



HHS Public Access

Author manuscript

Basic Appl Soc Psych. Author manuscript; available in PMC 2017 July 05.

Published in final edited form as:

Basic Appl Soc Psych. 2012 ; 34(4): 313–321. doi:10.1080/01973533.2012.693357.

Drinking to Fit in: Examining the Need to Belong as a Moderator of Perceptions of Best Friends' Alcohol Use and Related Risk Cognitions Among College Students

Dana M. Litt,

University of Washington

Michelle L. Stock, and

The George Washington University

Melissa A. Lewis

University of Washington

Abstract

The primary objective of the present study was to examine whether the need to belong moderates the relation between perceived descriptive norms for best friend alcohol use and alcohol-related cognitions outlined in the Prototype Willingness model (i.e., willingness, attitudes, and prototype favorability) among college students. Three hundred forty-six college students (197 female) completed the survey. Regression results indicated that the effect of perceptions of best friend alcohol use on risk cognitions was stronger among students reporting a greater need to belong. The findings suggest that interventions utilizing descriptive norms may be more efficacious among those higher in a need to belong.

Monitoring the Future data (Johnston, O'Malley, Bachman, & Schulenberg, 2010) indicate that lifetime prevalence for drinking is 82% for college students and that 64% of college students report getting drunk at least once in the past year. Negative consequences of high-risk alcohol use among college students can impact the self, others, and the institution (Perkins, 2002). Negative consequences of college student drinking include poor class and/or work attendance, damaging property, hangovers, trouble with authorities, physical injuries, unprotected sex, sexual assault, and death (Abbey, Saenz, Buck, Parkhill, & Hayman, 2006; Hingson, Zha, & Weitzman, 2009). To aid in the prevention of high-risk alcohol use among college students, it is important to identify factors associated with such use.

A long tradition of research has indicated that social influences from peers, such as how common individuals perceive behaviors to be, are the most important predictors of behavior in adolescent and college student populations (Beal, Ausiello, & Perrin, 2001; D'Amico & McCarthy, 2006). In addition, some researchers have begun to examine the role of individual differences in moderating the impact of social factors on substance use cognitions (Gibbons

& Gerrard, 1995; Gibbons, Gerrard, & Lane, 2003). One particular individual difference, the need to belong, may be important to consider when examining the impact of normative information on behavior. Thus, the purpose of the present study is to determine whether the need to belong serves as a moderator of the relationship between perceived descriptive norms and risk cognitions, as would be predicted by the prototype willingness (PW) model (Gerrard, Gibbons, Houlihan, Stock, & Pomery, 2008; Gibbons et al., 2003). Determining how and why perceived descriptive norms relate to drinking cognitions, and how these relationships may vary by the need to belong, is useful in the identification of college students who might be particularly vulnerable to problematic drinking.

DESCRIPTIVE NORMS

Research has consistently supported the notion that peer influence is associated with risky health behaviors, including alcohol use (e.g., Borsari & Carey, 2001; Lewis & Neighbors, 2006; Martens et al., 2006). Several studies have examined the specific influence of best friends in predicting individuals' alcohol use. Urberg, Degirmencioglu, and Pilgrim (1997) found that best friends' alcohol consumption was linked to initiation and persistence of alcohol use in adolescents, whereas findings from another study indicated that best friends' drinking behavior was associated with adolescents' drinking both cross-sectionally and longitudinally (Bot, Engels, Knibbe, & Meeus, 2005). Therefore, it is important to determine the mechanisms through which best friends may influence alcohol-related risk cognitions and behavior. One way in which best friends may exert influence is through their impact on descriptive normative perceptions.

Descriptive normative perceptions are defined as people's perceptions of how most people behave in given situations (Borsari & Carey, 2001). Several major reviews of norms for alcohol use have indicated that college students' beliefs about whether or not their peers use substances is significantly related to their own use (Borsari & Carey, 2001; Lewis & Neighbors, 2006; Martens et al., 2006). In addition, several researchers have argued that descriptive norms are particularly important to include in models of health risk behavior (e.g., Gerrard et al., 2008; Ravis & Sheeran, 2003). Given their demonstrated importance in the prediction of alcohol use, descriptive norms have been included in many models of health risk behavior, including the PW model.

