition from college to work, and (b) the effect of a key individual difference factor potentially moderating these relationships -- impulsivity. Impulsivity has long been studied in relation to alcohol use (17-19), and amplifies the effects of stress or social pressure to drink on a

variety of outcomes (20). We test competing hypotheses, which respectively propose that full-time employment is associated with a decline (Hypothesis 1a) or an increase (Hypothesis 1b) in quantity and frequency of consumption and alcohol-related problems from pre-graduation to one-month post-graduation. We also test a moderating hypothesis suggesting that impulsivity conditions these relations with a stronger positive association expected among those characterized by higher levels of impulsivity (Hypothesis 2).

Competing Main Effects

Research suggests that employment upon graduation has the potential to both mitigate and exacerbate drinking behavior. A decline in alcohol consumption after employment may be predicted in that, as demonstrated by research on employment as a mechanism of social control (21, 15), employers often impose direct or implicit restrictions on consumption or impairment at work. Those employed are expected to report to work on time and in a condition allowing them to meet or exceed performance expectations (22). To the extent that newcomers feel pressured to learn new roles and quickly demonstrate mastery and effective job performance (23), they may be hesitant to engage in behavior that may inhibit effective performance or suggest a lack of job commitment (9, 24). Employment provides structural constraints that both limit the ability to maintain or exacerbate patterns of drinking exhibited in college, and motivates newcomers to regulate such behavior (Hypothesis 1a).

But to the extent that alcohol is used to cope with new job stress and socialization integration demands, employment after graduation may also carry implicit incentives to increase alcohol consumption and engage in problematic drinking behavior. Tension-reduction (25) and self-medication (26) theories posit that individuals encountering psychological and physical stressors at work may engage in risky alcohol consumption to mitigate strain (13, 15). Alcohol

may reduce discomfort by reducing self-awareness (27) and redirecting focus away from stress-producing cues (28). While those seeking employment after graduation may also experience stress (associated with job search and financial constraints), a steady income facilitates the use of alcohol as a coping mechanism (29). In developing relations with workplace peers, customers and vendors, newcomers may also find it advantageous to participate in what these others view as normative drinking both during (e.g., lunch time) and after work hours (9). Frone and Brown (30) found that workplace injunctive drinking norms for alcohol use were linked to consumption both at and outside of the workplace. Newcomers may perceive behaving in a manner consistent with such norms key to rapid social integration at work (9). Thus, rather than motivating young adults to temper risky drinking behaviors, employment may serve as a risk factor, providing implicit incentives to exacerbate such behavior (Hypothesis 1b).

Impulsivity as a Conditioning Factor

The salience of these two competing forces on drinking behavior appears to vary from person to person, with research indicating the association between employment and newcomer drinking varies across individuals. Liu et al. (9) found that when exposed to implicit performance-related incentives to engage in risky yet potentially lucrative work behaviors involving heavy alcohol consumption with clients, some newcomers adopted such behavior while others did not. Among the individual differences likely to influence sensitivity to stimuli encouraging alcohol consumption is impulsivity. Those exhibiting higher impulsivity have a more difficult time inhibiting the urge to drink, especially when under stress and/or social pressure (20). Newly employed individuals with higher impulsivity are likely to be more susceptible to drinking to reduce stress and tension in the short term, thus amplifying the positive effect of employment on drinking. As social control is a less salient cue in the new work

environment for the highly impulsive, they are less likely to heed to the social control mechanisms associated with employment. Accordingly, we posit that impulsivity moderates the effect of employment on the change in drinking relative to pre-graduation levels, such that the effect of employment on alcohol consumption and problems will be more positive for those characterized by higher impulsivity (Hypothesis 2).

To test these hypotheses, we examined changes in drinking from a month before to a month after graduation for three outcome variables: modal quantity of alcohol consumption, modal frequency of alcohol consumption, and severity of drinking-related consequences.

Method

Participants and Procedures

Names and contact information for over 22,000 college seniors from three large public universities in the Pacific Northwest, Midwest, and Southeast, and one medium-size private elite university in the Northeast were contacted during their final semester before college graduation. Names were randomly selected from lists provided by each institution. Students were screened for graduation status and plans to work. 5401 of these individuals responded to our screening survey, providing information about their graduation status and plans to begin working upon graduation. Individuals ($n = 2250$) indicating that they were not going to graduate or not going to enter the labor market (e.g., because they planned to attend graduate school on a full-time basis) were excluded from the study. 3151 reported graduating that quarter/semester and planning to enter the labor market. Of these, 1330 responded to our screening survey after sample size targets had been reached and were excluded from further participation. Another 83 students declined to participate. The remaining 1738 students were invited to a 15-minute online survey assessing demographics, alcohol use and problems, personality factors, and other measures

(Time 0) and received a \$15 gift-card. Of them, 1730 completed the Time 0 survey and were then invited to complete a 1-month post-graduation survey (Time 1, \$25 gift-card). 1649 participants (95.3% retention) completed the second survey. There were no significant differences in this study's variables (e.g, Time 0 alcohol variables and control variables) between those who did and did not complete the Time 1 survey. Exclusions were made for 56 reporting not graduating or not entering the labor market and 232 indicating part-time employment, resulting in a final sample size of 1361.

