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Willingness as a mediator of the effects of personality on alcohol-related consequences between the first and second years of college: A longitudinal prospective study  $^{\diamond}$ 



Bradley M. Trager<sup>a,\*</sup>, Kimberly A. Mallett<sup>b</sup>, Rob Turrisi<sup>a,b</sup>, Nichole M. Sell<sup>a</sup>, Brittney A. Hultgren<sup>c</sup>

- <sup>a</sup> Department of Biobehavioral Health, The Pennsylvania State University, 219 Biobehavioral Health Building, University Park, PA 16802, USA
- b Edna Bennett Pierce Prevention Center, The Pennsylvania State University, 314 Biobehavioral Health Building, University Park, PA 16802, USA
- <sup>c</sup> Department of Psychiatry and Behavioral Sciences, Center for the Study of Health and Risk Behaviors, University of Washington, 1100 45<sup>th</sup> St. NE Suite 300, Seattle, WA 98195. USA

#### HIGHLIGHTS

- Higher self-regulation predicted lower willingness to experience consequences.
- Impulsivity and sensation seeking were positively associated with willingness.
- Willingness was negatively associated with alcohol-related consequences.
- Willingness mediated the effects of all three personality constructs on consequences.

#### ARTICLE INFO

# Keywords: Alcohol-related consequences Willingness Impulsivity Sensation seeking Self-regulation

#### ABSTRACT

The present study used a prospective longitudinal design to examine whether willingness to experience negative alcohol-related consequences mediated the effects of personality on consequences (e.g., blacking out, getting into a fight, and regretted sex). Students (N=2024) were assessed at three time points: fall semester of the students' first year in college (baseline), 6-months post-baseline, and one-year post-baseline. Personality constructs were assessed at baseline (i.e., impulsivity, sensation seeking, self-regulation), willingness to experience negative alcohol-related consequences was assessed at baseline and 6-months, and negative alcohol-related consequences were examined at baseline and one-year post-baseline. A structural path model was used to examine if willingness mediated the effects of personality on consequences. Baseline drinking was included as a covariate in the model. Results demonstrated willingness to experience consequences significantly mediated the effects of impulsivity, sensation seeking, and self-regulation on consequences. Findings from this study support the idea that consequence-specific cognitions, such as willingness, can explain changes in consequences associated with personality. This suggests that intervention efforts aimed at reducing negative alcohol-related consequences could benefit from the inclusion of consequence-specific cognitions, personality (e.g., impulsivity, sensation seeking, and self-regulation), and drinking.

#### 1. Introduction

Alcohol-related consequences are a major health hazard on college campuses (Barnett et al., 2014; Hingson, Zha, & Smyth, 2017; Hingson, Zha, & White, 2017; Jackson & Sher, 2008). Negative consequences that can result from heavy drinking include academic and social problems (missing class or work, having a regretted sexual experience, and starting a fight), accidental injuries, and death (American College

Health Association [ACHA], 2014; Hingson, Zha, & Weitzman, 2009). Alcohol consumption is the most reliable predictor of consequences, yet tends to only account for ~50% of the variance in total consequences (Larimer, Turner, Mallett, & Geisner, 2004; Mallett, Varvil-Weld, Turrisi, & Read, 2011; Turner, Larimer, & Sarason, 2000). To inform interventions and improve their efficacy at reducing consequences, researchers have examined constructs other than drinking that predict consequences. Both personality characteristics, such as impulsivity,

E-mail address: bpt5091@psu.edu (B.M. Trager).

<sup>\*</sup> This research was supported by the National Institute on Alcohol Abuse and Alcoholism [NIAAA R01AA021117] awarded to Kimberly A. Mallett.

<sup>\*</sup> Corresponding author.

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sensation seeking, and self-regulation (e.g., Hustad, Carey, Carey, & Maisto, 2009; White & Jackson, 2005; Wills, Pokhrel, Morehouse, & Fenster, 2011) and cognitions, such as willingness to experience consequences (Mallett et al., 2011; Mallett et al., 2015), are associated with experiencing consequences. Previous research has examined the associations between consequences and these personality and cognitive constructs separately. However, theories related to behavioral decision-making (e.g., prototype-willingness model) and past empirical research suggest these constructs may work together to predict alcohol-related consequences (Gerrard, Gibbons, Houlihan, Stock, & Pomery, 2008; Gibbons, Gerrard, Reimer, & Pomery, 2006). Further investigation is therefore warranted.

#### 1.1. Personality: impulsivity, sensation seeking and self-regulation

The direct effects of behavioral disinhibition (e.g., impulsivity, sensation seeking) and inhibition (e.g., self-regulation) on consequences are well-documented in the literature (e.g., Hustad et al., 2009; White & Jackson, 2005; Wills et al., 2011). Findings suggest higher levels of impulsivity and sensation seeking, and lower levels of self-regulation, are associated with a greater number of alcohol-related consequences. Although personality traits, such as sensation seeking, tend to be reliably associated with consequences (see Baer, 2002, for a review), interventions targeting personality traits have not been shown to reliably reduce consequences for individuals that score above average on the specified trait (e.g., Conrod, Stewart, Comeau, & Maclean, 2006; Lammers et al., 2017; Stewart et al., 2005). Furthermore, the mechanisms through which the aforementioned personality traits might influence consequences are not entirely clear. The present study addresses this gap in the literature by examining a potential cognitive mediator of the association between the aforementioned personality traits and negative alcohol-related consequences.