PW MODEL

The PW model (Gerrard et al., 2008; Gibbons et al., 2003; see Figure 1) was designed to address the social nature of health-related risk behaviors in adolescents and young adults. It does so by acknowledging that risk behaviors are often reactions to risk-conducive situations young people encounter rather than planned behaviors or reasoned actions. The PW model is a modified dual-processing model that posits two pathways to risk behavior. The reasoned path, based on the theory of reasoned action, reflects the fact that some risk behavior is intentional and includes behavioral intentions as the proximal antecedent to behavior. The social reaction path is more heuristic or experiential in nature and includes behavioral willingness as the proximal antecedent to behavior. Although there is a growing literature examining the PW model, the field is bereft of studies focusing on the impact of descriptive

norms within the social reaction pathway of the model. As such, the present study will focus specifically on the influence of perceived descriptive norms on prototype favorability and willingness.

Social Reaction Pathway: Willingness and Prototypes

The PW model includes behavioral willingness and the concept of risk images (or prototypes) within the social reaction pathway. The model states that health-risk situations for young people are usually public and social—they almost always engage in substance use behaviors with friends (Gerrard et al., 2008). As a result, they have clear (social) images of the types of peers who engage in these various risk behaviors. Longitudinal studies have demonstrated that having more favorable images of the typical alcohol user predicts greater levels of behavioral willingness to use alcohol, which in turn predicts subsequent alcohol use (Blanton, Gibbons, Gerrard, Conger, & Smith, 1997; Gerrard et al., 2002; Gibbons & Gerrard, 1995).

Social Reaction Pathway: Descriptive Norms

The PW model further acknowledges the importance of social influence by including descriptive norms in the social reaction pathway (Deutsch & Gerard, 1955)—that is, what the adolescent or young adult thinks his or her friends are doing. Perceptions that important others (e.g., peers) engage in the behavior are associated with greater behavioral willingness to engage in risk behavior (Gibbons, Helweg-Larsen, & Gerrard, 1995). Research has examined how peer influences impact adolescents' drinker prototypes as well as their alcohol consumption (Blanton et al., 1997; Gerrard, Gibbons, Zhao, Russell, & Reis-Bergan, 1999; Ouellette, Gerrard, Gibbons, & Reis-Bergan, 1999). These studies demonstrated that having a drinking conducive peer group predicts greater alcohol use by adolescents. One mechanism through which this may happen is through the influence of prototypes.

Social Reaction Pathway: Mediation

It has been shown that for adolescents and young adults that prototype favorability mediates the relationship between perceived peer norms and willingness to use alcohol (Blanton et al., 1997) such that associating with peers who encourage drinking is the primary proximal cause of positive drinking prototypes (Blanton et al., 1997), which in turn predict willingness to use alcohol. This sheds lights on how adolescents may internalize the behavior of their peers, which in turn predicts alcohol-related cognitions. Past models that have addressed peer influence have focused almost exclusively on social learning processes, suggesting that substance-using peers model and reinforce these behaviors among peer-group members (Bandura, 1986). Although this perspective provides a useful framework for understanding the impact of peers on health-risk behaviors, it does not fully explain the manner in which the social expectations associated with these risk behaviors develop. Given adolescents' preoccupation with social appearance (Simmons & Blyth, 1987; Youniss & Haynie, 1992) and the development of positive new identities (Erikson, 1950), examining the roles that perceptions of peer substance play on decisions to use alcohol is important.

The work of Blanton and colleagues (1997) suggests that peer affiliations have a strong impact on the development of positive social images. The acceptance of these behaviors and

the prototypes associated with them may lead to greater willingness to take health risks, even when prior attitudes and expectancies are controlled for. Although this is an important finding, it is unclear whether it is simply the actual behavior of friends that leads to favorable prototypes of alcohol users, or whether perceptions of alcohol use plays a similar role. Given what we know about the large role that perceived norms play in alcohol use, one primary aim of the present study is to determine whether prototype favorability mediates the relationship between perceived descriptive norms and willingness to use alcohol.