Overall participation was proportionate to each school's representation in the graduation cohort: Northwest (19%); Midwest (27%); Southeast (28%); and Northeast (26%). Because on average 6% of responses for the alcohol dependent variables and 9% of responses for the alcohol independent variables were missing, the final sample sizes in our analyses ranged from 1107 to 1235 (see Table 2). Sample characteristics were representative of each campus. Women made up 60% of the sample, with Caucasians, Asian, Bi/Multiracial and African Americans accounting for 66.6, 20.9, 8.1 and 3.7 percent of the sample, respectively. Students were categorized into drinking status based on AUDIT scores (31) as follows: at risk if scored 5 or higher (46.2%), and not at risk (53.8%). At Time 1, 51.9% reported working full time (N = 707), while 48.1% reported not working (N = 654). The IRB at each site approved all procedures.

Measures

Employment. Employment status at Time 1 was based on a single-item drawn from the Gallup Organization asking which condition “best describes your current work situation.” Those employed and/or self-employed for more than 35 hours/week for pay were coded as working full-time (1). Those selecting “not currently working for pay but may be or will be working for pay in the future” were coded as unemployed (0).

Modal alcohol consumption. In the Time 0 and Time 1 surveys, the Daily Drinking Questionnaire (DDQ (32,33)) assessed participants' *modal quantity* and *modal frequency* of consumption based on standard drinks. For modal *quantity*, participants were asked to "consider a typical week during the past month," and to indicate how much, "on average (measured in number of drinks), you drink on each day of a typical week?" Modal quantity was calculated as the total number of drinks consumed over the course of this period. One item assessed modal frequency: "On how many days did you drink alcohol during the past month?" with response options ranging from 0 - 30.

Drinking consequences. In the Time 0 and Time 1 surveys, the short-form Rutgers Alcohol Problem Index (RAPI; White & Labouvie (34)) was used. Because we focus on *change* in RAPI, Time 0 and Time 1 measures needed to contain identical items to appropriately model such change. Accordingly, we removed the homework item, which was not applicable to participants at Time 1 and added two new items assessing drinking and driving, totaling 19 items. Sample items included "Neglected your responsibilities" and "Missed a day (or part of a day) of school or work". The RAPI scale score was computed by summing across items. Cronbach's α was .87 and .92 at Time 0 and Time 1, respectively.

Impulsivity. At Time 0, impulsivity was measured using four items from the Urgency subscale of the UPPS impulsive behavior scale (35). A sample item is "I have trouble controlling my impulses" (responses ranging from 1 = *strongly disagree* to 4 = *strongly agree*). Cronbach's α was .76.

Control variables. We controlled for *race* (coded as 0 = White and 1 = Minority) as there is evidence that Hispanic and African-American students use/misuse alcohol less than Whites (36,37) and that college-educated minorities remain disadvantaged in many labor markets

and may experience discrimination-related stressors upon job entry (38,39). We also controlled for *gender* (1 = male) because women tend to drink less and have fewer alcohol-related problems than men (40), and because women enter different occupations (with potentially different drinking norms) and report greater stress on the job than men (39). Because age is a predictor of alcohol use (41) and older college students may be more motivated to be employed upon graduation, we also controlled for age. We controlled for three individual characteristics that could underlie a spurious relationship between employment and change in alcohol use. *Negative affect* and *financial stress* may generate stress or emotions for which alcohol may be used to self-medicate (42,43). Negative affect was measured with 10 items from Watson, Clark, and Tellegen's (44) Positive Affect and Negative Affect Schedule ($\alpha = .90$), and financial stress using a two-item, modified version of Song et al.'s (43) measure ($\alpha = .90$). Because it is a personality factor that may be associated with easier adjustment from college to employment, we controlled for *adaptability to change* using four items from the Adaptability to Uncertainty subscale of Ployhart and Bliese's (45) Individual Adaptability Measure ($\alpha = .87$). As marijuana may be used to self-medicate for stress associated with the college-to-employment transition (46), we controlled for recreational marijuana use (response scale: 0 = *never* to 4 = *daily or almost daily*).

Analytical Strategy

As the study's drinking dependent variables were count-based, characterized by a significant proportion of zeros (21.5% for modal alcohol consumption quantity, 10.6% for modal alcohol consumption frequency, and 48.1% for RAPI), these variables were significantly over-dispersed (see Table 1 for means and variances and Table 2 for over-dispersion parameters). Thus, we estimated three sets of negative binomial regression models with a log link function,

one for each drinking dependent variable, to account for over-dispersion and ensure unbiased standard errors and conservative significance tests (47-49).

