



Predictors of short-term change after a brief alcohol intervention for mandated college drinkers[☆]



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HIGHLIGHTS

- College drinkers respond differently to brief motivational intervention.
- We examined predictors of change after a mandated intervention.
- Male sex, fun-seeking, more costs, fewer benefits predicted less change in drinking.
- Alcohol beliefs, costs and benefits predicted less change in consequences.
- We identify targets for intervention refinement.

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ABSTRACT

Objective: Brief motivational interventions (BMIs) reduce problematic drinking for some, but not all, college students. Identifying those students who are less responsive can help to guide intervention refinement. Therefore, we examined demographic, personality, and cognitive factors hypothesized to influence change after a BMI.

Method: Students mandated for intervention following a campus alcohol violation ($N = 568$; 28% female, 38% freshmen) completed a baseline assessment, then received a BMI, and then completed a 1-month follow-up. At both assessments, alcohol use (i.e., drinks per week, typical BAC, binge frequency) and alcohol-related problems were measured.

Results: Latent change score analyses revealed significant decrease in both alcohol use and problems 1 month after the BMI. In the final model that predicted *change in alcohol use*, four factors (male sex, a “fun seeking” disposition, more perceived costs and fewer perceived benefits of change) predicted smaller decreases in alcohol use over time. In the final model that predicted *change in alcohol-related problems*, three factors (stronger beliefs about the centrality of alcohol to college life, more perceived costs and fewer perceived benefits of change) predicted smaller decreases in problems over time.

Conclusions: Participation in a BMI reduced alcohol use and problems among mandated college students at 1-month follow-up. We identified predictors of these outcomes, which suggest the need to tailor the BMI to improve its efficacy among males and those students expressing motives (pro and cons, and fun seeking) and beliefs about the centrality of drinking in college.

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1. Introduction

College drinking is characterized by high volume consumption that undermines the health, safety, and academic performance of students (White & Hingson, 2014). Research shows that brief preventive interventions reduce alcohol misuse and problems in the general student population, especially those that use motivational interviewing and personalized feedback and those that target descriptive norms (Carey, Scott-Sheldon, Carey, & DeMartini, 2007; Huh et al., 2015; Samson & Tanner-Smith, 2015). A subgroup of students who require special attention are those who violate campus policies. These “mandated” students also respond well to brief alcohol interventions but effect sizes are often heterogeneous (Carey, Scott-Sheldon, Garey, Elliott, & Carey, 2016), such that not all students benefit from exposure to intervention equivalently. Research to clarify who benefits, and how to refine interventions to enhance efficacy, is needed.

One study identified trajectories of change after intervention using data from three samples (including mandated students) who received either a brief face-to-face or a computer-delivered intervention (Henson, Pearson, & Carey, 2015). Fully 82% of students demonstrated a strong initial intervention response, reflected in reductions in measures of alcohol consumption. Initial change was associated with characteristics of the recipients; that is, those who changed the most were female, upper-classmen, with later drinking onset, did not play drinking games, and reported lower peer drinking norms. Conversely, change after intervention was less for males, underclassmen, those reporting higher peer drinking norms and engaging in drinking games.

Building upon this work, we sought to identify predictors of change after a brief motivational intervention (BMI) for students mandated to an alcohol intervention. We drew from theoretical perspectives applied to college drinking interventions such as social cognitive theory (Bandura, 2011) and the transtheoretical model (Prochaska, DiClemente, & Norcross, 1992), and also drew upon the growing empirical literature documenting determinants of young adult drinking. We hypothesized that factors that place students at greater alcohol-related risk may be barriers to change. However, correlates of drinking in the absence of an intervention may differ from predictors of change after intervention. Thus, based on theory, empirical literature, and our intervention experience, we selected promising demographic, personality, and cognitive candidate predictors of change after intervention.

Demographic characteristics have been consistently associated with heavier drinking including male sex, white race (Johnston, O'Malley, Bachman, Schulenberg, & Miech, 2014), affiliation with a Greek organization (Park, Sher, & Krull, 2008), and freshman status (Sher & Rutledge, 2007). In addition, both sex and class status have been linked to intervention response (Henson et al., 2015). Demographic variables are often correlated with social and psychological conditions related to establishing and modification of drinking patterns.

