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Transitions into young adulthood: Extent to which alcohol use, perceived drinking norms, and consequences vary by education and work statuses among 18–20 year olds

Christine M. Lee^{*}, **Jennifer M. Cadigan**, **Anne M. Fairlie**, and **Melissa A. Lewis** Deportment of Psychiatry and Behavioral Sciences, University of Washington, 1100 NE 45th St., Suite 300, Seattle, WA 98105, United States

Abstract

Introduction: With many young adults pursuing post-secondary education and many working, understanding the importance of education and work roles on alcohol use are of developmental and clinical importance. Utilizing a sample of 18–20 year-olds transitioning from adolescence to young adulthood, the current study examined how social role statuses in education (i.e., not in school, 2-year students, 4-year students) and work status (i.e., unemployed, employed part-time, employed full-time) were associated with alcohol use, alcohol-related consequences, and perceived drinking norms.

Method: Participants were 18–20 year old young adults (54% female) participating in a one-time online survey about alcohol use and sexual behavior. Regression models were conducted to examine associations between school status and work status with alcohol related outcomes.

Results: Individuals who were unemployed had a significantly lower likelihood of any heavy episodic drinking (HED) in the past month, consumed fewer drinks per week, and experienced fewer alcohol-related consequences compared to individuals who worked full-time. Individuals who worked part-time consumed fewer drinks per week and had lower perceived drinking norms compared to individuals who worked full-time. No significant associations were found for alcohol use and consequences by education status.

Discussion: Working full-time is a risk factor for HED, greater weekly drinking and negative alcohol-related consequences when compared to young adults who are unemployed, and to a lesser extent with young adults working part-time. Workplace interventions may be one approach to reach heavy drinking young adults.

Keywords

Young adults; Employment; Work status; 2-year students; 4-year students

Contributors

Conflict of interest

^{*}Corresponding author at: Department of Psychiatry and Behavioral Sciences, University of Washington, Seattle, WA 98105, United States. leecm@uw.edu (C.M. Lee).

All authors contributed to and have approved the final manuscript.

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1. Introduction

The transition from adolescence to young adulthood is associated with increased risk of hazardous alcohol use and alcohol-related consequences (Hingson, Zha, & Smyth, 2017; White, Hingson, Pan, & Yi, 2011). There are approximately 18.6 million students in postsecondary education in the United States, with 57% at 4-year institutions and 41% at 2-year institutions, and 2% at another type of post-secondary institution (Knapp, Kelly-Reid, & Ginder, 2012; Snyder, de Brey, & Dillow, 2016). Although there is an extensive literature on 4-year college student alcohol use, considerably less is known about alcohol consumption among 2-year community college students and non-student college-age peers (Sheffield, Darkes, Del Boca, & Goldman, 2005; Velazquez et al., 2011). College status (2- and 4-year students) is a risk factor for being diagnosed with an alcohol use disorder, with college students consuming greater quantities of alcohol and experiencing more alcoholrelated problems than their same age non-college peers (Carter, Brandon, & Goldman, 2010; Johnston, O'Malley, Miech, Bachman, & Schulenberg, 2016; Slutske, 2005; Slutske et al., 2004), and in particular for those in 4-year institutions (Presley, Meilman, & Leichliter, 2002; Velazquez et al., 2011). Rates of heavy alcohol use differ among younger adults, as college students between the ages of 18-20 are more likely to engage in heavy episodic and high intensity drinking (i.e., consuming 5 or more drinks, 10 or more drinks, or 15 or more drinks) compared to non-college students (Patrick, Terry-McElrath, Kloska, & Schulenberg, 2016), thus these transitional ages into young adulthood are important to study.

Prevalence of alcohol use among 2- and 4-year students is similar, with nearly half of all students consuming alcohol at least once in the past week (Blowers, 2009). However, studies have shown differences in quantity of alcohol consumed, as a greater proportion of 4-year students engage in heavy episodic drinking, have a higher blood alcohol content, and report more alcohol related problems than 2-year students (Blowers, 2009; Velazquez et al., 2011). Among young adults between the ages of 18–20, four-year students are also more likely to engage in heavy episodic and high intensity drinking compared to 2-year students (Patrick et al., 2016). Although 2-year students report a lower prevalence of negative alcohol consequences when compared with 4-year students, community college students still engage in risky alcohol use. Between 25% to 47% of 2-year students report past month heavy episodic drinking, with many reporting problems with relationships (32%), school (24%), employment (20%), or the law (13%) (Sheffield et al., 2005; Velazquez et al., 2011; Wall, BaileyShea, & McIntosh, 2012).

