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Examining the Role of Abstainer Prototype Favorability as a Mediator of the Abstainer Norms-Drinking Behavior Relationship

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Abstract

Past research has indicated that peer influence is associated with risky health behaviors, such as alcohol and other substance use (e.g., Maxwell, 2002; Santor, Messevey, & Kusumakar, 2000). Specifically, research has indicated that believing that more of one's peers use alcohol predicts more favorable prototypes (risk images) of the typical alcohol user (Litt & Stock, 2011; Teunnisen et al., 2014). However, it is unclear if this same relationship would hold when considering abstainer (i.e. people who don't use alcohol) cognitions. The primary goal of the present study was to determine whether normative perceptions of peer abstinence from alcohol predict alcohol consumption, and whether this relationship is mediated by abstainer prototypes. Results from 2,095 college students (42% male) indicated that the relation between abstainer norms and drinking behavior was mediated by abstainer prototypes such that believing that more peers abstained from alcohol use predicted more favorable prototypes of the typical alcohol abstainer, which in turn predicted lower alcohol use. Results from this study provide important first steps to delineating the relationship between abstainer cognitions and alcohol use.

Keywords

alcohol; abstainer prototypes; abstainer norms; Prototype Willingness Model; social norms

Peer influence is associated with risky health behaviors, such as alcohol and other substance use (e.g., Maxwell, 2002; Santor, Messevey, & Kusumakar, 2000). For example, adolescents' perceptions about peers' risk behavior, or descriptive norms, have been shown to predict adolescent alcohol use (e.g., Borsari & Carey, 2001; Elek, Miller-Day, & Hecht, 2006) such that if adolescents or young adults believe that most of their peers drink alcohol, they are more likely to drink alcohol as well. Additional research has indicated reciprocal influences between drinking and norms (Lee, Geisner, Patrick, & Neighbors, 2010; Wardell & Read, 2013) as well as selection effects whereby individuals choose and keep friends whose behavior and beliefs are similar to their own (e.g., Burk, van der Vorst, Kerr, & Stattin, 2011; Mundt, Mercken, & Zakletskaia, 2012; McCabe, Schulenberg, Johnston et al., 2005). Findings suggest more favorable perceptions of the social image of a typical drinker, or prototypes, influence individuals decisions to drink (Gerrard, Gibbons, Houlihan, Pomery, & Stock, 2008). The importance of norm perceptions and prototypes indicate that

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individual's cognitions about their peers play a important role in determining risk behavior. This assumption is in line with research indicating that believing that more of one's peers use alcohol predicts more favorable prototypes of the alcohol user (Litt & Stock, 2011; Teunnisen et al., 2014). However, it is unclear if this same relationship would hold when considering abstainer (i.e. people who don't use alcohol) cognitions. The present study aims to determine whether perceptions of peer abstention from alcohol predict alcohol consumption, and whether this relationship is mediated by the favorability of risk images of the type of person who abstains from alcohol.

Alcohol use during adolescence typically occurs in the context of peers (e.g., Barnes, Hoffman, Welte, Farrell, & Dintcheff, 2006; Ingram, Patchin, Huebner, McCluskey, & Bynum, 2007). In fact, several major reviews of alcohol use norms have indicated that adolescents' beliefs about their peers' alcohol use is significantly related to their own use (Borsari & Carey, 2001; Lewis & Neighbors, 2006), and as such, are important to include in models of health risk behavior (e.g., Rivis & Sheeran, 2003; Gerrard et al., 2008). An additional conceptualization of social influence that has been identified as being of particular relevance to adolescent health behavior are prototypes, or risk images. Both sources of social influence, namely descriptive norms (perceptions of other's behavior) and prototypes are included in the prototype/willingness model (PWM) of adolescent health-risk behavior (Gibbons, Gerrard, & Lane, 2003).

The PWM combines elements of the Theory of Reasoned Action (Fishbein & Azjen, 1975), with a more heuristic approach to decision making (Gibbons et al., 2003). The PWM is based on three primary assumptions. First, for young people, health risk behaviors are volitional, but not necessarily rational or intentional. This discrepancy between intentions and behavior is not necessarily due to a lack of awareness of their intentions, but instead it is a reflection of the nature of risk behavior as being a reaction to risk-conducive and socially-based environments (Gibbons, Gerrard, Blanton, Russell, 1998). Second, health-risk behaviors, such as alcohol use, are social events for adolescents, as they rarely engage in such behaviors alone (Gibbons et al., 1998). Finally, these risk behaviors have clear social images associated with them that likely derive from the behavior of their peers and others in their social environments (Gibbons et al., 2003). Although originally developed for adolescent populations (Gibbons & Gerrard, 1998; Gibbons et al., 2003), several recent studies have indicated that the PWM is also applicable for young adults, including college students (Litt, Lewis, Patrick, et al., 2014; van Lettow, Vermunt, de Vries et al., 2013; Zimmerman & Sieverding, 2010).

