

## The Longitudinal Relationship between Employment and Substance Use among At-Risk Adolescents

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### Abstract

This paper explores the longitudinal association between employment and alcohol/other drug (AOD) use and consequences among an at-risk youth sample with a first-time AOD offense. This study extends previous research by examining the effects of more stable employment over time. Participants were adolescents referred to a diversion program (N=193) for a first-time AOD offense. Mean age were 16.6 (SD=1.1), 67% of the sample were male; and 45% Hispanic or Latino/a, 45% white; 10% other. We examined work intensity at program intake with AOD use, AOD-related consequences and risky social environment 180 days after the first survey. Greater work intensity was associated with greater peak drinks per occasion 180 days later and time spent around teens who use alcohol and marijuana; when controlling for age, gender, and race/ethnicity, work intensity was only associated with increased contact with teens who use marijuana. Work stability was not found to be associated with AOD-related use, outcomes, or reports of a risky social environment. Understanding how employment uniquely affects at-risk youth can help us determine policies and practices that may be needed to monitor the amount of time teens work.

**Keywords:** Employment; Substance use; Teen court; Alcohol; Marijuana

### Introduction

Large national school-based studies indicate that working 20 hours or more during the school year is associated with heavy alcohol, tobacco, drug use, and delinquency among teens [1-4]. Several theories may explain the association between work intensity and substance use. Specifically, working more hours is associated with more income to spend on alcohol and other drugs (AOD), greater exposure to teens who use AOD, and increased exposure to riskier work environments where older teens and adult coworkers use AOD [4-7]. Youth who work more hours may also experience changes in their relationships with their parents (e.g., less parental monitoring) and commitment in school (e.g., fewer educational aspirations) that may mediate future AOD use (social bond theory) [8].

However, not all employment experiences place youth at greater risk for alcohol and other drug (AOD) use and consequences. For example, teens with steady employment (e.g., worked most months during high school) and fewer hours (<20 hours per week) have greater rates of college attendance than teens who work more than 20 hours a week or have sporadic employment [9]. Life course theory suggests that when youth are given opportunities they normally would not easily receive during transitional times such as during high school, their life course is expected to change [10,11]. For example, if at-risk youth are given new opportunities and roles through steady employment, they may experience a turning point; instead of continuing on an at-risk trajectory, they may transition to a less-risky trajectory. Steady work may provide opportunities to boost responsibility, time management, decision-making skills and also build intrinsic motivation to succeed in the workforce [9]. Existing literature on the effects of steady employment is limited to teens' work status (i.e., worked or not worked) rather than whether teens maintained the same job over time.

Because it is common for teens to have multiple jobs during adolescence [12], it is important to examine whether work stability within the same occupation serves to protect youth or place them at greater risk for AOD use and consequences.

Studies examining work intensity and stability have mostly been limited to school-based samples. Contrary to school-based findings, a recent cross-sectional study of youth with a first-time AOD-offense showed that work intensity was not associated with greater AOD use, but it was associated with more alcohol-related negative consequences and increased contact with co-workers who engaged in risky behaviors [13]. Youth with an offense may be qualitatively different from school-based samples [14] and more studies are needed to evaluate the longitudinal effects of work intensity in an at-risk population. If differences are found, this finding may have policy implications for how to tailor preventive interventions for at-risk youth. Understanding how work intensity and stability affects subsequent AOD use among at-risk youth is critical because providers may actively encourage employment among this population, in the hope that employment will foster enhanced responsibility [9]. Yet, some research has shown that work intensity is correlated with increased contact with risky co-workers, which could increase participation in AOD use behavior [13].

In this paper, we examined a diverse sample of youth with a first-time AOD offense: 1) whether work intensity was associated with subsequent AOD use, consequences, and risk environment, and 2) whether work stability, or being in the same occupation over time was associated with subsequent AOD use, consequences, and risk environment.

## Method

### Ethics statement

Study protocols were approved by the Institutional Review Board. Parents were required to provide written consent for their adolescent to participate (if they were under 18) and youth had to provide written assent (if under the age of 18) or consent (if 18).

