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# **Addictive Behaviors**



# Personality and alcohol-related outcomes among mandated college students: Descriptive norms, injunctive norms, and college-related alcohol beliefs as mediators



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#### HIGHLIGHTS

- We examined associations between 4 personality traits and alcohol-related outcomes.
- We used path analysis in a sample of mandated college students (N = 875).
- Alcohol perceptions mediated the personality-alcohol outcome associations.
- We largely replicated findings from an incoming college student sample.
- Implications for global and targeted college student interventions are discussed.

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#### ABSTRACT

The present study examined three alcohol-perception variables (descriptive norms, injunctive norms, and college-related alcohol beliefs) as mediators of the predictive effects of four personality traits (impulsivity, sensation seeking, anxiety sensitivity, and hopelessness) on alcohol use and alcohol-related consequences in a sample of mandated college students (n=875). Our findings replicated several findings of a previous study of incoming freshman college students (Hustad et al., in press) in that impulsivity and hopelessness had direct effects on alcohol-related problems, sensation seeking and impulsivity had indirect effects on alcohol-related outcomes via college-related alcohol beliefs, and college-related alcohol beliefs predicted both alcohol use and alcohol-related problems. We discuss the implications of our findings for global college student interventions as well as personality-targeted interventions.

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#### 1. Introduction

Alcohol use contributes to numerous adverse experiences among college students, ranging from poor academic performance and social consequences (Perkins, 2002) to injury and death (Hingson, Wenxing, & Weitzman, 2009). Within the college student population, mandated college students may be a particularly high-risk subpopulation of college students (Caldwell, 2002; Larimer & Cronce, 2007). Mandated students are required to participate in an alcohol intervention for violating a local/campus alcohol policy, ranging from drinking in a dormitory or underage drinking to alcohol-related hospitalization (Barnett & Read, 2005). In the present study, we examine both distal (i.e., personality) and proximal (i.e., alcohol-related perceptions) antecedents to alcohol-related outcomes in the high-risk population of mandated college students.

Although a diverse array of personality traits have been uncovered, we examined four that have been shown to be related to substance use and have formed the basis of personality-targeted substance use interventions (e.g., Conrod, Castellanos-Ryan, & Mackie, 2011): (1) hopelessness (depressed mood; e.g., Woicik, Stewart, Pihl, & Conrod, 2009), (2) sensation seeking (the conscious pursuit of activities that result in excitement and pleasure; e.g., Cyders, Flory, Rainer, & Smith, 2009); (3) anxiety sensitivity (the fear of arousal-related bodily sensations such as rapid breathing, perspiration, and elevated heart rate; e.g., DeMartini & Carey, 2011), and (4) impulsivity (a tendency to react to internal or external influences promoting alcohol use, without consideration of possible consequences to oneself or others; e.g., Littlefield, Sher, & Wood, 2009; Simons, Gaher, Oliver, Bush, & Palmer, 2005).

In college student samples, hopelessness, sensation seeking, and impulsivity have been shown to have unique predictive effects on alcohol-related problems (Studies 1 and 2; Woicik et al., 2009), whereas anxiety sensitivity has not. Although there is some evidence that the effect of sensation seeking on binge drinking is partially mediated by

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response reward bias (Castellanos-Ryan, Rubia, & Conrod, 2011), and that an anxiety sensitivity-targeted intervention reduces coping motives (Conrod et al., 2011), there is very little understanding of what mediates the effects of these personality traits on alcohol-related outcomes. In the present study, we examine three alcohol-related perceptions as mediators of the predictive effects of these personality traits: descriptive norms (DN), injunctive norms (IN), and college-related alcohol beliefs (CRAB).

DN reflect the perceived prevalence, quantity, and/or frequency of drinking by others while IN reflect the extent to which one believes that others approve/disapprove of their drinking (Cialdini, Kallgren, & Reno, 1991). Both DN and IN have been found to directly and independently predict drinking among college students (Borsari & Carey, 2003; Neighbors, Lee, Lewis, Fossos, & Larimer, 2007). CRAB were operationalized by Osberg et al.'s (2010) College Life Alcohol Salience Scale (CLASS). CRAB have been characterized as internalized college drinking norms as well as alcohol beliefs regarding the importance of drinking to the college experience. CRAB have been shown to predict alcohol use and consequences cross-sectionally (Osberg, Insana, Eggert, & Billingsley, 2011; Osberg et al., 2010) and prospectively (Osberg, Billingsley, Eggert, & Insana, 2012), and have been shown to be a proximal mediator (Osberg et al., 2012).

In a recent study, Hustad, Pearson, Neighbors, and Borsari (in press) examined the predictive effects of the four personality traits reviewed above on alcohol use and alcohol-related problems via these three alcohol-related perception variables in a sample of incoming freshmen college students. They found that hopelessness and impulsivity had positive direct effects on alcohol-related problems, sensation seeking and impulsivity had significant indirect effects on alcohol use/problems, and anxiety sensitivity had no unique effects on alcohol outcomes. DN were positively related to alcohol use, IN were negatively related to alcohol use but positively related to alcohol-related problems, and CRAB were positively related to both alcohol use and problems. The predictive effect of sensation seeking on alcohol use/problems was significantly mediated through both CRAB and IN, and the predictive effect of impulsivity on alcohol use/problems was significantly mediated through CRAB and DN. It is unknown if these results obtained using a sample of incoming college students generalize to other populations.