Differences in rates of alcohol use may be contextualized by social roles (aside from college status), namely work status. Employment has been conceptualized as a "major achievement" in the developmental transition of young adulthood (Schulenberg & Maggs, 2002). Adolescents and young adults working part time are more likely to engage in earlier initiation of alcohol use and more likely to engage in heavy episodic drinking than their nonworking peers (e.g., Leeman, Hoff, Krishnan-Sarin, Patock-Peckham, & Potenza, 2014; Paschall, Flewelling, & Russell, 2004) and adolescents working > 20 h per week has been associated with greater alcohol use (e.g., Bachman & Schulenberg, 1993; Mortimer, Finch, Ryu, Shanahan, & Call, 1996; Steinberg, Fegley, & Dornbusch, 1993) and alcohol-related consequences (Osilla et al., 2013). Working > 10 h was associated with frequent heavy

drinking a year later among 11–21 year olds, although results were partially explained by demographic factors including age and gender (Paschall et al., 2004).

Among full-time college students, nearly half (48%) work full- or part-time and almost a third (34%) of all students work > 20 h a week (Fox, Connolly, & Snyder, 2005; Hawkins, Hawkins II, Smith, & Grant, 2005). Similarly, college students who work > 20 h per week are also at risk for increased substance use, lower academic achievement, and not obtaining a degree (Astin, 1993; Furr & Elling, 2000; Hawkins et al., 2005; Paschall et al., 2004). Cross-sectional research has demonstrated a relationship between increased hours working (especially working > 20 h per week) and greater alcohol use in college student populations (Miller, Danner, & Staten, 2008). Using daily diary methodology with 4-year college students working at least 5 h per week, Butler, Dodge, and Faurote (2010) found that working more hours was associated with increased alcohol use, and there was no relationship between workload stress and alcohol use. Interestingly, the transition from college to full-time employment is frequently marked by reduced alcohol use (Schulenberg & Maggs, 2002). Therefore, it may be expected that non-college students who have obtained their degree consume less alcohol than college students.

Employment enables adolescents and young adults to meet a new peer group who can influence the perceived acceptability of alcohol (McMorris & Uggen, 2000). Indeed, compared to non-working adolescents, adolescent workers are more likely to have friends who drink and be exposed to peers who consume alcohol (Paschall, Ringwalt, & Flewelling, 2002; Ploeger, 1997). Furthermore, working adolescents are less likely to perceive disapproval of alcohol use and more likely to perceive higher levels of alcohol use among their peers and adults (Paschall et al., 2002). A wealth of literature consistently shows 4-year students overestimate both peer alcohol use and approval (i.e., perceived social norms), which in turn predict alcohol use (e.g., Borsari & Carey, 2003; Lewis & Neighbors, 2006; Neighbors, Lee, Lewis, Fossos, & Larimer, 2007). Considerably less is known about perceived social norms among 2-year students. Consequently, it may be that young adults who work full-time, in addition to 4-year students, will overestimate peer alcohol consumption (e.g., descriptive norms) and the approval of peer alcohol use (i.e., injunctive norms).

1.1. The current study

Many studies examining alcohol use among college students do not distinguish between 2and 4-year institutions (Carter et al., 2010), if 2-year students are even included in the sample. Even less is known about non-college same-age peers. Utilizing a sample of 18–20 year-olds transitioning from adolescence to young adulthood, the current study examined how social role statuses in the education and work domains were associated with alcohol use, alcohol-related consequences, and perceived drinking norms. Specifically, we examined if there were differences in alcohol-related outcomes by education status (not in school; 2year school; 4-year school) or work status (unemployed; working part-time; working fulltime). We hypothesized 4-year students and those working full-time would report greater alcohol use, negative alcohol-related consequences, and higher perceived norms than the other groups.

2. Method

2.1. Participants and procedures

Participants for the present study were 18–20 year old young adults participating in a onetime online survey about alcohol use and sexual behavior. Participants were recruited nationally mainly through online and print advertising and recruitment in newspapers, Craigslist, and social networking sites (e.g., Facebook), poster flyers in local coffee shops and community bulletin boards, participant referrals, and inperson recruiting. Interested participants were asked to complete a brief, five-minute online screening survey to determine eligibility for the longer one-time online survey.

The online screening survey first presented potential participants with an information statement detailing the consent process and study information with those interested answering questions about contact information, demographics, alcohol use, and prior sexual behavior. For those meeting initial online eligibility criteria (i.e., age 18–20, provide a birthdate consistent with the age provided, currently reside in the United States, provide a valid email address, correctly answer the check questions (select 4 for what is 2 + 2, and select the color green), provide a valid phone number, and provide a first and last name), participants were contacted by telephone to receive more information and to verify eligibility. Eligible and interested participants were then invited to complete a longer 30–45 min online survey, for which they could receive a \$25 gift certificate for completion and be entered in a drawing to win an Apple iPad or \$100 gift card. A federal Certificate of Confidentiality was obtained, and all study procedures were approved by the University's Institutional Review Board. No adverse events were reported.