A unique construct within the PWM is the risk prototype, defined as the image of the type of person who engages in a risk behavior. To date, support for prototype influence on behavior has been obtained primarily in relation to risk behavior, such as heavy drinking and has indicated that favorable drinker prototypes predicted increased alcohol consumption among adolescents (Andrews, Hampson, Barckley, Gerrard, & Gibbons, 2008; Blanton et al., 1997; Gerrard et al., 2002; Spijkerman, Van Den Eijenden, Overbeek, & Engels, 2007). Distinct from prototypes, injunctive norms (i.e., perceived approval of a behavior by others) and descriptive norms (perceived quantity or frequency of a behavior by others)(Borsari & Carey, 2001) are also central to the PWM (Gerrard et al., 2008; Litt & Stock, 2011). A

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wealth of literature has demonstrated that having a drinking conducive peer group predicts greater alcohol use by adolescents (Borsari & Carey, 2001; Lewis & Neighbors, 2006). In contrast to the work looking at risk cognitions, few studies have investigated the impact of abstainer cognitions, namely abstainer norms (e.g. how many of one's peers are perceived to abstain from alcohol use) or abstainer prototypes (e.g. the type of person who abstains from alcohol use).

When assessing descriptive normative perceptions for alcohol use, participants are generally asked to estimate the percent of students who drink or the perceived typical students' quantity or frequency of alcohol use. Research has shown that abstaining or light drinking students overestimate peer drinking behavior (Lewis, Lee, Rees, & Oster-Aaland, 2008) and that interventions aimed to reduce normative perceptions among abstaining and light drinkers to be efficacious (Neighbors et al., 2011). Little research has examined descriptive normative perceptions for the typical student who does not drink.

Studies have shown that adolescents hold mental representations of the type of person abstains from engaging in health risk behaviors (Gerrard et al., 2002; Wills, Gibbons, Gerrard, Murry, & Brody, 2003). In fact, abstainer prototypes have been shown to predict behavioral willingness to use alcohol as strongly as user prototypes in adolescence (Rivis et al., 2006). In a series of studies that examined the relationship between adolescents' images of typical drinkers and non-drinkers and their subsequent alcohol consumption, Gerrard and colleagues (2002) concluded that abstainer images primarily exert an inhibiting effect on risk behavior: wanting to acquire characteristics of the positive image of non-drinkers inhibits willingness to drink among young people. Research has indicated that holding more favorable prototypes of abstainers is directly and positively related to greater willingness to refuse substances (Wills, Gibbons, Gerrard, Murry, & Brody, 2003). Other cross-sectional and longitudinal studies suggest that positive abstainer prototypes are related to lower willingness and intentions to drink, and lower self-reported alcohol consumption (Gerrard et al., 2002; Zimmermann & Sieverding, 2010; 2011) among adolescents and young adults respectively. Together, there is growing evidence that abstainer prototypes may have a significant impact on decisions to engage in alcohol use.

According to the PWM, there is an important link between peers' behaviors (i.e., peer norms) and prototypes (Gibbons et al., 2003). This link suggests that peer norms may play a key role in the formation of prototypes. This assumption is in line with longitudinal research showing that affiliation with drinking peers and higher perceived drinking norms of friends are related to the development of more favorable drinker prototypes (Blanton et al., 1997; Gerrard et al., 1999; Ouellette et al., 1999) and experimental research that indicates that believing that more of one's peers use alcohol predicts more favorable prototypes of the alcohol user (Litt & Stock, 2011; Teunnisen, Spijkermen et al., 2014). However, it is unclear if this same relationship would hold when looking at abstainer cognitions, specifically abstainer prototype favorability and perceived abstainer norms. To our knowledge, no study to date has examined whether the relationship between alcohol abstainer norms and behavior is mediated by abstainer prototypes.

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The present study aims to elucidate the relationship between abstainer descriptive norms, abstainer prototypes, and alcohol use. Specifically, it is hypothesized that the relationship between abstainer norms and alcohol consumption will be mediated by abstainer prototypes such that favorable prototypes for alcohol abstainers will be positively associated with perceived abstainer norms, which in turn will be negatively associated with alcohol consumption.