### Setting

We conducted this study in collaboration with the Santa Barbara Teen Court, a diversion program operated by the Council on Alcoholism and Drug Abuse (CADA), a nonprofit community-based organization. Teen Court is offered to youth who commit a first-time AOD offense and are not deemed in need of more serious intervention or treatment by the local probation department. The Teen Court program consists of a court hearing in front of a peer jury, sanctions including payment of a fee, psychoeducational group sessions, community service, and jury service.

### Participants

We recruited adolescents aged 14-18 referred to Teen Court as part of a larger randomized trial evaluating a group-based Motivational Interviewing (MI) intervention called Free Talk [15]. Youth were eligible if they had a referral for a first-time AOD offense, were English proficient, did not possess a medical marijuana card, and did not have multiple offenses. Adolescents who were not deemed in need of more intensive treatment were eligible to participate in Teen Court in lieu of formal juvenile justice processing. Of those eligible (n=216), 23 (11%) were either not interested or unable to participate, leaving a sample of 193. No statistically significant demographic differences were observed between study participants and those that refused to participate.

### Procedures

**Data Collection:** Youth were recruited at Teen Court intake and completed a survey before their Teen Court hearing. Youth then participated in the 90-day Teen Court program and completed a second survey approximately 180 days from the time of their first survey (and approximately 90 days following Teen Court program). Participants were paid \$25 for their first survey and \$45 for the second survey. We obtained a Certificate of Confidentiality to protect our data. More details about the study procedures and methods are available in previous publications [16].

### Measures

**Individual characteristics:** Demographic information included age, gender, and race/ethnicity. Occupation was defined as one of 12 job categories (e.g., yard work, childcare, housecleaning, store clerk).

**Work Intensity:** Participants were asked about number of hours worked per week (work intensity) and occupation in the past year. Work intensity was a 9-point scale (0='None' to 8='More than 30 hours per week').

**Work Stability:** Teens who reported the same occupation at both surveys were coded as "stable" in our analyses. Teens who reported working at the time of their first survey and not at the second, or reported working in a different occupation at the time of the second survey were coded as "unstable".

**Outcomes:** We assessed frequency of past 30 day drinking, including heavy drinking (5+ drinks within a few hours) on an eight-point scale

(1= '0 days' to 8='21 to 30 days') [14-19]. Participants were also asked how many drinks they consumed on average on any given occasion in the past 30 days as well as the maximum number of drinks on any occasion in the past 30 days [20]. We assessed drinks per drinking day on an 8-point scale (1='Never' to '8= more than 12'). We assessed negative consequences of drinking over the past 30 days using six items (e.g., 'felt really sick because of drinking alcohol',  $\alpha=0.81$ ) rated on a 4-point scale (1='Never' to 4='3 or more times'). Items were averaged with a higher score indicating more severe consequences [21]. We assessed two marijuana outcomes: 1) frequency of marijuana use in the past month, and 2) marijuana consequences ( $\alpha=0.77$ ) in the past 30 days [21]. Two questions addressed time spent around teens that use alcohol and marijuana, respectively, to assess the respondent's risk environment [21]. Each item was rated on a 4-point scale (1='Never' to 4='Often').

### Statistical analyses

To examine effects of work intensity, we regressed each outcome on work intensity at time 1 while controlling for the respective at time 2 outcome variable (we did not use any random effects). To examine effects of work stability, we restricted analyses to those who worked at the first survey and regressed each of the outcomes at time 2 and work stability variable while controlling for the respective time 1 variable. Both regression analyses were estimated with and without age, gender and race/ethnicity as covariates. To account for non-normality of some outcomes, we estimated standard errors and p-values using bootstrapping, with 1000 replicates per analysis. We present both adjusted (for covariates) and unadjusted parameter estimates from the model. The unadjusted effects describe the difference between workers and non-workers without attempting to determine that the relationship is causal.

