



Short Communication

Interactive effects of drinking history and impulsivity on college drinking

Zachary W. Adams^{a,b,*}, Richard Milich^a, Donald R. Lynam^c, Richard J. Charnigo^d^a Department of Psychology, University of Kentucky, Lexington, KY 40506, United States^b Department of Psychiatry & Behavioral Sciences, Medical University of South Carolina, Charleston, SC 29425, United States^c Department of Psychological Sciences, Purdue University, West Lafayette, IN 47907, United States^d Department of Biostatistics and Statistics, University of Kentucky, Lexington, KY 40506, United States

HIGHLIGHTS

- Four groups of young adults were identified based on adolescent drinking habits.
- Groups differed on dispositions to rash action and drinking habits.
- Urgency bore the largest effect on problematic drinking among moderate teen users.
- Interventions should target individuals based on experience and personality.

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ABSTRACT

The transition from adolescence into emerging adulthood is a critical developmental period for changes in alcohol use and drinking related problems. Prior research has identified a number of distinct developmental alcohol use trajectories, which appear to be differentially related to young adult drinking outcomes. Another correlate of alcohol use in early adulthood is impulsivity. The primary aim of this study was to examine the moderating role of impulsivity in the relation between patterns of past alcohol use and hazardous drinking during the first year of college. Participants ($N = 452$; 49% male; mean age 18.5 years; 82% Caucasian) completed self-report measures during the first year of college, including retrospective alcohol use calendars, current alcohol use and drinking problems, and personality. Group-based trajectory modeling was used to identify groups with similar adolescent drinking history from retrospective, self-report. Four groups were identified: abstainers/very light users, late/moderate users, early/moderate users, and steep increase/heavy users. The abstainer/very light user group reported the lowest levels of alcohol use and problematic drinking in college; the steep increase/heavy use group reported the highest levels of alcohol use and problematic drinking. As predicted, the role of personality—specifically urgency, or emotion-based rash action—was strongest among moderate use groups. These findings may be helpful in guiding targeted prevention and intervention programs for alcohol use and abuse.

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1. Introduction

Alcohol use among adolescents and young adults presents a tremendous public health concern. Teens who drink are at an increased risk for academic and social problems as well as changes in brain development (Brown et al., 2009; Windle et al., 2008). The transition to college coincides with marked increases in the rates of alcohol use and problem drinking (Schulenberg & Maggs, 2008). A substantial research effort has centered on defining risk factors for problem drinking in late adolescence and early adulthood (e.g., Brown et al., 2009; Masten, Faden, Zucker, & Spear, 2009; Windle et al., 2008). Two reliable predictors are

(a) patterns of prior use, and (b) impulsivity, yet relatively little attention has been paid to the possible interaction between these domains. Therefore, the primary goal of this study was to examine whether impulsivity moderated the relation between adolescent alcohol use and college drinking habits.

1.1. Prior use as a predictor of current and future use

A strong predictor of alcohol use in early adulthood is one's pattern of prior use (Maggs & Schulenberg, 2004; Schulenberg & Maggs, 2008). Alcohol use may be conceptualized as a complex developmental process, marked by diverse inter- and intra-individual patterns of change and maintenance (Masten et al., 2009). It is possible to identify subgroups in a population who follow similar alcohol use patterns or trajectories over time and to differentiate the groups based on risk factors or outcomes (e.g., Chassin, Pitts, & Prost, 2002; Colder, Campbell,

* Corresponding author at: National Crime Victims Research & Treatment Center, Medical University of South Carolina, 67 President Street, Charleston, SC 29425, United States. Tel.: +1 843 792 2945.

E-mail address: zaa@muscedu (Z.W. Adams).

Ruel, Richardson, & Flay, 2002; Flory, Lynam, Milich, Leukefeld, & Clayton, 2004; Hersh & Hussong, 2006). Although the number and nature of groups identified based on adolescent alcohol use trajectories differ across studies (Maggs & Schulenberg, 2004), some commonly observed groups have emerged. Most studies yield a subset of individuals who are abstainers or very low frequency drinkers throughout adolescence. A second group comprises individuals who begin drinking at low frequencies during early adolescence and gradually increase use throughout adolescence. A third group includes individuals who begin drinking early in adolescence and report sustained, high-frequency alcohol use throughout adolescence.

Although method bias may contribute to some commonality in the number and nature of groups derived from trajectory analyses (Sher, Jackson, & Steinley, 2011), the identified groups tend to differ in reliable ways. For instance, adolescents who start drinking later, consume less alcohol, and drink less frequently have been shown to experience more positive, healthier outcomes than people who drink earlier, more heavily, and more frequently (Chassin et al., 2002; Flory et al., 2004; Hersh & Hussong, 2006). Hersh and Hussong (2006) examined the relations between high school drinking patterns and drinking habits following the transition to college. Each participant was assigned to one of four high school “drinker typologies” (abstainers, experimenters/light users, moderate users, and heavy users) based on retrospective reports of adolescent alcohol use. High school abstainers used alcohol at significantly lower frequency and engaged in less binge drinking than the other three groups during the first semester of college. Experimenters were no more likely than abstainers to experience alcohol-related problems, whereas both moderate and heavy users were.