For each dependent variable, we ran three separate negative binomial regression models (see Table 2). In Model 1, we entered all control variables. To model change in our alcohol dependent variables, we controlled for the main effect of each Time 1 alcohol dependent variable's corresponding Time 0 scale (50). In Model 2, we specified the main effects of this study's focal independent variables (i.e., full-time employment and impulsivity) on Time 1 alcohol dependent variables. In Model 3, we specified the interaction between our employment variable and moderator (i.e., impulsivity). All independent variables were centered to facilitate the interpretation of interaction effects (51).

Results

Means, standard deviations, and correlations are reported in Table 1. The mean alcohol consumption levels are consistent with prior research (52,53). Paired sample *t*-tests comparing post-graduation versus pre-graduation alcohol use revealed that modal alcohol consumption quantity (mean difference = -1.14, $t = -6.28$, $p = .00$) and alcohol-related problems (mean difference = -.44, $t = -3.58$, $p = .00$) decreased whereas modal alcohol consumption frequency (mean difference = .53, $t = 3.66$, $p = .00$) increased from Time 0 to Time 1. The results of the series of negative binomial regressions, including parameter estimates, model fit, and dispersion parameters, are presented in Table 2.

Tables 1 and 2 about Here

Based on Model 1, participants who were older, White, heavier marijuana users, and more financially stressed experienced an increase in the typical number of alcoholic drinks

consumed during the week (modal quantity) from pre-graduation to post-graduation. White participants and heavier marijuana users experienced an increase in the number of days they drank during the month from pre-graduation to post-graduation. Finally, whereas men, heavier marijuana users, and more financially stressed participants experienced an increase in alcohol-related problems, more adaptable participants experienced a decrease in alcohol-related problems after college.

Based on Model 2, full-time employment was not significantly associated with changes in either modal alcohol consumption frequency ($B = .05, p = .29$) or alcohol-related problems ($B = .10, p = .31$), failing to support Hypotheses 1a and 1b. Consistent with Hypothesis 1b, Model 2 shows that full-time employment was significantly associated with increased modal alcohol consumption quantity ($B = .11, p = .04$), indicating that for those who were employed their typical number of alcoholic drinks consumed/week increased by a factor of 1.16 ($e^{.11} = 1.16$), or 16%.

Next, Model 3 incorporated the moderating effect of impulsivity. As can be seen in Table 2, impulsivity significantly moderated the relationship between full-time employment and changes in modal consumption quantity ($B = .05, p = .04$) and frequency ($B = .05, p = .005$), but not changes in alcohol-related problems ($B = .05, p = .28$). To further probe the nature of these significant interactions (Cohen et al., 2003), we plotted the conditional effect of full-time employment at various levels of the moderator (e.g., 1 SD above and 1 SD below the mean). The changes in the expected number of daily drinks over the course of a typical week (see Figure 1) and the expected number of days spent drinking during the month (see Figure 2), are presented along the y axes.

As shown in Figure 1, full-time employment was associated with an increase in modal consumption quantity from college to post-graduation only for participants who were more impulsive (for high impulsivity, *simple slope* = .22, $p = .004$; for low impulsivity, *simple slope* = -.01, $p = .93$). That is, for participants with high impulsivity, full-time employment was associated with an increase in modal consumption quantity by a factor of 1.25 ($e^{.22} = 1.25$), or 25% increase in the expected number of daily drinks consumed during a typical week, whereas the modal alcohol consumption quantity of participants with low impulsivity was unaffected by employment status. Similarly, as seen in Figure 2, for participants who were more impulsive, employment predicted an increase in modal consumption frequency (*simple slope* = .17, $p = .004$, 19% increase in expected number of days spent drinking during the month) whereas modal alcohol consumption frequency did not change based on employment status for participants who were less impulsive (*simple slope* = -.08, $p = .22$). Overall, these patterns are consistent with Hypothesis 2.

We also evaluated our results using the .05 Benjamini-Hochberg false discovery rate correction to protect against inflated Type 1 error. Applying this correction, we found that the main effect of full-time employment on change in modal alcohol consumption quantity and moderating effect of impulsivity on the relationship between employment and modal alcohol consumption frequency were still significant, consistent with Hypothesis 1b and 2. However, inconsistent with Hypothesis 2, the moderating effect of impulsivity on the relationship between employment and change in modal alcohol consumption quantity was not statistically significant with this correction. Moreover, as participants were nested within four different universities, we ran supplementary analyses to account for the non-independence of the data when predicting changes in our alcohol outcomes. After controlling for fixed university effects via three dummy

variables in each of the negative binomial regressions presented in Table 2, the only change in findings related to our hypotheses was that the positive main effect of full-time employment on change in modal alcohol quantity was now significant at the .10 level and not at the .05 level ($B = .10, p = .07$). Finally, given that some of our participants may have continued the full-time employment they held while in college and this may have affected their changes in drinking, we controlled for average weekly hours worked during college. Controlling for weekly college employment hours resulted in a similar finding pattern to the primary findings reported above.