## Results

### Descriptive analyses

**Overall Sample:** The mean participant age at the time of the first survey was 16.6 years (SD=1.1). Sixty-seven percent of teens were male, 45% identified as Hispanic or Latino/a, 45% white, and 10% reported another race. Of the 193, 187 (97% of the sample) completed the time 2 survey.

**Employed adolescents:** Adolescents who were employed at the time of the first survey were older than those who were not employed ( $p < 0.001$ ). No other demographic differences were found. Thirty-two percent of teens worked at the time of the first survey (n=62), and 27% (n=50) worked at the time of the second survey 180 days later. At the first survey, employed youth reported drinking 2.51 (SD=1.61) days in the past month and an average of 1.38 (SD=1.55) drinks on drinking days; 40% reported heavy drinking in the past month and 45% reported using marijuana in the past month.

Of the 62 youth who worked at the time of the first survey, 27 (44%) held the same occupation at both waves, 23 (37%) worked at the time of the first survey but not at the second survey, 8 (13%) had a different type of job at the second survey, and 4 (6%) were lost at the time of the second survey.

### Regression analyses

**Work Intensity:** Greater work intensity was associated with a significant increase in the maximum number of drinks consumed and time spent around teens who used alcohol and marijuana at the time of

second survey (Table 1). When age, gender and race/ethnicity were included in the model, work intensity at time 1 was not associated with AOD use and time spent around teens who use alcohol; however, work intensity was significantly associated with increased time around teens

who use marijuana at time 2. Work stability was not significantly associated with AOD use, AOD-related consequences, or risk environment at the second survey (Table 2).

	Without Covariates			With Covariates <sup>a</sup>		
	B	SE	p	B	SE	p
<b>ALCOHOL AND MARIJUANA</b>						
Days had any alcohol in the past 30 days	0.10	0.06	0.069	0.08	0.06	0.225
Heavy drinking in past 30 days	0.24	0.17	0.199	0.20	0.17	0.242
Drinks per drinking day	0.08	0.04	0.062	0.10	0.05	0.067
Maximum Drinks	0.45	0.08	<0.001	0.33	0.20	0.102
Alcohol-related consequences	0.01	0.01	0.465	0.01	0.01	0.339
Days had any marijuana in the past 30 days	0.32	0.40	0.422	0.24	0.57	0.584
Marijuana-related consequences	0.01	0.01	0.458	0.01	0.01	0.405
<b>RISK ENVIRONMENT</b>						
Time spent around teens who use alcohol	0.06	0.03	0.025	0.05	0.03	0.063
Time spent around teens who use marijuana	0.11	0.03	<0.001	0.11	0.03	<0.001

<sup>a</sup> All models control for race/ethnicity, gender, and age

**Table 1:** Parameter estimates for work intensity by outcome at the second survey (N=187).

	Without Covariates			With Covariates <sup>a</sup>		
	B	SE	p	B	SE	p
<b>ALCOHOL AND MARIJUANA</b>						
Days had any alcohol in the past 30 days	0.18	0.41	0.669	0.16	0.42	0.704
Heavy drinking in past 30 days	1.59	1.81	0.331	0.54	3.69	0.884
Maximum drinks in past 30 days	-0.38	1.29	0.768	-0.51	1.35	0.705
Drinks per drinking day	0.06	0.37	0.876	0.05	0.37	0.884
Alcohol-related consequences	0.05	0.07	0.475	0.05	0.08	0.527
Days had any marijuana in the past 30 days	-1.10	4.26	0.797	0.83	6.63	0.900
Marijuana-related consequences	-0.10	0.07	0.171	-0.10	0.07	0.157
<b>RISK ENVIRONMENT</b>						
Time spent around teens who use alcohol	0.21	0.20	0.296	0.24	0.19	0.206
Time spent around teens who use marijuana	0.11	0.21	0.592	0.14	0.23	0.531

<sup>a</sup> All models control for race/ethnicity, gender, and age

**Table 2:** Parameter estimates for work stability by outcome at the second survey (N=48).

## Discussion

This study examined the longitudinal association between work intensity and stability on AOD-related use, consequences, and risk environment among youth with a first-time AOD offense. After controlling for covariates, work intensity was only related to time spent around teens who used marijuana longitudinally. Findings therefore suggest that greater work intensity may be related to exposure to

riskier work environments and social networks. Future research is needed to explore these associations for a longer period of time, including whether occupation may moderate potential associations. For example, some jobs may provide more physical access to alcohol (e.g., jobs at restaurants and grocery stores) and exposure to more risky work norms around drinking and using (e.g., adult coworkers who use after work), which may influence youth AOD use [22].