Patterns of past use are not perfectly predictive of current or future use, however. Hersh and Hussong (2006) studied the stability of high school drinking typologies and found that heavy drinkers (90%) and abstainers (70%) were most likely to be classified the same way in college as in high school. Stability estimates for experimenters (47%) and moderate drinkers (26%) were significantly lower than those for the other two groups: 65% of moderate drinkers were reclassified as heavy drinkers in college. The authors found that students' perceptions of parental permissiveness moderated the relation between high school and college drinking. Specifically, abstainers who perceived their parents to be more restrictive drank alcohol and binged more frequently in college than other high school abstainers. Perceived permissiveness did not, however, account for heterogeneity in college drinking among the experimenter and moderate user groups, highlighting the need to consider other potential moderators. Candidate moderators include already established predictors of alcohol use patterns, such as impulsivity.

1.2. Impulsivity is an important correlate of alcohol use and problems

Impulsivity, broadly defined, is a reliable predictor of alcohol use. Higher levels of impulsivity are related to earlier use, higher frequency and volume of use, and more symptoms of dependence and alcohol-related problems (e.g., Chassin, Flora, & King, 2004; Lejuez et al., 2010; Lynam & Miller, 2004). Impulsivity is not a unitary construct, however, and there are a number of strategies for measuring the various aspects of impulsivity (Dick et al., 2010; Lejuez et al., 2010).

Whiteside and Lynam (2001) evaluated the multifactorial nature of impulsivity by performing an exploratory factor analysis using several impulsivity-related questionnaires. A four-factor solution emerged from which the UPPS Impulsive Behavior Scale (UPPS) was developed with a scale for each trait. Urgency assesses an individual's tendency to act rashly or give into cravings or act rashly under conditions of significant emotional arousal. Urgency can be expressed in the context of negative emotions (i.e., negative urgency) or positive emotions (i.e., positive urgency; Cyders & Smith, 2008). Premeditation assesses an individual's ability to think through the potential consequences of a behavior before acting and is thought to most closely reflect traditional

definitions of impulsivity. Perseverance assesses an individual's ability to sustain effort and persist in completing jobs or obligations despite boredom or fatigue. Sensation seeking assesses an individual's preference for excitement and stimulation, even in dangerous or risky situations. The UPPS model has been supported by several confirmatory factor analyses (Lynam & Miller, 2004; Magid & Colder, 2007; Smith et al., 2007).

Lynam and Miller (2004) studied the relations between the UPPS dimensions and alcohol use and problems. Low premeditation was a strong predictor of early alcohol use and abuse. A similar, weaker pattern was observed for sensation seeking. Sensation seeking is a useful predictor of early onset of alcohol use and frequency of use, but not necessarily alcohol problems in adolescence or emerging adulthood (Lynam & Miller, 2004; Magid & Colder, 2007; Smith et al., 2007). Whereas lack of premeditation has been advanced as a strong predictor of problematic substance use (Lynam & Miller, 2004; Magid & Colder, 2007; Verdejo-Garcia, Bechara, Recknor, & Perez-Garcia, 2007), others have found negative urgency to be an equally if not more important predictor of alcohol problems (Fischer, Anderson, & Smith, 2004; Fischer & Smith, 2008; Smith et al., 2007). Taken together, these findings support consideration of multiple impulsivity-related traits when evaluating relations to alcohol use and problems.

1.3. Relations between impulsivity and drinking histories

Few studies have investigated the relation between impulsivity and alcohol use trajectories (Chassin et al., 2004; Colder et al., 2002; Littlefield, Sher, & Steinley, 2010; Schulenberg, Wadsworth, O'Malley, Bachman, & Johnston, 1996). Schulenberg et al. (1996) compared six binge drinking trajectory groups on several factors, including risk-taking. Whereas risk-taking was significantly associated with binge drinking at age 18, the relation was not significant 4–5 years later. Risk-taking was also ineffective in differentiating among the trajectory groups. The observed null findings may reflect insufficient assessment of risk-taking; participants responded to only two self-report items. Also, the trajectory groups were based on drinking habits starting at age 18, rather than early adolescence when alcohol use emerges. Using such truncated patterns of alcohol use may have masked important differences among participants that preceded the transition to college.

Colder et al. (2002) used latent growth mixture modeling with prospective longitudinal data on adolescent alcohol use and identified five drinking trajectory groups. They compared these groups based on self-reported risk taking propensity and emotional distress and found that adolescents who abstained or used alcohol at occasional, very low levels were characterized by lower mean levels of risk taking than all other groups. Additionally, the occasional heavy drinking and rapid escalation groups were associated with higher levels of risk taking and emotional distress. Using groups derived via composites of alcohol and other drug use, Chassin et al. (2004) found that higher levels of impulsivity measured in early adolescence were associated with higher probability of belonging to a chronic heavy drinking/heavy drug-using group relative to light and moderate use groups. The heavy use group was also most likely to experience problems with dependence. The moderate/experimental use group had intermediate levels of impulsivity and was at a higher risk for alcohol dependence problem than the light use group. These studies highlight the utility of impulsivity-related traits in predicting patterns of alcohol use during adolescence and early adulthood.

1.4. The current study

Despite promising results regarding main effects of adolescent drinking trajectories and impulsivity on alcohol use and alcohol problems in emerging adulthood, as well as suggestive findings regarding the relation between drinking trajectories and impulsivity, gaps in the

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