Across 8 months 5470 people completed the online screening survey with half (51%, n = 2803) meeting initial eligibility criteria. The telephone verification was completed by 79% (n = 2217) of initial eligible participants. To ensure a diverse sample, we stratified by gender, education level, and race/ethnicity. As a result, many participants meeting eligibility criteria were not invited to complete the baseline survey due to demographic quota having been met (854 people), while others were ineligible based on having duplicate online entries (71 people) or staff not being able to verify the information provided in the screening survey (147 people). Twenty people declined participation at the telephone screening. In total, 1145 individuals were invited to the complete the longer one-time online survey with 1038 (91%) completing the survey.

The present analyses were restricted to 934 who reported relevant information on school and work status (please see below for further details). Follow-up analyses were further conducted on a sample of 567 who randomly received the perceived drinking norms measures. Demographic characteristics for the present sample of 934 included mean age at baseline of 19.20 years old (SD = 0.78), 53.33% female, 48.50% White, 14.56% Asian, 19.59% African American, 1.50% American Indian/Alaska Native, 0.96% Native Hawaiian/ Pacific Islander, and 14.89% Other/Mixed. For ethnicity, 16.90% identified as Hispanic or Latino.

2.2. Measures

2.2.1. Demographic characteristics—Demographic characteristics were entered as covariates and included: biological sex (0 = women, 1 = male) and age (reported in years).

2.2.2. Education status—Two items assessed education status. Participants were asked whether or not they were currently a student and then asked to indicate the type of school they were currently attending. School status was coded into the following three categories: not in school; 2-year school (i.e., community college, vocational/technical school); and 4-year school (i.e., 4-year university/college). Participants were excluded from analyses if they indicated they were attending high school, pursuing a GED, attending graduate or professional school, or other.

2.2.3. Work status—Participants were asked to indicate their current occupation status by selecting all that apply from a set of options. Work status was coded into the following three categories: unemployed; working part-time; and working full-time. Participants could also select parental leave, military service, and receiving disability; however, these selections were not used to code work status.

2.2.4. Alcohol use and consequences—Heavy episodic drinking (HED) was assessed with an item from the Quantity/Frequency Questionnaire (Baer, 1993) asking how often in the past month participants had 4/5 or more (women/men) drinks in about 2 h. A 12-point response scale was used ranging from 0 = "never" to 11 = "every day." Responses were dichotomized to indicate *any HED* in the past month (1 = yes, 0 = no). Participants were also administered the 7-item Daily Drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985) and reported the number of drinks consumed on each day of a typical week (Monday to Sunday) during the last three months. The seven items were summed to create a score for *total drinks per week*. A standard drink was defined as 12 oz. of beer (10 oz. of microbrew; 8 oz. of malt liquor, Canadian beer or ice beer; 6 oz. of ice malt liquor); 5 oz. of wine; 10 oz. of wine cooler; or 1 Cocktail with 1 oz. of 100 proof liquor or 1¼ oz. of 80 proof liquor.

Alcohol-related consequences were assessed with the 24-item Young Adult Alcohol consequences Questionnaire (YAACQ; Hurlbut & Sher, 1992). Participants indicated whether or not they had experienced each consequence in the past three months. Responses were summed to create a total score.

2.2.5. Perceived norms—Descriptive norms were assessed with Drinking Norms Rating Form (Baer, Stacy, & Larimer, 1991) using items similar to that of the DDQ. Participants were asked to consider a typical week during the last three months and report how much alcohol, on average (measured in number of drinks), a typical male/female their age consumes on each day of a typical week. The seven items were summed to create a total score to indicate *descriptive norms for drinks per week*.

To assess injunctive norms, participants were asked to consider a typical week during the last three months and report how much alcohol, on average (measured in number of drinks), a typical male/female their age thinks is acceptable to consume on each day of a typical

week (Krieger et al., 2016). The seven items were summed to create a total score to indicate *injunctive norms for drinks per week.*

2.3. Analysis plan

The analysis sample included participants who reported both school status and work status (N = 934). For the analyses on descriptive and injunctive norms, the sample was further reduced to 567 due to planned missingness, whereby the perceived norms measures were administered to a random subset of participants. For education status, two dummy codes were created to compare individuals who were not in school and individuals who were attending a 2-year school to those attending a 4-year school (reference group). For work status, two dummy codes were created to compare individuals who were not employed and individuals who were working part-time to those working full-time (reference group). Regression models were conducted to examine associations between school status (two dummy codes) and work status (two dummy codes) with alcohol related outcomes using age and biological sex as covariates. Logistic regression was conducted to test the likelihood of any HED in the last month, and negative binomial models were conducted for drinks per week, consequences, descriptive norms, and injunctive norms.