Discussion

We evaluated the relationship between full-time employment one-month post-graduation and changes in alcohol use and consequences during the transition from college to work. Employment was significantly related to increased modal alcohol consumption quantity but not significantly associated with changes in modal consumption frequency or alcohol-related problems from pre-graduation to one month after. One possible explanation for this shift in modal quantity but not frequency is that the income associated with employment allows employed graduates to drink more on those occasions when they do drink. Furthermore, as hypothesized, impulsivity moderated the relationship between full-time employment and change in modal alcohol consumption, such that full-time employment predicted an increase in modal alcohol consumption for participants higher on impulsivity but not for participants lower on impulsivity. This finding underscores the importance of examining theoretically relevant moderators, in attempting to understand the impact of employment on alcohol consumption. Interestingly, impulsivity did not moderate the relationship between employment and change in alcohol-related problems. This is potentially due to the low likelihood of a substantial shift in the manifestation of such problems occurring over such a short period (i.e., approximately two

months), a potentially more dominant role played by other personality-related variables more salient to drinking consequences such as antisocial personality, or the diminished saliency of impulsivity in a structured, employment context as a basis for the more extreme drinking behaviors that might be associated with the acute emergence of alcohol-related problems.

Clinical Implications

The study's findings have implications both for college level providers, administrators, and employers. Focusing prevention and intervention efforts in the college setting for those who have indicated impulsivity challenges (e.g. past disciplinary actions/violations) or screen high on measures of impulsivity may facilitate a smoother transition into the workplace. Employers may do well to provide stress management skills for new employees (54) and encourage non-drinking social activities as part of the onboarding process to assist employees in integrating socially while reducing perceived or actual workplace cues supporting heavy drinking (12).

Strengths and Limitations

The study's strengths are its longitudinal design, wherein a large sample of young adults were recruited prior to college graduation and followed into the workplace. The inclusion of four geographically dispersed and dissimilar campuses in this research increases generalizability of the findings.

Limitations include the short follow-up period, as the Time 1 assessment was one-month post-graduation. It is possible that participants changed their drinking during this short time period due to celebrating graduating from college or getting a job, and not because of conditions relating to their employment. Longer exposure to the worksite could lead to greater changes in post-college drinking for the employed graduates, and greater differences in changes in alcohol consumption between employed and unemployed participants. A longer follow-up period would

increase the likelihood of capturing any change in drinking problems, as such shifts may be too subtle in the short term for conventional measures such as the RAPI to capture (55).

Additionally, the current study did not incorporate information regarding participants' worksites. It is not possible to say whether the moderating effect of impulsivity is due to those with impulse control problems being more sensitive to worksite drinking cues or cultures and worksite stressors, or whether they self-selected into work contexts favorable to heavier drinking. Moreover, other personality or individual differences factors not assessed may contribute to differences in drinking from pre- to post-graduation. Research on such factors is warranted. Finally, the study relied on participant self-reports which can present problems with recall and other biases. However, these limitations are minimized by use of objective and well-validated measures, implemented online, and with no consequences (i.e., legal or job sanctions, public stigma) associated with accurate reporting in the context of this confidential project. Under these circumstances, self-report data has been shown to be both reliable and valid among adolescents and young adults, even for highly sensitive topics including substance use (56-60).

Conclusions

Despite limitations, the current research adds to the literature on the college-to-work transition, and highlights the role of impulsivity as an individual difference factor influencing changes in drinking as young adults transition into full time employment upon graduating from college. This research suggests that typical reductions in drinking believed to be associated with leaving college and entering the workforce are not uniform, with workforce entry associated with maintenance and increases in alcohol use for a subset of young adults, specifically those who struggle with impulse control. This provides new avenues for college- and employer-based

interventions to prevent or reduce escalations in heavy drinking during this critical transition period.

Future research is needed to evaluate longer-term trajectories of alcohol use and consequences during the college-to-work transition to augment the current findings and to more fully understand both organizational and individual predictors and moderators of drinking trajectories during this transition. Designing and testing interventions to address heavy drinking during the transition would be a logical next step.