Personality constructs have also been linked to drinking. Among these, constructs related to reinforcement sensitivity (Gray, 1970) are promising predictors. Specifically, individuals with a strong Behavioral Activation System (BAS) tend to be impulsive sensation-seekers, reacting to reward-related cues (i.e., alcohol) with increases in positive affect and approach motivation (Hamilton, Sinha, & Potenza, 2012; Voigt et al., 2009). Conversely, the Behavioral Inhibition System (BIS) competes with approach behavior; high-BIS individuals show uncertainty and anxiety in response to mixed reward and punishment cues. It is unclear whether BIS is a risk factor for drinking because anxiety may promote drinking (Wardell, O'Connor, Read, & Colder, 2011) whereas dispositional avoidance of threat may discourage drinking (Keough & O'Connor, 2014). Strong orientations toward reward and/or avoidance of punishment may override the influence of a brief alcohol risk reduction intervention. We also explored multiple dimensions of impulsivity, which has been linked to heavy drinking among students (Diulio, Silvestri, & Correia, 2014; Kazemi, Flowers, Shou, Levine, & Van Horn, 2014). To the extent that impulsivity

represents behavioral disinhibition or under-control, it may interfere with alcohol use self-management strategies.

Mental health problems have been associated with heavy episodic drinking (Cranford, Eisenberg, & Serras, 2009) and problems related to alcohol use (Dennhardt & Murphy, 2011; Kenney & LaBrie, 2013; Weitzman, 2004). Thus, the presence of mental health problems, and associated cognitive and motivational impairments, may undermine the ability of students to benefit from a BMI.

Social-cognitive variables also correlate with drinking. **Descriptive norms** (i.e., perceptions of how other students drink) and **injunctive norms** (i.e., perceptions of peer approval of drinking) uniquely influence drinking behavior (Larimer, Turner, Mallett, & Geisner, 2004; Park, Klein, Smith, & Martell, 2009). Henson et al. (2015) reported that stronger descriptive and injunctive norms predicted less change after alcohol interventions. We sought to replicate these findings with mandated students and with a BMI that emphasizes normative correction.

Beliefs about the central role that alcohol consumption plays in the college experience have been associated with both consumption and consequences (Osberg et al., 2010; Osberg, Insana, Eggert, & Billingsley, 2011), beyond positive alcohol expectancies, injunctive norms for friends, and descriptive norms (Osberg et al., 2011). Students holding stronger centrality beliefs reported less motivation to change drinking after an alcohol sanction (Qi, Pearson, & Hustad, 2014). Because these beliefs may conflict with risk reduction messages, we expect that strong beliefs about the centrality of alcohol to the college experience will predict less change.

According to the transtheoretical model, readiness to change a problem behavior is reflected in perceived *costs* and *benefits* of change (Prochaska et al., 1994); typically, individuals who are not ready to change perceive more costs than benefits. In the recovery context, costs of change predict increases in substance use over time, and benefits of change predict reductions (Cunningham, Sobell, Gavin, Sobel, & Breslin, 1997; Korcha, Polcin, Bond, Lapp, & Galloway, 2011). We predict that costs and benefits of changing drinking perceived by mandated students will predict change after a BMI.

To test these hypotheses, we used baseline and 1-month post-intervention data from an intervention trial. In a sample wherein all students receive a BMI, we predict smaller decreases for individuals with certain demographics (male sex, White race, Greek involvement, freshman status); lower behavioral inhibition; higher behavioral activation; higher impulsivity; more psychological distress; more permissive perceived norms (descriptive, injunctive); stronger beliefs about the centrality of alcohol to college life; and more perceived costs and fewer perceived benefits of change.

2. Method

2.1. Participants and recruitment

Participants were 568 students enrolled in a public university in the northeastern U.S. who were mandated to participate in an alcohol education program following an alcohol-related violation. Students ($N = 610$) were screened for eligibility (i.e., enrolled in college, ≥ 18 years old, no previous participation in the study). Eligible students viewed a brief presentation outlining their options for satisfying the sanction: (a) pay a fee and participate in the standard sanction (a brief individualized alcohol intervention modeled after BASICS; Dimeff, Baer, Kivlahan, & Marlatt, 1999) or (b) participate in this study (i.e., baseline, BMI, and 1-month assessment). Completion of study activities through the 1-month follow-up was considered equivalent to the standard sanction, and therefore served to satisfy the sanction requirement. Students who selected the study option saved the standard sanction fee and gained the possibility of earning compensation for follow-up assessments after 1-month. Of the 610 mandated students screened, 13 were ineligible, 24 declined, and 5 did not attend

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