3. Results

3.1. Descriptive information

The majority of participants were attending a 4-year school (57.60%, n = 538). Approximately one-fifth of the sample was either currently not in school (20.24%, n = 189) or attending a 2-year school (22.15%, n = 207). Approximately half of the participants were working part-time (47.54%, n = 444), roughly a third were unemployed (35.22%, n = 329), and almost one-fifth were working fulltime (17.24%, n = 161). Notably, a third of the sample (31.48%, n = 294) reported being a 4-year student and also working part-time.

Table 1 provides descriptive information and bivariate correlations for the variables of interest. Age was significantly and positively correlated with drinks per week, any HED in the past month, and descriptive norms for drinks per week. Being male was significantly and positively correlated with drinks per week and descriptive and injunctive norms for drinks per week. All measures of alcohol use, consequences, and perceived norms were positively correlated with each other with the highest correlations observed among drinks per week, any HED, and consequences. The mean number of drinks consumed in a typical week was 5.81 (SD = 8.71); in contrast, participants perceived that the typical person consumed 12.70 (SD = 9.50) drinks in a typical week, and participants perceived that the typical person thinks it is acceptable to consume 14.68 (SD = 12.45) drinks in a typical week.

Descriptive information on the five outcomes is shown in Table 2 separately by school status and work status. In general, participants in the three education statuses reported similar scores on the five outcomes, while participants in the three work statuses exhibited less similarity on the outcomes such that individuals working full-time had higher means on all outcomes.

3.2. Regression models for alcohol use, consequences, and perceived norms

3.2.1. Alcohol use and consequences—Age was significantly associated with the likelihood of any HED in the past month and typical number of drinks per week (Table 3), such that being older related to a greater odds of HED and consuming more drinks per week. Biological sex was significant and indicated that being male was associated with consuming more drinks per week. Individuals who were unemployed had a significantly lower likelihood of any HED in the past month, consumed fewer drinks per week, and experienced fewer alcohol-related consequences compared to individuals who worked full-time. Individuals who worked part-time consumed fewer drinks per week compared to individuals who worked full-time. No other significant associations were found for alcohol use and consequences, including none by education status.

3.2.2. Perceived descriptive and injunctive norms—Age was significantly associated with injunctive norms for typical drinks per week, such that being older was related to a perception that the typical person thinks it is acceptable to consume a higher number of drinks in a typical week (Table 4). Biological sex was significantly associated with descriptive and injunctive norms for typical drinks per week. Specifically, being male was related to a perception that the typical person consumes a higher number of drinks in a typical week and also a perception that the typical person thinks it is acceptable to consume a higher number of drinks in a typical week and also a perception that the typical person thinks it is acceptable to consume a higher number of drinks in a typical week. Individuals who were unemployed perceived that the typical person thinks it is acceptable to consume a lower number of drinks in a typical week, compared to the perceptions of individuals who worked full-time. Individuals who worked part-time perceived that the typical person thinks it is acceptable to consume a lower number of drinks in a typical week, compared to the the typical person thinks it is acceptable to consume a lower number of drinks in a typical week and also perceived that the typical person thinks it is acceptable to consume a lower number of drinks in a typical week, compared to the perceived that the typical person thinks it is acceptable to consume a lower number of drinks in a typical week, compared to the perceptions of individuals who worked full-time. No other significant associations were found for descriptive or injunctive norms, including none by student status.

4. Discussion

The present results add to the extant literature examining alcohol use during the transition to adulthood, and more specifically, examining differences in alcohol use, consequences and perceived norms in accordance with important social roles during this transition time. With many young adults between the ages of 18–20 enrolled in postsecondary education (either 2- or 4-year colleges) and with many also working, understanding the importance of student and work roles on alcohol use is of developmental and clinical importance. Prior research indicates that both college status and working full-time are associated with greater alcohol use and negative consequences (Johnston et al., 2016; NCES, 2016;Paschall et al., 2004; Slutske et al., 2004; Velazquez et al., 2011). Prior research often does not control for the effects of one's status in other social roles as was done here by including both school and work status as predictors.