References

1. Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. & Miech. *Monitoring the Future national survey results on drug use, 1975-2014. Volume II: College students and adults ages 19-55*. 2015. Available from http://www.monitoringthefuture.org/pubs/monographs/mtf-vol2_2014.pdf.
2. Hingson, R. W., Zha, W., Weitzman, E. R. Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18-24: Changes from 1998 to 2005. *Journal of Studies on Alcohol and Drugs* (Suppl. 16):12–20, 2009.
3. Arria, A. M., Caldeira, K. M., Bugbee, B. A., Vincent, K. B., & O'Grady, K. E. *The academic opportunity costs of substance use during college*. College Park, MD: Center on Young Adult Health and Development; 2013a. Available from www.cls.umd.edu/docs/AcadOppCosts.pdf.
4. Hingson, R. W., & White, A. M. Prevalence and consequences of college student alcohol use. In C. J. Correia, J. G. Murphy, & N. P Barnett (Eds.), *College student alcohol abuse: A guide to assessment, intervention, and prevention*. Hoboken, New Jersey: John Wiley & Sons, Inc; 2012. p. 3-24.
5. Baer, J. S., Kivlahan, D. R., Blume, A. W., McKnight, P., & Marlatt, G. A. Brief intervention for heavy-drinking college students: 4-year follow-up and natural history. *American Journal of Public Health*, 2001;91(8):1310-1316.
6. Jackson, K. M., Sher, K. J., Gotham, H. J., & Wood, P. K. Transitioning into and out of large-effect drinking in young adulthood. *Journal of Abnormal Psychology*. 2001;110(3): 378–391.
7. Schulenberg, J. E. & Maggs, J. L. A developmental perspective on alcohol use and heavy drinking during adolescence and the transition to young adulthood. *Journal of Studies on Alcohol* (Suppl 14):54-70, 2002.
8. Arria, A. M., Garnier-Dykstra, L. M., Cook, E. T., Caldeira, K. M., Vincent, K. B., Baron, R. A., & O'Grady, K. E. (2013b). Drug use patterns in young adulthood and post-college employment. *Drug and Alcohol Dependence*. 2013b;127(1-3):23-30. doi:10.1016/j.drugalcdep.2012.06.001
9. Liu, S., Wang, M., Bamberger, P., Shi, J., & Bacharach, S.B. The dark side of socialization: A longitudinal investigation of newcomer alcohol use. *Academy of Management Journal*. 2015;58(2):334-355. doi:10.5465/amj.2013.0239
10. Cain, D.M., Dana, J. & Newman, G.E. Giving versus giving in. *The Academy of Management Annals*, 2014;(8)1:505-533. doi: 10.1080/19416520.2014.911576
11. Bauer, T.N., Bodner, T., Erdogan, B., Truxillo, D.M., & Tucker, J.S. Newcomer adjustment during organizational socialization: A meta-analytic review of antecedents,

- outcomes, and methods. *Journal of Applied Psychology*. 2007;92(3):707-721. doi: 10.1037/0021-9110.92.3707
12. Sonnenstuhl, W. J. *Working sober: The transformation of an occupational drinking culture*. Ithaca, NY: ILR Press/Cornell University Press. 1996.
 13. Frone, M. R. Work, stress, and alcohol use. *Alcohol Research & Health*. 1999;23(4):284-291.
 14. Lazarus, R. S., & Folkman, S. *Stress, Appraisal, and Coping*. New York: Springer. 1984.
 15. Frone, M. *Alcohol and Illicit Drug Use in the Workforce and Workplace*. NY: Oxford Univ. Press. 2013.
 16. Popovici, I., & French, M. T. Does unemployment lead to greater alcohol consumption? *Industrial Relations: A Journal of Economy and Society*. 2013;52(2):444-466. doi: 10.1111/irel.12019
 17. Hair, P., & Hampson, S. E. The role of impulsivity in predicting maladaptive behaviour among female students. *Personality and Individual Differences*. 2006;40:943-952. doi:10.1016/j.paid.2005.10.002
 18. DeYoung, C. G. Impulsivity as a personality trait. In Vohs, K.D., & Baumeister, R.F. (Eds.), *Handbook of self-regulation: Research theory and applications* (2nd edition). New York, NY: Guilford Press; 2010. p. 485-502.
 19. Spooner, C. Causes and correlates of adolescent drug abuse and implications for treatment. *Drug and Alcohol Review*. 1999;18(4):453-475.
 20. Helen, C., Keri, L., Peihua, G., & Rajita, S. Interactive effects of cumulative stress and impulsivity on alcohol consumption. *Alcoholism: Clinical and Experimental Research*. 2010;34(8):1376-1385. doi: 10.1111/j.1530-0277.2010.01221.x
 21. Bacharach, S. B., Bamberger, P. A., & Sonnenstuhl, W. J. Driven to drink: Managerial control, work-related risk factors, and employee problem drinking. *Academy of Management Journal*, 2002;45(4):637-658.
 22. Arcaya, M., Glymour, M. M., Christakis, N. A., Kawachi, I., & Subramanian, S. V. Individual and spousal unemployment as predictors of smoking and drinking behavior. *Social Science & Medicine*, 2014;110:89-95. doi: 10.1016/j.socscimed.2014.03.034
 23. Saks, A.M. & Ashforth, B.E. Organizational Socialization: Making sense of the past and present as a prologue for the future. *Journal of Vocational Behavior*. 1997;51: 234–279.