NEED TO BELONG

One individual difference variable that is likely to play a role in the relationship between perceived descriptive norms and specific cognitions within the PW model is the need to belong. The need to belong has been cited as a fundamental human motivation to form and maintain lasting, positive, and significant interpersonal relationships (Baumeister & Leary, 1995). Put more simply, people need to be loved and socially accepted (Baumeister & Leary, 1995; Leary, Kelly, Cottrell, & Schreindorfer, 2006). Although research has indicated that the need to belong is innate, it has been proposed that the intensity and expression of the desire varies among individuals (Leary et al., 2006). Most individuals desire to be accepted by other people and to belong to social groups, but people undoubtedly differ in the strength of their desire for belonging (Kelly, 2001).

The need to belong has been associated with the tendency to monitor and control one's behavior in order to behave appropriately in different contexts (Morrison, Wheeler, & Smeesters, 2007). In addition, the need to belong has been linked with being more attuned to social cues (Gibbons et al., 1999; Leary, 2009) perhaps because people who greatly desire social acceptance attend to information that will help them foster connections with others (Pickett, Gardner, & Knowles, 2004). As such, individuals who are high in the need to belong may capitalize on social situations by conforming to others' opinions and behaviors (Leary, 2010). In addition, based on the assumptions associated with the PW model, it is logical to assume that an individual difference variable based on social factors (e.g., needing to belong) would moderate the social reaction pathway (Gibbons et al., 2003; Gerrard et al., 2008). Thus, individual differences in the need to belong should also influence the more social and affective elements (e.g., risk images and willingness) of decision making (Gerrard et al., 2008). Young adults who have a stronger desire to belong should be more influenced by the normative behaviors of their peers, their images of peers who engage in a behavior, and the social consequences of engaging in a risk behavior.

Despite growing knowledge about the need to belong, little research has examined how being high/low in the need to belong relates to specific behaviors despite a recent review of the need to belong literature stating that determining whether people who are high in the need for belonging engage in risky behaviors is an important topic for future research (Leary, 2009). Specifically in terms of the present study, research has not examined if individual differences in the need to belong moderate the risk cognitions included in the social reaction pathway of the PW model. To increase the ability to understand and better predict risk behaviors, it is important for research to more closely examine how pathways

within health models, such as the PW model, may operate differently based on individual difference variables.

STUDY AIMS AND HYPOTHESES

The present study examined whether the need to belong moderates the relationship between perceived best friend norms for alcohol use and specific PW-based risk cognitions (willingness and prototype favorability) that have been shown to predict alcohol use behavior. It was hypothesized that there would be a main effect of perceptions of best friend alcohol use norms such that greater perceptions of best friend alcohol use will predict greater levels of willingness and more favorable prototypes of alcohol users. In addition, it was predicted that the main effect of perceptions of best friend alcohol use will be moderated by the need to belong such that individuals who perceive that more of their friends are using alcohol and are high in the need to belong will report the highest levels of willingness and greatest prototype favorability, whereas the lowest levels of these cognitions will be reported by individuals with low best friend use perceptions who are high in the need to belong. Finally, the present study examined whether prototype favorability mediates the relation between the Perceived Best Friend Norm \times Need to Belong interaction on behavioral willingness, as would be predicted by the PW model.

METHOD

Participants and Administration

Three hundred forty-six participants (197 female) completed the survey instrument. The average age of the participants was 19.4 years ($SD=.82$). Participants were recruited through the psychology research undergraduate subject pool, which consisted of students from many different majors enrolled in introductory psychology classes. Participants received class credit for participating in the study. Those who were interested were directed to a website, SurveyMonkey (www.surveymonkey.com), which contained the survey material. They were informed that the purpose of the study was to examine relationships between personality and health. If they chose to participate, they were provided with an informed consent form via the survey site.

Measures

Willingness—Behavioral willingness was assessed using a measure that has been used in several other studies (Gerrard et al., 2006; Gibbons, Gerrard, Ouellette, & Burzette, 1998). In this measure, participants are presented with a hypothetical scenario involving alcohol use and then asked to indicate how willing they would be to engage in a series of behaviors. The willingness measure began with a description of a hypothetical scenario: “Suppose you were with a group of friends at one of their houses. Your friend’s parents are gone for the night, and your friend has gotten a hold of some alcohol. If your friend offered you alcoholic beverages, how willing would you be to do each of the following?” Three items assessing willingness to drink followed: “Have 1 or two drinks,” “Drink enough to get drunk,” and “Stay and drink if you knew you would not get into trouble,” rated from 1 (*not at all willing*) to 7 (*very willing*). The three items were averaged ($\alpha=.93$).