Method

Procedures and Sample

Data for the present paper were drawn from a larger study that examined a personalized feedback intervention aimed to reduce college student drinking. Because only heavy drinkers were eligible for the main study, the present sample was drawn from the screening dataset in order to contain varying levels of alcohol use, ranging from abstention to heavy use. Screening was conducted by sending emails to randomly selected students based on registrar's lists from each campus. At all three sites, participants were paid $10 for screening (from which the current data were drawn), but were told they could earn up to $100 if they completed the full study. A total of 4,103 students at three geographically diverse universities in the United States (University 1 is a large, west-coast public university. University 2 is a mid-sized west-coast private university, and University 3 is a large public southern university) were invited to screening. Of those invited, 2,095 (51.1%) completed the screening questionnaire. Students who completed the screening survey had an average age of 18.16 (*SD* = .56), were 42.20% male, 58.04% Caucasian, 31.12% Asian, 10.84% other ethnicities. A total of 567 participants from University 1 completed the screening survey, while 440 participants completed screening at University 2 and 1,088 participated from University 3.

Measures

Drinks per week—The Daily Drinking Questionnaire (DDQ; Collins, Parks & Marlatt, 1985) is a 4 item measure used to assess typical weekly drinking habits. The DDQ has been used in previous studies of college student drinking demonstrating good convergent validity and high test–re-test reliability (Marlatt et al., 1998). The weekly item read, “Consider a typical week during the last three months. How much alcohol, on average (measured in number of drinks), do you drink each day of a typical week?’” Typical weekly drinking was the sum of the standard number of drinks for each day of the week.

Typical Drinks per Occasion—Typical drinks per occasion was assessed with an item from the DDQ (Collins et al., 1985) that read, “During the last 3 months, when you have consumed alcohol, how many drinks on average did you typically consume on a given occasion?” Participants responded on a scale from 0 to 25).

Peak Drinks Per Occasion—Peak drinking was assessed with an item from the Quantity/ Frequency/Peak Alcohol Use Index (Dimeff et al., 1999) that read “Think of the occasion you drank the most this past month. How much did you drink?” Participants were asked to respond on a scale from 0-25.

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Perceived descriptive norms for abstainers—Descriptive normative perceptions for abstaining from alcohol use was measured using a single item (adapted from Litt & Stock, 2011) that asked participants to give their best estimate of the percentage (0-100%) of same age same sex individuals who abstain (consciously choose not to drink) from drinking.

Abstainer prototypes—Abstainer prototypes were assessed by asking "Please think about the typical male (female) your age who consciously chooses NOT to drink alcohol. How much do you think the following words describe your image of that person?" Following the stem were 4 different adjectives (smart, popular, mature, attractive; Gerrard et al., 2002; Litt & Stock, 2011), each rated on a scale from (0) *not at all* to (6) *extremely* (α = .89).

Results

On average, participants in this sample consumed approximately 5.5 drinks per week, with 32% of females and 29% of males meeting the National Institute of Alcohol Abuse and Alcoholism (NIAAA) heavy drinking criteria (8 or more and 15 or more drinks per week respectively; NIAAA, 2010). Roughly 35% of the sample reported having consumed no alcohol in a typical week in the past 3 months and on average participants believed that 21% of their peers consumed no alcohol over that same time frame. Average drinking frequency was roughly twice per month. There were significant differences between universities on drinks per week (F= 96.35, $p < .0001$), typical drinking (F = 111.815, $p < .0001$) and peak drinking (F = 98.64, $p < .000$) with post-hoc Scheffe tests showing that one site was significantly different from the other two. Abstainer prototypes (M = 2.62, SD = 1.24) were significantly less positive than user prototypes (M = 3.16, SD = 0.94; t = 16.90, $p < .001$). Bivariate correlations indicated that abstainer norms were positively associated with abstainer prototype favorability and negatively associated with drinks per week, typical drinking, and peak drinking. . Similarly, abstainer prototype favorability was negatively associated with all drinking outcomes. See Table 1 for full descriptives and correlations.

In order to test mediation, bootstrap estimation multiple mediation analysis (SPSS Process macro by Hayes, 2013) was used. All analyses controlled for age, gender, and data collection site (university, operationalized by two dummy coded variables representing differences between Site 1 vs. Site 2 and Site 1 vs. Site 3).

Drinks Per Week

Bootstrap results indicated that the total effect of abstainer norms on drinks per week (total effect = -.025, p = .02) became non-significant when abstainer prototypes were included in the model (direct effect of abstainer norms = .-.0085, *ns*). Furthermore, the analyses revealed, with 95% confidence, that the total indirect effect (i.e., the difference between the total and direct effects) of abstainer norms on drinks per week through abstainer prototypes was significant, with a point estimate of −.014 and a 95% BCa (bias-corrected and accelerated; see Preacher & Hayes, 2008) bootstrap confidence interval of −.020 to −.008. See Figure 1 for a graphical representation.