#### 1.2. Cognitive constructs

Previous research suggests that cognitive constructs that mediate the effects of personality might serve as a viable target in brief interventions (e.g., Turrisi, Jaccard, & McDonnell, 1997). Willingness is one cognitive construct that could help explain the effects of personality on alcohol-related consequences. According to the prototype-willingness model, (behavioral) willingness is a proximal cognitive antecedent of social reactivity (i.e., unplanned or spontaneous decision making to participate in risky behavior in response to environmental circumstances; see Gerrard et al., 2008, for a review). This type of unplanned or spontaneous decision making that occurs in response to environmental stimuli reflects behavior typical of individuals who are high on impulsivity and sensation seeking, and low on self-regulation. Evidence for these associations stem from work by Gibbons and colleagues. Findings from their research revealed that individuals who lacked selfcontrol (more impulsive) were more willing to engage in substance use behaviors (Gibbons et al., 2006). Further, they observed that individuals who showed higher self-regulation were less willing to engage in substance use behaviors. Taken together, Gibbons and colleagues' findings provide evidence that willingness constructs might serve as cognitive proxies for personality.

Measures of willingness (e.g., willingness to drink) typically assess specific behaviors (e.g., drinking) considered risky because they are associated with harmful outcomes (e.g., arrested for driving under the influence; alcohol poisoning). Research has shown that for adolescents and emerging adults, behavioral willingness reliably predicts a variety of risk behaviors such as substance use, neglecting to use condoms, and riding with a drinking driver (Brown & Eisenberg, 1995; Gerrard, Gibbons, & Gano, 2003; Hultgren, Scaglione, Cleveland, & Turrisi, 2015; Zabin, 1994). In relation to alcohol use, willingness to drink has been shown to be associated with both riskier drinking and negative alcohol-related consequences (e.g., Gerrard et al., 2002; Lewis, King,

Litt, Swanson, & Lee, 2016; Litt et al., 2014). However, because drinking only accounts for approximately half of the variance in negative alcohol-related consequences (Larimer et al., 2004; Mallett et al., 2011; Turner et al., 2000), consequence-specific predictors, such as willingness to experience consequences, are needed to address this gap (Mallett et al., 2011; Mallett et al., 2015).

Willingness to experience negative alcohol-related consequences can be considered a derivative of the willingness construct traditionally used in association with drinking outcomes (i.e., willingness to drink; e.g., Gerrard et al., 2002; Litt et al., 2014). This measure assesses the degree to which a person is open to experiencing a negative outcome if they were to drink (Mallett et al., 2011). As such, this measure can be interpreted as the level of risk/harm an individual is willing to take/experience when they drink. Previous research has demonstrated that willingness to experience negative alcohol-related consequences can predict consequences independent of alcohol use (Mallett et al., 2011; Mallett et al., 2015). This suggests that there could be an added benefit to using the consequence-specific measure over a drinking-specific measure when examining consequences.

#### 1.3. The current study

Research described thus far suggests that willingness measures that specifically address negative alcohol-related consequences may mediate the effects of personality on consequences. To examine this, the present study used a longitudinal design to examine willingness to experience negative alcohol-related consequences as a mediator of the effects of impulsivity, sensation seeking, and self-regulation on alcohol-related consequences between the first and second years of college. Based on the work described in Gibbons et al. (2006; also see Gerrard et al., 2008), we hypothesized:

**Hypothesis 1.** Higher impulsivity will predict increases in willingness, which in turn will predict increases in consequences.

**Hypothesis 2.** Higher sensation seeking will predict increases in willingness, which in turn will predict increases in consequences.

**Hypothesis 3.** Higher self-regulation will predict decreases in willingness, which in turn will predict decreases in consequences.

#### 2. Materials and methods

#### 2.1. Recruitment procedures and participant retention

The current study took place at a large public university in the northeastern United States. During fall semester, 4000 first-year college students were randomly selected from the university registrar's database to complete the baseline questionnaire (October of first year; T1). A total of 2690 (67.3%) participants completed the questionnaire, and 2024 (75.2%) of those who completed met inclusion criteria (i.e., first-year students, 18 to 19 years old, reported drinking in the month prior to baseline). Eligible participants were then invited to complete a 6-month (April of first year; T2), and 1-year (October of second year; T3) follow-up. Surveys were timed to avoid overlap with exams in order to reflect typical drinking patterns. Participants received \$25 for completing the T1 and T2 surveys, and \$30 for completing the T3 survey. Participants received an additional \$5 (per survey) if they completed each survey within 5 days of receipt. All procedures were approved by the university's institutional review board.

The number of students who completed both T1 and T2 (92.2%), and both T1 and T3 (87.6%) surveys was considerably high. There were small but significant positive effects for missing (vs. not missing) at T3 on baseline drinking (typical weekly drinking, r=0.09, p < 0.01; frequency drunk, r=0.05, p = 0.02) and consequences (r=0.08, p < 0.01).

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