Findings from the present sample of 18–20 year olds indicates that working full-time is a risk factor for HED, greater weekly drinking and negative alcohol-related consequences when compared to young adults who are unemployed, and to a lesser extent with young

adults working part-time. Further, working full-time also conferred higher perceived drinking norms, both in perceived quantity of use and acceptable number of drinks to consume among same-sex and same-age peers, compared to young adults working part-time (with greater injunctive norms compared to unemployed young adults). Interestingly, these findings controlled for education status and further did not find that education status had unique associations with alcohol use, consequences or perceived norms. Consistent with prior adolescent and young adult research, working full-time regardless of education status placed these young adults at greater risk for alcohol use and associated consequences. This may be due to increased disposable income from working full-time compared to those unemployed or working part-time, to increased associations with older full-time working peers who may be more likely to be drinkers or of legal age to purchase/consume alcohol, or work-related functions that include alcohol use (i.e., happy hour) (Paschall et al., 2002, 2004; Ploeger, 1997). Future research could examine specific characteristics and factors of the workplace for these young adults. For example, despite young adults reporting working full-time, it is unknown whether these are salaried or hourly positions, how many jobs young adults are doing to make up 35 + h per week, whether their co-workers are indeed same-age peers or older individuals, or how many work-related functions include alcohol use. Each of these factors could have important implications for characterizing young adult social roles.

As with all cross-sectional research, results should be reviewed with caution. The sample was recruited mainly via social media and ads on craigslist and although it includes young adult18-20 year olds from across the nation, the sample is not meant to be representative of all young adults in the US. Results are limited to the sample and may not be generalizable to all young adults. We did not examine engagement in school, as it may be full-time employment may be a selection effect as young adults less engaged with school might be working more hours (Bachman & Schulenberg, 1993; Schulenberg & Maggs, 2002). Further, we did not examine sex differences in work status; however, research should examine if the association between work status and alcohol use may differ for men and women. For example, Leppel (2006) found that part time work was associated with a reduced likelihood of binge drinking for both men and women. However, among those working between 20 and 39 h per week, women were less likely to engage in binge drinking; there was no effect for men. Although the present analyses had both education and employment status in the model, we did not include moderator terms, in particular because the sample was stratified by education status at time of recruitment and not by work status. Future research could examine the interactions, particularly as they may pertain to having two full-time social roles, such as being a full-time student and full-time employee. Future research would benefit from examining additional measures of work and educational contexts and conditions (e.g., satisfaction, length of work/education) that may help to elucidate the relationships between work and educational status and alcohol use.

Clinical implications of the current findings suggest workplace interventions may be a viable option for intervening with young adults to reach the target population of heavier drinkers, improve employee health, and reduce workplace costs such as absenteeism and increase presenteeism (e.g., Beaumont & Hyman, 1987). Interventions, such as brief personalized norms interventions (Osilla et al., 2010), may be useful in employee trainings. Overall, the

results of the current work point to the need to better understand the nuances associated with college and work status and their relation to young adult alcohol use.

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References

- Astin AW, (1993). What matters in college?: Four critical years revisited Vol. Vol. 1. San Francisco: Jossey-Bass.
- Bachman JG, Schulenberg J. How part-time work intensity relates to drug use, problem behavior, time use, and satisfaction among high school seniors: Are these consequences or merely correlates? Developmental Psychology. 1993; 29(2):220. http://dx.doi.Org/10.1037/0012-1649.29.2.220.
- Baer JS, (1993). Etiology and secondary prevention of alcohol problems with young adults In Baer JS, Marlatt GA, , & McMahon RJ. (Eds.). Addictive behaviors across the lifespan (pp. 111–137). Newbury Park, CA: Sage Publications.
- Baer JS, Stacy A, Larimer M. Biases in the perception of drinking norms among college students Journal of Studies on Alcohol. 1991; 52:580–586. DOI: 10.1037/a0013043 [PubMed: 1758185]
- Beaumont PB, Hyman J. The work performance indicators of problem drinking: Some British evidence Journal of Organizational Behavior. 1987; 8(1):55–62. DOI: 10.1002/job.4030080107
- Blowers J. Common issues and collaborative solutions: A comparison of student alcohol use behaviors at the community college and four-year institutional levels Journal of Alcohol and Drug Education. 2009; 53(3):65.
- Borsari B, Carey KB. Descriptive and injunctive norms in college drinking: A meta-analytic integration Journal of Studies on Alcohol. 2003; 64(3):331–341. DOI: 10.15288/jsa.2003 [PubMed: 12817821]
- Butler AB, Dodge KD, Faurote EJ. College student employment and drinking: A daily study of work stressors, alcohol expectancies, and alcohol consumption Journal of Occupational Health Psychology. 2010; 15(3):291. doi: 10.1037/a0019822 [PubMed: 20604635]
- Carter AC, Brandon KO, Goldman MS. The college and noncollege experience: A review of the factors that influence drinking behavior in young adulthood Journal of Studies on Alcohol and Drugs. 2010; 71(5):742–750. DOI: 10.15288/jsad.2010.71.742 [PubMed: 20731981]
- Collins RL, Parks GA, Marlatt GA. 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; 53:189–200. DOI: 10.1037/0022-006X.53.2.189 [PubMed: 3998247]
- Fox MA, Connolly BA, , & Snyder TD. (2005). Youth indicators 2005: Trends in the well-being of American youth, (NCES 2005–050) Washington, DC: U.S. Government Printing Office, U.S. Department of Education, National Center for Education Statistics.
- Furr S, Elling T. The influence of work on college structure development NASPA Journal. 2000; 37(2): 54–70.
- Hawkins CA, Hawkins RC II, Smith ML, Grant D. The relationships among hours employed, perceived work interference, and grades as reported by undergraduate social work students Journal of Social Work Education. 2005; 41(1):13–27. DOI: 10.5175/JSWE.2005.20020122
- Hingson R, Zha W, Smyth D. Magnitude and trends in heavy episodic drinking, alcohol-impaired driving, and alcohol-related mortality and overdose hospitalizations among emerging adults of college ages 18–24 in the United States, 1998–2014 Journal of Studies on Alcohol and Drugs. 2017; 78:540–548. DOI: 10.15288/jsad.2017.78.540 [PubMed: 28728636]
- Hurlbut SC, Sher KJ. Assessing alcohol problems in college students Journal of American College Health. 1992; 41(2):49–58. . DOI: 10.1080/07448481.1992.10392818 [PubMed: 1460173]