24. Moreland, R. L., & Levine, J. M. Socialization in organizations and work groups. In M. Turner (Ed.), *Groups at work: Advances in theory and research*. Hillsdale, NJ: Erlbaum; 2001. p. 69-112.
25. Conger, J. J. Alcoholism: Theory, problem and challenge. II. Reinforcement theory and the dynamics of alcoholism. *Journal of Studies on Alcohol*, 1956;13:296-305.
26. Frone, M. R. Employee alcohol and illicit drug use: Scope, causes, and organizational consequences. In J. Barling & C. L. Cooper (Eds.), *The SAGE handbook of organizational behavior. Vol. 1: Micro Approaches*. Thousand Oaks, CA: Sage. 2008. p. 519-540.
27. Hull, J. G. A self-awareness model of the causes and effects of alcohol consumption. *Journal of Abnormal Psychology*. 1981;90:586-600.
28. Steele, C. M., & Josephs, R. A. Drinking your troubles away II: An attention-allocation model of alcohol's effect on psychological stress. *Journal of Abnormal Psychology*. 1988;97(2):196-205.
29. Siahpush, M., Borland, R. & Scollo, M. Smoking and financial stress. *Tobacco Control*. 2003;12(1):60-66.
30. Frone, M.R., & Brown, A.L. Workplace substance-use norms as predictors of employee substance use and impairment: a survey of U.S. workers. *Journal of Studies on Alcohol and Drugs*. 2010;71(4):526-534.
31. Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R., & Grant, M. Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction*. 1993;88(6):791-804.
32. Collins, R. L., Parks, G. A., & Marlatt, G. A. Social determinants of alcohol consumption: the effects of social interaction and model status on the self-administration of alcohol. *Journal of Consulting and Clinical Psychology*. 1985;53(2):189-200. doi:10.1037/0022-006X.53.2.189
33. Dimeff, L. A., Baer, J. S., Kivlahan, D.R., & Marlatt, G. *Brief Alcohol Screening and Intervention for College Students (BASICS): A Harm Reduction Approach*. New York, N.Y.: Guilford Press. 1999.
34. White, H. R., & Labouvie, E. W. Toward the assessment of adolescent problem drinking. *Journal of Studies on Alcohol*. 1989;50(1):30-37.
35. Whiteside, S. P., & Lynam, D. R. The Five Factor Model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences*. 2001;30(4):669-689. doi: 10.1016/S0191-8869(00)00064-7

36. Borsari, B., Murphy, J.G., & Barnett, N.P. Predictors of alcohol use during the first year of college: Implications for prevention. *Addictive Behaviors*. 2007;31(10):2062-2086. doi: 10.1016/j.addbeh.2007.01.017
37. Marx, B.P., & Sloan, D.M. The effects of trauma history, gender, and race on alcohol use and posttraumatic stress symptoms in a college student sample. *Addictive Behaviors*. 2003;28(9):1631–1647. doi: 10.1016/j.addbeh.2003.08.039
38. Zemore, S. E., Mulia, N., Jones-Webb, R. J., Liu, H., & Schmidt, L. The 2008–2009 recession and alcohol outcomes: differential exposure and vulnerability for black and Latino populations. *Journal of Studies on Alcohol and Drugs*. 2013;74(1):9-20. doi: <http://dx.doi.org/10.15288/jsad.2013.74.9>
39. Wadsworth, E., Dhillon, K., Shaw, C., Bhui, K., Stansfeld, S., & Smith, A. Racial discrimination, ethnicity and work stress. *Occupational Medicine*. 2007;57(1):18–24. doi: 10.1093/occmed/kql088
40. Nolen-Hoeksema, S. Gender differences in risk factors and consequences for alcohol use and problems. *Clinical Psychology Review*. 2004;24(8):981-1010. doi:10.1016/j.cpr.2004.08.003
41. Wechsler, H., Dowdall, G.W., Davenport, A., & Castillo, S. Correlates of college student binge drinking. *American Journal of Public Health*. 1995;85(7):921-926.
42. Cooper, M.L., Frone, M.R., Russell, M., & Mudar, P. Drinking to regulate positive and negative emotions: A motivational model of alcohol use. *Journal of Personality and Social Psychology*. 1995;69(5):990-1005.
43. Song, Z., Uy, M. A., Zhang, S., & Shi, K. Daily job search and psychological distress: Evidence from China. *Human Relations*. 2009;62(8):1171-1197. doi: 10.1177/0018726709334883
44. Watson, D., Clark, L. A., & Tellegen, A. Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*. 1988;54(6):1063-1070.
45. Ployhart, R. E., & Bliese, P. D. Individual adaptability (I-Adapt) theory: Conceptualizing the antecedents, consequences, and measurement of individual differences in adaptability. In S. C. Burke, L. G. Pierce, & E. Salas (Eds.), *Understanding adaptability: A prerequisite for effective performance within complex environments*. Vol. 6: *Advances in human performance and cognitive engineering research*. Amsterdam, London: Elsevier. 2006. p. 3-40.
46. Newcomb, M. D., Chou, C, Bentler, P. M., & Huba, G. J. Cognitive motivations for drug use among adolescents: Longitudinal tests of gender differences and predictors of

change in drug use. *Journal of Counseling Psychology*. 1988;35(4):426-438. doi: 10.1037/0022-0167.35.4.426