As expected, employed teens were older in this sample, and age was strongly related to both employment and substance use. Overall, older teens may be more likely to work, and an increase in age during adolescence is commonly associated with greater drinking and drug use [23]. Results suggest that older employed teens in the Teen Court system may benefit from tailored interventions to help reduce future AOD risk. In particular, strategies such as reducing time spent with teens who use, may curb the risk of future consequences.

Work stability was not significantly related to AOD use, consequences or risk environment longitudinally. Previous research has found that steady work can be protective over longer periods of time in school-based samples (e.g., working throughout high school) [9]; however, there may be different issues with which to contend for an at-risk population. Qualitative research on this issue may be helpful. For example, the use of qualitative methods such as in-depth interviews or focus groups with employed youth may help provide important information on how work affects their AOD use and whether parental involvement influences the work and AOD use association. Because this was an at-risk sample of youth attending Teen Court, it would be important to understand how parental involvement after the youth's offense affects subsequent work stability (e.g., a parent may restrict employment until the youth has completed their requirements with Teen Court).

Given that it is common for teens to change jobs during adolescence [12], the period in which we examined stability (i.e., six months) may not have been sufficiently long to detect an association with AOD use, and the limited size of our sample also affected our ability to detect associations. Second, we used job categories to assess work stability and did not assess whether youth held the same job continuously between the first and second surveys; thus, a youth may have reported a job in the same category at both time points, but we do not necessarily know if it was the same job. Therefore our measure of 'stability' might not have been sensitive to changes in job placement. Finally, it may be that protective or risky factors seen in the general population may not be generalizable to an at-risk sample that is already reporting both AOD use and consequences. Future research is needed with larger samples of at-risk youth and over longer periods to better understand how work stability affects this population.

Overall, our sample was recruited from one AOD diversion program and may not be representative of youth in other diversion programs or youth who do not use AOD. Our analyses are also limited by our small sample size of working youth who have a first-time AOD offense, which likely affected our power to find effects both with and without the covariates in the models.

Despite limitations, findings provide an important first look at the longitudinal effects of work intensity and stability in an at-risk adolescent population. This study found that youth who worked greater hours were significantly more likely to spend time around teens who use marijuana. Understanding how this increased exposure may affect at-risk youth in the long-term is important because it may have significant implications for how we develop future labor policies (e.g., limiting work hours, stricter drug testing laws), supervisor education (e.g., how to address marijuana use in the workplace), and clinical programs (e.g., screening youth in treatment for work hours, assessing risky work environments, developing treatment plans to limit work hours, and encouraging prosocial networks). At a high level, policymakers could provide information to workplaces that frequently employ youth (e.g., fast food restaurants, movie theaters, retail shops) regarding the effects of longer work hours on risk behavior, how to

monitor the effects of greater work intensity, and tips for constructively addressing AOD use in the workplace. At a clinical level, Teen Court or other clinical settings that treat youth with AOD use issues could train care managers and other health professionals to help monitor employed youth, and to empower them to closely monitor how increases in their work hours may affect their AOD use. Research is needed to further assess specific factors associated with employment, such as how job tenure, work networks, work policies, and management may either protect these at-risk youth or potentially put them at greater risk.