- Johnston LD, O'Malley PM, Miech RA, Bachman JG, , & Schulenberg JE. ; (2016). Monitoring the future national survey results on drug use: 2016 overview key findings on adolescent drug use. Ann Arbor, MI: Institute for Social Research, University of Michigan Retrieved from http:// www.monitoringthefuture.org/pubs/monographs/mtf-overview2016.pdf.
- Knapp LG, Kelly-Reid JE, , & Ginder SA. (2012). Enrollment in postsecondary institutions, fall 2010; financial statistics, fiscal year 2010; and graduation rates, selected cohorts, 2002–07 First look. NCES 2012–280. National Center for Education Statistics.
- Krieger H, Neighbors C, Lewis MA, LaBrie JW, Foster DW, Larimer ME. Injunctive norms and alcohol consumption: A revised conceptualization Alcoholism: Clinical and Experimental Research. 2016; 40(5):1083–1092. DOI: 10.1111/acer.13037
- Leeman RF, Hoff RA, Krishnan-Sarin S, Patock-Peckham JA, Potenza MN. Impulsivity, sensationseeking, and part-time job status in relation to substance use and gambling in adolescents Journal of Adolescent Health. 2014; 54:460–466. http://dx.doi.Org/10.1016/j.jadohealth.2013.09.014. [PubMed: 24268362]
- Leppel K. College binge drinking: Deviant versus mainstream behavior The American Journal of Drug and Alcohol Abuse. 2006; 32(4):519–525. . DOI: 10.1080/10623320600919144 [PubMed: 17127539]
- Lewis MA, Neighbors C. Social norms approaches using descriptive drinking norms education: A review of the research on personalized normative feedback Journal of American College Health. 2006; 54(4):213–218. DOI: 10.3200/JACH.54.4.213-218 [PubMed: 16450845]
- McMorris BJ, Uggen C. Alcohol and employment in the transition to adulthood Journal of Health and Social Behavior. 2000:276–294. [PubMed: 11011505]
- Miller K, Danner F, Staten R. Relationship of work hours with selected health behaviors and academic progress among a college student cohort Journal of American College Health. 2008; 56(6):675– 679. DOI: 10.3200/JACH.56.6.675-679 [PubMed: 18477523]
- Mortimer JT, Finch MD, Ryu S, Shanahan MJ, Call KT. The effects of work intensity on adolescent mental health, achievement, and behavioral adjustment: New evidence from a prospective study Child Development. 1996; 67(3):1243–1261. . DOI: 10.1111/1467-8624.ep9704150194 [PubMed: 8706520]
- National Center for Education Statistics, & U.S. Department of Education (2016). Digest of Education Statistics, 2015 (NCES 2016–014), Chapter 3.
- Neighbors C, Lee CM, Lewis MA, Fossos N, Larimer ME. Are social norms the best predictor of outcomes among heavy-drinking college students? Journal of Studies on Alcohol and Drugs. 2007; 68(4):556–565. DOI: 10.15288/jsad.2007.68.556 [PubMed: 17568961]
- Osilla KC, Dela Cruz E, Miles JN, Zellmer S, Watkins K, Larimer ME, Marlatt GA. Exploring productivity outcomes from a brief intervention for at-risk drinking in an employee assistance program Addictive Behaviors. (2010; 35(3):194–200. DOI: 10.1016/j.addbeh.2009.10.001 [PubMed: 19897312]
- Osilla KC, Hunter SB, Ewing BA, Ramchand R, Miles JN, D'Amico EJ. The effects of employment among adolescents at-risk for future substance use Addictive Behaviors. 2013; 38:1616–1619. http://dx.doi.Org/10.1016/j.addbeh.2012.09.012. [PubMed: 23254207]
- Paschall MJ, Ringwalt CL, Flewelling RL. Explaining higher levels of alcohol use among working adolescents: An analysis of potential explanatory variables Journal of Studies on Alcohol. 2002; 63(2):169–178. DOI: 10.15288/jsa.2002.63.169 [PubMed: 12033693]
- Paschall MJ, Flewelling RL, Russell T. Why is work intensity associated with heavy alcohol use among adolescents? Journal of Adolescent Health. 2004; 34(1):79–87. http://dx.d0i.0rg/10.1016/ S1054-139X(03)00206-4. [PubMed: 14706409]
- Patrick ME, Terry-McElrath YM, Kloska DD, Schulenberg JE. Highintensity drinking among young adults in the United States: Prevalence, frequency, and developmental change Alcoholism: Clinical and Experimental Research. 2016; 40(9):1905–1912. . DOI: 10.1111/acer.13164
- Ploeger M. Youth employment and delinquency: Reconsidering a problematic relationship Criminology. 1997; 35(4):659–676. http://dx.doi.Org/10.llll/j.1745-9125.1997.tb01234.x.
- Presley CA, Meilman PW, Leichliter JS. College factors that influence drinking Journal of Studies on Alcohol. Supplement. 2002; 14:82–90. DOI: 10.15288/jsas.2002.sl4.82.