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Typical Drinks Per Occasion

Results indicated that the total effect of abstainer norms on typical drinks per occasion (total effect = −.0122, $p = .003$) became non-significant when abstainer prototypes were included in the model (direct effect of abstainer norms = −.007, *ns*). Furthermore, the analyses revealed, with 95% confidence, that the total indirect effect (i.e., the difference between the total and direct effects) of abstainer norms on typical drinks per occasion through abstainer prototypes was significant, with a point estimate of −.004 and a 95% BCa bootstrap confidence interval of −.006 to −.002. See figure 1.

Peak Drinking

Bootstrap results indicated that the total effect of abstainer norms on peak number of drinks (total effect = −.024, $p = .048$) became non-significant when abstainer prototypes were included in the model (direct effect of abstainer norms = .−.001, *ns*). Furthermore, the analyses revealed, with 95% confidence, that the total indirect effect of abstainer norms on peak drinks through abstainer prototypes was significant, with a point estimate of −.009 and a 95% BCa bootstrap confidence interval of −.014 to −.006. See Figure 1.

Discussion

Findings from the current study indicate that cognitions about individuals who abstain from alcohol use are important factors to consider when predicting alcohol use in college samples. Specifically, the relationship between abstainer norms and drinking behavior was mediated by abstainer prototype favorability. The present study provides the first evidence of the mediating role of abstainer prototypes on the relationship between perceived abstainer norms and alcohol use. Gibbons and colleagues (2003) proposed that the more extreme a behavior, the more people would hold salient prototypes about the type of people who engage in this behavior. In turn, salient prototypes will probably have a stronger impact on people's behavioral decisions, than prototypes that are less clear and vivid. In early adolescent samples where the PWM was first tested, the more “extreme” behavior was for individuals who engaged in alcohol use (Gibbons et al., 2003; Gerrard et al., 2008). However, when applying the model to college-age samples where drinking is thought to be the norm (Borsari & Carey, 2001; Elek, Miller-Day, & Hecht, 2006), impressions of abstainers may actually be more salient and impactful. Therefore, research, such as the present study, which focuses on abstainer cognitions may yield promising implications for enacting behavior change in college-aged samples. However, more research is needed, specifically experimental and longitudinal, so that we can determine the exact nature of the relationships between these variables. Understanding whether these relationships are causal and persist over time will provide the necessary support for including abstainer cognitions in prevention programming. Given past experimental research that has shown that perceived drinker norms predict drinker prototype favorability, which in turn predict drinking behavior (Litt & Stock, 2011), it is likely that the cross-sectional findings in the present study would follow the same causal pattern. Additionally, given work by van Lettow and colleagues (2014) that indicated that temporal stability can improve the consistency of the relationship between cognitions (i.e., prototype perceptions) and intention, research should examine the stability of the relationship between abstainer norms and prototypes over time. Most

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research to date has focused on correcting normative perceptions about people who drink alcohol. The current study is novel it that it provides preliminary evidence that focusing on correcting normative perceptions of the number of people who don't drink alcohol may influence abstainer prototype favorability and subsequently drinking.

The primary limitation of the present study is that results were based on cross-sectional data. In order to explicate the temporal associations between abstainer prototypes, norms, and alcohol use, longitudinal studies are needed, as well as experimental studies that can make inferences about causal relations. Another limitation is that the sample consisted of only college students. It is unclear if the relationship between abstainer norms and drinking would be similar among adolescent or non-college samples where abstaining may be more common. Relatedly, because the present study did not assess the reasons why people might abstain, we cannot differentiate between people who abstain because they don't like or want to drink or because they are recovering alcoholics or determine how these groups differ in terms of abstainer prototype favorability. Finally, because the present study only asked participants to rate abstainer prototypes on four adjectives, it is possible that the particular words chosen could have influenced outcomes. Results from a recent study suggest that focusing on the sociability/ hedonistic dimensions of prototypes is more effective than focusing on responsibility based dimensions (Zimmermann & Sieverding, 2011). The present study did not select words based on these dimensions, so it is unclear whether results are due in part to which adjectives were chosen.

This study makes a contribution to the literature as this is the first study to show that the abstainer norms-behavior relationship and is mediated by abstainer prototypes. Although this is an important first step in examining the use of abstainer prototypes in college student drinking interventions, much research remains to be done.