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## References

1. McMorris BJ, Uggen C (2000) Alcohol and employment in the transition to adulthood. *J Health Soc Behav* 41: 276-294.
2. Ramchand R, Ialongo NS, Chilcoat HD (2007) The effect of working for pay on adolescent tobacco use. *Am J Public Health* 97: 2056-2062.
3. Safron DJ, JE Schulenberg, JG Bachman (2001) Part-time work and hurried adolescence: The links among work intensity, social activities, health behaviors, and substance use. *J Health Soc Behav* 42: 425-449.
4. Wu P, CW Hoven, CJ Fuller (2003) Factors associated with adolescents receiving drug treatment: Findings from the National Household Survey on Drug Abuse. *Journal of Behavioral Health Services & Research* 30: 190-201.
5. Godley SH, Passetti LL, White MK (2006) Employment and adolescent alcohol and drug treatment and recovery: an exploratory study. *Am J Addict* 15 Suppl 1: 137-143.
6. Mortimer JT, Staff J (2004) Early work as a source of developmental discontinuity during the transition to adulthood. *Dev Psychopathol* 16: 1047-1070.
7. Staff J, C Uggen (2003) The fruits of good work: Early work experiences and adolescent deviance. *Journal of Research in Crime and Delinquency* 40: 263-290.
8. Hirschi T (1969) A control theory of delinquency. *Criminology theory: Selected classic readings*. pp: 289-305.
9. Mortimer JT (2010) The Benefits and Risks of Adolescent Employment. *Prev Res* 17: 8-11.
10. Uggen C (2000) Work as a turning point in the life course of criminals: A duration model of age, employment, and recidivism. *American Sociological Review* 65: 529-546.
11. Graber JA, J Brooks-Gunn (1996) Transitions and turning points: navigating the passage from childhood through adolescence. *Developmental Psychology* 32: 768-776.
12. Dunn KA, Runyan CW, Cohen LR, Schulman MD (1998) Teens at work: a statewide study of jobs, hazards, and injuries. *J Adolesc Health* 22: 19-25.
13. Osilla KC, Hunter SB, Ewing BA, Ramchand R, Miles JN, et al. (2013) The effects of employment among adolescents at-risk for future substance use. *Addict Behav* 38: 1616-1619.
14. Lipsey MW, JH Derzon (1998) Predictors of violent or serious delinquency in adolescence and early adulthood: A synthesis of longitudinal research, in *Serious & violent juvenile offenders: Risk factors*

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- and successful interventions, R Loeber, D Farrington, Editors. Sage Publications: Thousand Oaks CA.
15. D'Amico EJ (2013) A randomized controlled trial of a group motivational interviewing intervention for adolescents with a first time alcohol or drug offense. *J Subst Abuse Treat* 45: 400-408.
  16. Ellickson PL, Tucker JS, Klein DJ, Saner H (2004) Antecedents and outcomes of marijuana use initiation during adolescence. *Prev Med* 39: 976-984.
  17. Ellickson PL (1988) Designing and implementing Project ALERT: A smoking and drug prevention experiment. The RAND Corporation: Santa Monica, CA.
  18. Ellickson PL, McCaffrey DF, Ghosh-Dastidar B, Longshore DL (2003) New inroads in preventing adolescent drug use: results from a large-scale trial of project ALERT in middle schools. *Am J Public Health* 93: 1830-1836.
  19. Dimeff LA, JS Baer (1999) Brief Alcohol Screening and Intervention for College Students (BASICS): A Harm Reduction Approach. New York: Guilford Press.
  20. Tucker JS, Orlando M, Ellickson PL (2003) Patterns and correlates of binge drinking trajectories from early adolescence to young adulthood. *Health Psychol* 22: 79-87.
  21. Frone MR (2003) Predictors of overall and on-the-job substance use among young workers. *J Occup Health Psychol* 8: 39-54.
  22. Johnston LD (2013) Monitoring the Future National Results on Drug Use: 2012 Overview, Key Findings on Adolescent Drug Use Ann Arbor, Michigan: Institute for Social Research, The University of Michigan.
  23. (2012) Substance Abuse and Mental Health Services Administration: Center for Behavioral Health Statistics and Quality, Results from the 2011 National Survey on Drug Use and Health: Summary of National Findings (HHS Publication No. SMA 12-4713, NSDUH Series H-44). Rockville, MD: Substance Abuse and Mental Health Services Administration.