The purpose of the present study is to replicate the model tested by Hustad et al. (in press) in a sample of mandated college students. Based on previous findings, we expected hopelessness and impulsivity to have direct effects on alcohol-related problems, sensation seeking and impulsivity to have indirect effects via alcohol perceptions variables, and anxiety sensitivity to not have significant effects on alcohol-related outcomes.

### 2. Method

## 2.1. Participants and procedures

A total of 2405 mandated college students referred during the 2010–2012 academic years from a large, Mid-Atlantic state university were screened for eligibility for the present study. All mandated students were required to pay a \$200 program fee, complete a computerized baseline assessment, receive a one hour brief motivational intervention (Dimeff, Baer, Kivlahan, & Marlatt, 1999), and complete a 1 month follow-up. Students were not eligible if they were under 18 years old (n = 20), if their score on the Alcohol Use Disorders Identification Test (AUDIT; Bradley, McDonell, Kivlahan, Diehr, & Fihn, 1998) was  $\geq$  16 (n=307), or if they reported suicidal ideation (n=36). Of 2038 eligible students who were invited to participate, 45.7% (n = 932) consented to participate. Participants were entered into a raffle to win 1 of 20 \$100 gift cards if they completed a 3-month follow-up. The present study examines only the baseline assessment. Given that alcohol problems was the ultimate outcome variable, non-drinkers (n = 57) were dropped from analyses, leaving an analytic sample of 875 participants who reported drinking in a typical week during the past month. Participants were 37.8% female with an average age of 19.26 (SD=1.28). Self-reported race/ethnicity was 85.4% White, 7.7% Hispanic, 5.6% Asian, 4.9% Black or African American, and 3.4% was classified as other (participants could endorse multiple racial/ethnic groups). All procedures for this study were approved by the university's Institutional Review Board.

#### 2.2. Measures

The measures given in the present study were identical to those administered in Hustad et al. (in press) using a sample of incoming college students. Descriptive statistics for all study variables and information regarding the internal consistency of each multi-item inventory are shown in Table 1.

Four personality traits were assessed using the 23-item Substance Use Risk Profile Scale (Woicik et al., 2009): hopelessness, sensation seeking, anxiety sensitivity, and impulsivity. Descriptive norms (DN) were assessed with the Drinking Norms Rating Form (Baer, Stacy, & Larimer, 1991). Injunctive norms (IN) were assessed with a single item that asked participants to select the response that they believe best represents "the most common attitude" among college students at the host site about alcohol use (Perkins & Berkowitz, 1986) using a 5-point response scale (1 = "drinking is never a good thing to do" to 5 = "getting drunk frequently is okay if that's what the individual wants to do"). College-related alcohol beliefs (CRAB) were measured by the 15-item College Life Alcohol Salience Scale (CLASS; Osberg et al., 2010). Alcohol use was assessed using a modified version of the Daily Drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985), which quantified alcohol use as the number of drinks consumed during a typical week in the past 30 days. Alcohol-related negative consequences in the past 30 days were assessed using the 24-item Brief Young Adult Alcohol Consequences Questionnaire (BYAACQ, Kahler, Strong, & Read, 2005).

#### 2.3. Data analysis plan

Path analysis using Mplus 6.12 (Muthén & Muthén, 1998–2010) was conducted to examine a model in which personality variables (impulsivity, sensation seeking, hopelessness, and anxiety sensitivity) were modeled as distal determinants of alcohol outcomes, and alcohol-related perceptions (DN, IN, and CRAB) were modeled as more proximal antecedents to alcohol use and alcohol-related problems. Gender was modeled as a covariate to account for known gender differences in alcohol use and problems (e.g., Johnston, O'Malley, Bachman, & Schulenberg, 2009; Perkins, 2002). We examined the total, direct, and indirect effects of each predictor variable on outcomes using the bias-corrected bootstrap based on 10,000 bootstrapped samples (Efron & Tibshirani, 1993), which provides a powerful test of mediation (Fritz & MacKinnon, 2007), and is robust to small departures from normality (Erceg-Hurn & Mirosevich, 2008). Parameters were estimated using maximum likelihood estimation, and missing data were handled using full information maximum likelihood, which is more efficient and has less bias than alternative procedures (Enders, 2001; Enders & Bandalos, 2001).

#### 3. Results

The descriptive statistics, correlations, and Cronbach's alphas for the variables included in the path model are reported in Table 1. We examined the direct effects of 1) personality on DN, IN, CRAB, alcohol use, and alcohol-related problems; and 2) DN, IN, and CRAB on alcohol use and alcohol-related problems. Our model also permitted the examination of indirect (i.e., mediated) effects of 1) personality on alcohol use via DN, IN, and CRAB; 2) personality on alcohol problems, via DN, IN, CRAB, and alcohol use; and 3) DN, IN, and CRAB on alcohol problems

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