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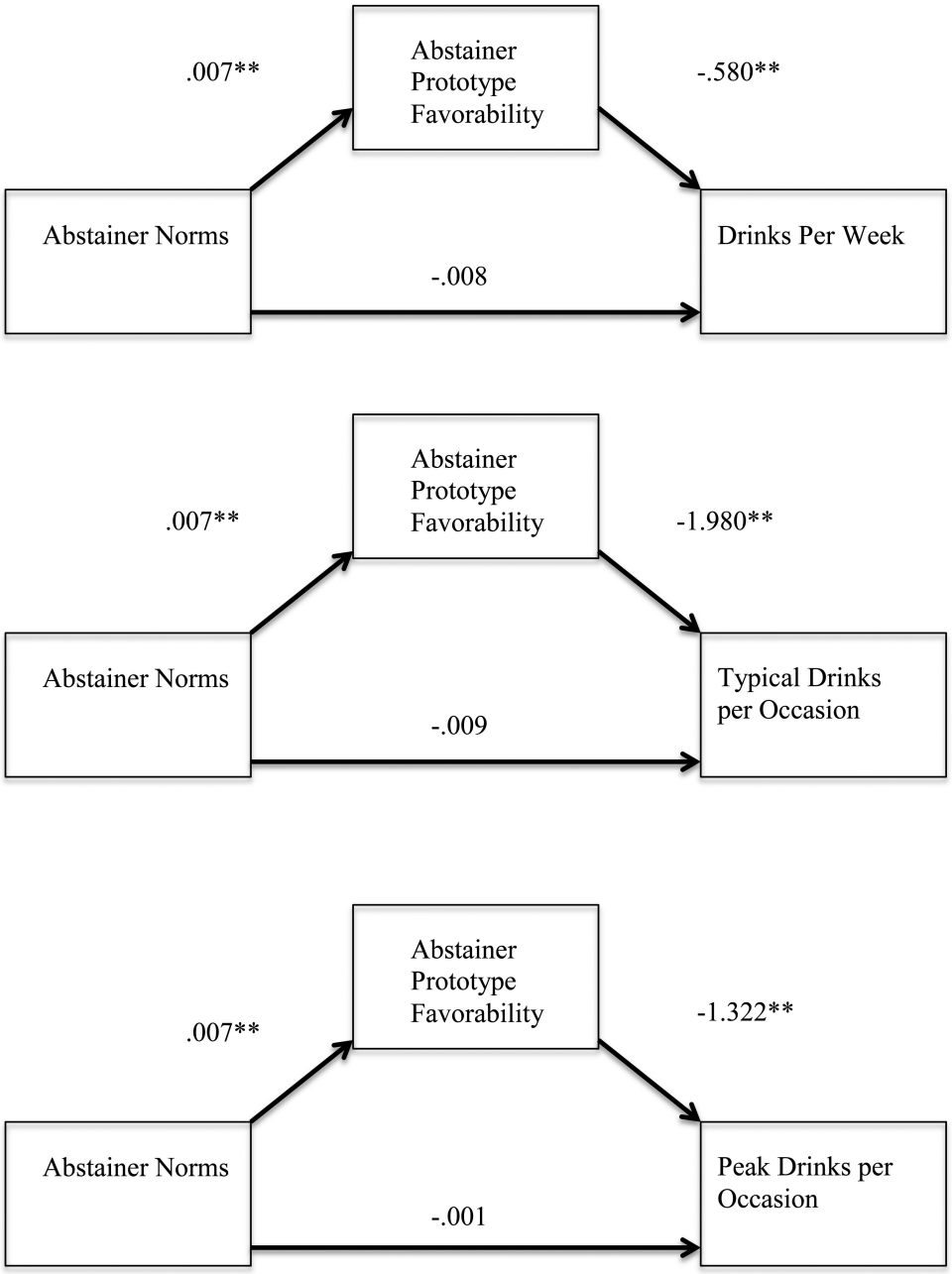

*p < .05, ** p < .01

Figure 1.
Graphical representation of mediation results

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Table 1

Correlations, Means, and Standard Deviations of Key Study Variables

Variable	1	2	3	4	5	6	*M*	*SD*	Range
1. Age	-						20.51	1.86	18-26
2. Abstainer Norms	−.17**	-					21.83	16.27	1-100
3.Abstainer Prototype Favorability	−.06**	.14**	-				2.62	0.94	0-6
4. Drinks Per Week	.46*	−.53*	−.23**	-			5.52	8.03	0-62
5. Typical Drinks per Occasion	.08**	−.07**	−.18**	.65**	-	-	2.83	3.27	0-25
6. Peak Drinks per Occasion	.10**	−.04**	−.25**	.77*	.72**	-	4.52	5.036	0-25

Note: N = 2,095

* p < .05.

** p < .01.