47. Atkins, D. C., Baldwin, S. A., Zheng, C., Gallop, R. J., & Neighbors, C. A tutorial on count regression and zero-altered count models for longitudinal substance use data. *Psychology of Addictive Behaviors*. 2013;27(1)166-177. doi: 10.1037/a0029508
48. Cox, S., West, S. G., & Aiken, L. S. The analysis of count data: A gentle introduction to Poisson regression and its alternatives. *Journal of Personality Assessment*. 2009;91(2):121-136. doi: 10.1080/00223890802634175
49. Long, J. S. *Regression models for categorical and limited dependent variables*. Thousand Oaks, CA: Sage Publications Inc. 1997.
50. McArdle, J. J. Latent variable modeling of differences and changes with longitudinal data. *Annual Review of Psychology*, 2009;60:577-605.
51. Cohen, J., Cohen, P., West, S., & Aiken, L. *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences* (3rd ed.). Hillsdale, NJ: Erlbaum. 2003.
52. Hoepfner, B.B., Barnett, N. P., Jackson, K. M., Colby, S. M., Kahler, C.W., Monti, P.M., ... & Fingeret, A. Daily college student drinking patterns across the first year of college. *Journal of Studies on Alcohol and Drugs*. 2012;73(4):613-624.
53. Wechsler, H., & Nelson, T. F. What we have learned from the Harvard School of Public Health College Alcohol Study: Focusing attention on college student alcohol consumption and the environmental conditions that promote it. *Journal of Studies on Alcohol and Drugs*. 2008;69(4)481-490.
54. Richardson, K. M., & Rothstein, H. R. Effects of occupational stress management intervention programs: a meta-analysis. *Journal of Occupational Health Psychology*. 2008;13(1) 69-93. doi: 10.1037/1076-8998.13.1.69
55. White, H.R., Mun, E.Y., Pugh, L., & Morgan, T.J. Long-term effects of brief substance use interventions for mandated college students: Sleeper effects of an in-person personal feedback intervention. *Alcohol Clinical and Experimental Research*. 2007;31(8):1380-1391.

56. Chermack, S., Singer, K., & Beresford, T. Screening for alcoholism among medical inpatients: How important is corroboration of patient self-report? *Alcoholism: Clinical and Experimental Research*. 1998;22(7):1393-1398.
57. Kypri, K., Wilson, A., Attia, J., Sheeran, P., Miller, P., & McCambridge, J. Social desirability bias in the reporting of alcohol consumption: A Randomized Trial. *Journal of Studies on Alcohol and Drugs*. 2016;77:526-531.
58. Laforge, R. G., Borsari, B., & Baer, J. S. The utility of collateral informant assessment in college alcohol research: Results from a longitudinal prevention trial. *Journal of Studies on Alcohol*. 2005;66(4):479-487.
59. Simons, J. S., Wills, T. A., Emery, N. N., & Marks, R. M. Quantifying alcohol consumption: Self-report, transdermal assessment, and prediction of dependence symptoms. *Addictive Behaviors*. 2015;50:205-212. doi: 10.1016/j.addbeh.2015.06.042

Table 1

Means, Standard Deviations, and Bivariate Correlations among Study Variables

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
1. Age	23.88	.96	--									
2. Gender	.40	.49	.08**	--								
3. Race	.33	.47	-.03	-.03	--							
4. Adaptability	3.85	.69	.04	.07*	-.02	(.87)						
5. Negative affect	2.08	.76	.03	-.17**	.05	-.22**	(.90)					
6. Marijuana use	.48	.92	.02	.14**	-.06*	.00	.05	--				
7. Financial stress	3.10	1.23	.08**	-.18**	.02	-.04	.29**	.01	(.90)			
8. Modal alcohol consump. quantity (T0)	6.85	7.96	-.02	.26**	-.15**	.04	-.06*	.32**	-.06*	--		
9. Modal alcohol consump. freq. (T0)	6.57	5.84	.01	.17**	-.22**	.05	-.04	.30**	.03	.64**	--	
10. Rutgers alcohol problems (T0)	2.45	4.03	.03	.17**	-.09**	-.03	.16**	.26**	.06*	.58**	.42**	(.87)
11. Impulsivity	7.78	2.53	.04	-.08**	.08**	-.16**	.48**	.12**	.23**	.04	.02	.21**
12. Full-time employment	.52	.50	.05	.01	-.10**	.04	-.04	.02	-.05	.00	.02	.00
13. Modal alcohol consump. quantity (T1)	5.24	7.01	.05	.21**	-.14**	.02	-.06*	.34**	.02	.65**	.54**	.43**
14. Modal alcohol consump. freq. (T1)	6.53	6.34	.04	.11**	-.20**	.05	-.01	.34**	.05	.49**	.65**	.33**
15. Rutgers alcohol problems (T1)	2.15	4.24	.05	.13**	-.03	-.08**	.18**	.24**	.15**	.41**	.29**	.51**

Note. $N = 1107-1361$. Gender was coded as 1 if male, 0 if female. Race was coded as 1 if minority, 0 if white. Full-time employment was coded as 1 if working 35 or more hours per week, and 0 if unemployed. Cronbach's alpha coefficients are in parentheses along the diagonal where appropriate.