- Schulenberg JE, Maggs JL. A developmental perspective on alcohol use and heavy drinking during adolescence and the transition to young adulthood Journal of Studies on Alcohol. Supplement. 2002; 14:54–70. DOI: 10.15288/jsas.2002.S14.54
- Sheffield FD, Darkes J, Del Boca FK, Goldman MS. Binge drinking and alcohol-related problems among community college students: Implications for prevention policy Journal of American College Health. 2005; 54(3):137–141. DOI: 10.3200/JACH.54.3.137-142 [PubMed: 16335480]
- Slutske WS. Alcohol use disorders among US college students and their non-college-attending peers Archives of General Psychiatry. 2005; 62(3):321–327. . DOI: 10.1001/archpsyc.62.3.321 [PubMed: 15753245]
- Slutske WS, Hunt-Carter EE, Nabors-Oberg RE, Sher KJ, Bucholz KK, Madden PA, Heath AC. Do college students drink more than their non-college-attending peers? Evidence from a populationbased longitudinal female twin study Journal of Abnormal Psychology. 2004; 113(4):530. . doi: 10.1037/0021-843X.113.4.530 [PubMed: 15535786]
- Snyder TD, de Brey C, , & Dillow SA. (2016). Digest of education statistics 2015 (NCES 2016–014) Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.
- Steinberg L, Fegley S, Dornbusch SM. Negative impact of part-time work on adolescent adjustment: Evidence from a longitudinal study Developmental Psychology. 1993; 29(2):171. http:// dx.doi.Org/10.1037/0012-1649.29.2.171.
- Velazquez CE, Pasch KE, Laska MN, Lust K, Story M, Ehlinger EP. Differential prevalence of alcohol use among 2-year and 4-year college students Addictive Behaviors. 2011; 36(12):1353–1356. http://dx.doi.Org/10.1016/j.addbeh.2011.07.037. [PubMed: 21868168]
- Wall AF, BaileyShea C, McIntosh S. Community college student alcohol use: Developing contextspecific evidence and prevention approaches Community College Review. 2012; 40(1):25–45. . DOI: 10.1177/0091552112437757
- White AM, Hingson RW, Pan IJ, Yi HY. Hospitalizations for alcohol and drug overdoses in young adults ages 18–24 in the United States, 1999–2008: Results from the Nationwide Inpatient Sample Journal of Studies on Alcohol and Drugs. 2011; 72(5):774–786. DOI: 10.15288/jsad.2011.72.774 [PubMed: 21906505]

HIGHLIGHTS

- We examined if education and work statuses were associated with alcohol outcomes.
- Working full-time is a risk factor for negative alcohol outcomes.
- Education status was not associated with alcohol use.
- Workplace interventions may be effective.

Spearman correlations and descriptive information.