* $p < .05$.

** $p < .01$.

Table 1 Continued

Variables	11	12	13	14	15
1. Age					
2. Gender					
3. Race					
4. Adaptability					
5. Negative affect					
6. Marijuana use					
7. Financial stress					
8. Modal alcohol consump. quantity (Time 0)					
9. Modal alcohol consump. freq. (Time 0)					
10. Rutgers alcohol problems (Time 0)					
11. Impulsivity	(.76)				
12. Full-time employment	-.04	--			
13. Modal alcohol consump. quantity (Time 1)	.05	.03	--		
14. Modal alcohol consump. freq. (Time 1)	.05*	.04	.71**	--	
15. Rutgers alcohol problems (Time 1)	.25**	.05	.50**	.40**	(.92)

Table 2

Estimated coefficients of negative binomial regression models with employment predicting modal alcohol consumption and alcohol-related problems

Predictors	Model 1		Model 2		Model 3	
	B	SE	B	SE	B	SE
Modal alcohol consumption quantity (Time 1)						
(Constant)	1.50**	.04	1.44**	.05	1.44**	.05
Age	.07*	.03	.07*	.03	.07*	.03
Gender	.07	.06	.07	.06	.07	.06
Race	-.17**	.06	-.16*	.06	-.16*	.06
Adaptability	.05	.04	.04	.04	.05	.04
Negative affect	-.07	.04	-.06	.04	-.06	.04
Marijuana use	.14**	.03	.14**	.03	.14**	.03
Financial stress	.07**	.02	.08**	.02	.08**	.02
Modal alcohol consumption quantity (Time 0)	.09**	.01	.09**	.01	.09**	.01
Impulsivity			-.01	.01	-.03	.02
Full-time employment			.11*	.05	.11*	.05
FTE X impulsivity					.05*	.02
Dispersion	.64**	.05	.64**	.05	.64**	.05
Sample size	1233		1233		1233	
-2 log likelihood	6332.09		6327.89		6323.58	
$\Delta\chi^2$ (df = 1)	--		--		4.86*	
McFadden R ²	.09		.09		.09	
Modal alcohol consumption frequency (Time 1)						
(Constant)	1.86**	.03	1.84**	.04	1.83**	.04
Age	.04	.02	.04	.02	.03	.02
Gender	.03	.05	.03	.05	.04	.05
Race	-.20**	.05	-.19**	.05	-.19**	.05
Adaptability	.04	.03	.04	.03	.04	.03
Negative affect	.01	.03	.01	.03	.01	.03
Marijuana use	.12**	.02	.12**	.02	.12**	.02
Financial stress	.03	.02	.03	.02	.03	.02
Modal alcohol consumption frequency (Time 0)	.08**	.01	.08**	.01	.08**	.01
Impulsivity			-.01	.01	-.03*	.01
Full-time employment			.05	.04	.05	.04
FTE X impulsivity					.05**	.02
Dispersion	.39**	.03	.39**	.03	.38**	.03
Sample size	1235		1235		1235	
-2 log likelihood	6902.73		6901.48		6892.92	
$\Delta\chi^2$ (df = 1)			--		8.96**	
McFadden R ²	.07		.07		.07	

Alcohol-related problems (Time 1)

(Constant)	.29**	.07	.22*	.09	.22*	.09
Age	.05	.05	.04	.05	.04	.05
Gender	.40**	.11	.42**	.11	.43**	.11
Race	-.09	.11	-.10	.11	-.09	.11
Adaptability	-.25*	.10	-.23*	.10	-.22*	.10
Negative affect	.12	.07	.01	.07	.01	.07
Marijuana use	.18**	.04	.17**	.04	.17**	.04
Financial stress	.22**	.05	.20**	.05	.20**	.05
Rutgers alcohol problems index (Time 0)	.16**	.02	.15**	.02	.15**	.02
Impulsivity			.08**	.02	.06	.04
Full-time employment			.10	.10	.09	.10
FTE X impulsivity					.05	.04
Dispersion	1.46**	.13	1.42**	.13	1.42**	.13
Sample size	1106		1106		1106	
-2 log likelihood	3823.40		3809.44		3807.88	
$\Delta\chi^2$ (df = 1)					1.04	
McFadden R ²	.08		.08		.08	

Note. N = 1106-1235. Gender was coded 0 = women, 1 = men; race was coded 0 = white, 1 = minority. Full-time employment was coded as 1 if working 35 or more hours per week, and 0 if unemployed. Chi-square difference tests are based on log-likelihood values and scaling correction factors using MLR estimation.

* $p < .05$.

** $p < .01$.

Figure 1

Impulsivity moderates the relationship between full-time employment and Time 1 modal alcohol consumption quantity

Figure 2

Impulsivity moderates the relationship between full-time employment and Time 1 modal alcohol consumption frequency