Variable	1	2	3	4	5	6	7
Spearman correlations							
1. Age							
2. Male sex	-0.06						
3. Drinks per week	0.11 ***	0.09 **					
4. Any HED	0.08*	0.03	0.68 ***				
5. Alcohol-related consequences	0.05	0.01	0.71 ***	0.66***			
6. Descriptive norms for drinks per week	0.05	0.12**	0.36***	0.23 ***	0.27 ***		
7. Injunctive norms for drinks per week	0.10*	0.22 ***	0.27 ***	0.19***	0.22 ***	0.68 ***	
Ν	934	932	925	929	929	567	567
Mean (SD) or %	19.20 (0.78)	47%	5.81 (8.71)	43%	4.43 (5.05)	12.70 (9.50)	14.68 (12.45)
Median	-	-	2	-	3	11	12
Range	18–21	0–1	0–72	0–1	0–24	0–54	0–110

^rp < 0.05.

** p < 0.01.

*** p < 0.001.

Descriptive information on outcomes by school status and work status.

	School status					Work status				
		z	Mean or %	SD	Median		z	Mean or %	SD	Median
Drinks per week	Not in school	186	6.35	9.64	0.5	Unemployed	328	4.49	7.40	0
	2-year	206	5.45	8.14	2	Part-time	440	5.85	8.81	2
	4-year	533	5.76	8.59	2	Full-time	157	8.43	10.27	5
Any HED	Not in school	189	42.86%	,	ı	Unemployed	327	35.47%	,	ı
	2-year	204	44.61%			Part-time	441	44.90%		
	4-year	536	42.72%			Full-time	161	54.04%		
Alcohol-related consequences	Not in school	189	4.68	5.40	3	Unemployed	327	3.80	4.80	1
	2-year	204	4.56	5.42	3	Part-time	441	4.47	4.95	3
	4-year	536	4.29	4.78	3	Full-time	161	5.60	5.61	4
Descriptive norms for drinks per week	Not in school	101	13.39	10.62	11	Unemployed	198	12.47	10.04	11
	2-year	115	12.28	10.47	10	Part-time	273	12.08	8.94	10
	4-year	351	12.65	8.82	12	Full-time	96	14.97	9.66	13
Injunctive norms for drinks per week	Not in school	102	15.10	11.97	12	Unemployed	200	14.17	11.89	12
	2-year	116	14.47	12.35	13	Part-time	271	13.83	10.89	11
	4-year	349	14.63	12.65	12	Full-time	96	18.16	16.58	15.5

Regression models for any HED, total drinks per week, and alcohol-related consequences.

Predictor	Any HED	ny HED		Drinks per week		Alcohol-related consequences	
	b (SE)	Wald χ^2	Odds ratio (95% CI)	b (SE)	Wald χ^2	b (SE)	Wald χ^2
Intercept	-3.48 (1.71)	4.13*	-	-1.95 (1.64)	1.41	0.97 (1.21)	0.65
Age	0.18 (0.09)	4.36*	1.20 (1.01, 1.43)	0.20 (0.08)	5.40*	0.04 (0.06)	0.33
Male sex	0.17 (0.14)	1.68	1.19 (0.91, 1.55)	0.48 (0.12)	15.32**	0.06 (0.09)	0.48
Not in school (vs. 4-year)	0.02 (0.18)	0.01	1.02 (0.72, 1.44)	0.09 (0.16)	0.35	0.07 (0.12)	0.35
2-year (vs. 4-year)	0.08 (0.17)	0.24	1.09 (0.78, 1.51)	0.12 (0.16)	0.56	0.07 (0.12)	0.37
Unemployed (vs. full-time)	-0.73 (0.20)	13.37 **	0.48 (0.33, 0.71)	-0.60 (0.18)	11.24**	-0.38 (0.14)	7.88*
Part-time (vs. full-time)	-0.34 (0.19)	3.32	0.71 (0.49, 1.03)	-0.35 (0.17)	4.05*	-0.21 (0.13)	2.59

Note. N = 927 for any HED. N = 923 for drinks per week. N = 927 for alcohol-related consequences.

* p < 0.05.

** p < 0.001.

Regression models for descriptive and injunctive norms for drinks per week.

Predictor	Descriptive norms for drinks per week		Injunctive norms for	Injunctive norms for drinks per week			
	b (SE)	Wald χ^2	b (SE)	Wald χ^2			
Intercept	1.78 (0.90)	3.89*	0.88 (0.82)	1.16			
Age	0.04 (0.05)	0.86	0.09 (0.04)	4.94*			
Male sex	0.21 (0.07)	8.65 **	0.43 (0.07)	44.42 ***			
Not in school (vs. 4-year)	0.05 (0.10)	0.31	0.05 (0.09)	0.37			
2-year (vs. 4-year)	-0.05 (0.09)	0.26	-0.01 (0.08)	0.01			
Unemployed (vs. full-time)	-0.18(0.11)	3.03	-0.27 (0.09)	8.24 **			
Part-time (vs. full-time)	-0.21 (0.10)	4.14*	-0.26 (0.09)	7.83 **			

Note. N = 566.

* p < 0.05.

** p < 0.01.

*** p < 0.001.