Prototypes—Images of alcohol users were introduced with the statements “Please think about the type of person your age and gender who drinks alcohol. How much do you think the following words describe your image of that person?” Following this question were four items with the adjective descriptor stem “How [descriptor] are they?” Each item had a 7-point response scale ranging from 1 (*not at all*) to 7 (*very*). The descriptors were smart, popular, mature, and attractive. In addition, participants were asked to rate how similar they were to the typical alcohol user on the same 7-point scale. The descriptor items were averaged ($\alpha=.85$) and then multiplied by the similarity score to create an index of prototype favorability (see Gerrard et al., 2006), where higher scores reflect greater favorability of alcohol users.

Perceived best friend alcohol use—Participants reported on a scale of 0 to 100% what percentage of their best friends had engaged in heavy episodic drinking, defined as having four or more drinks within a few hours, as well as what percentage drank alcohol at least one night per week. In addition, participants were asked to indicate how many of their best friends had used alcohol in the past 3 months, ranging from 0 (*none of them*) to 5 (*all of them*), and how frequently their best friends drank alcohol, from 0 (*they do not drink*) to 5 (*very frequently*). The same questions were repeated again but were framed in terms of heavy episodic drinking over the past 3 months. The six items were standardized and combined ($\alpha=.88$).

Need to belong—The need to belong was assessed using the Need to Belong Scale, which comprises 10 items (Leary et al., 2006). Sample items include “I want other people to accept me” and “It bothers me a great deal when I am not included in other people’s plans.” All items were rated on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Items were combined such that higher scores reflected a greater need to belong ($\alpha=.91$).

Drinking behaviors—Previous alcohol use was assessed by asking participants how frequently over the past 3 months they had gotten drunk and had at least one full alcoholic beverage (on a scale from 0–21 or more times). These two items were standardized and combined ($\alpha=.85$).

Demographics—Participants reported their age and gender.

RESULTS

Descriptive Information

Of the participants, 91% reported having at least one full drink of alcohol in the past 3 months whereas 82% reported having at least one occurrence of heavy episodic drinking (defined as more than four drinks on a given occasion). In addition, participants reported that they believed that an average of 62% of their best friends had consumed alcohol in the past 3 months and 56% had engaged in heavy episodic drinking. As presented in Table 1, perceptions of best friend alcohol use were positively associated with willingness, attitudes, and prototypes ($p<.01$). Willingness to drink alcohol was also positively correlated with prototypes, attitudes, past alcohol use, and age (all $p<.05$). Means and standard deviations of the study variables are also presented in Table 1.

Regression Analyses

Hierarchical multiple regression analyses were used to examine both the main effect of perceived best friend alcohol use and the hypothesized interaction between the need to belong and perceived best friend alcohol use. All predictors were mean centered to facilitate interpretation of parameter estimates (Aiken & West, 1991; Cohen, Cohen, West, & Aiken, 2003). In the first step, covariates were entered (age, gender, and past alcohol use). In the second step, perceived best friend alcohol use and the need to belong were entered. Finally, in the third step, the two-way interaction between perceived best friend alcohol use and the need to belong (standardized individual predictor terms, with the product forming the interaction term) was entered controlling for all covariates and main effect terms. All regression coefficients reported below were taken from the final step of the regression analyses.

Willingness—Both age ($\beta=.09$, $t=2.07$, $p<.05$) and gender ($\beta=-.17$, $t=-3.73$, $p<.05$) were significant predictors of willingness such that being older and male was positively associated with greater willingness to use alcohol. Past alcohol was positively associated with greater willingness to use alcohol ($\beta=.47$, $t=8.90$, $p<.01$). Results also indicated a significant main effect of perceived best friend alcohol use on willingness ($\beta=.11$, $t=2.03$, $p<.05$), such that reporting that more of their best friends used alcohol was associated with greater willingness to use alcohol. The need to belong main effect was not significant ($\beta=.07$, $t=1.70$, $p=.10$). As predicted, the interaction between perceptions of best friend alcohol use and the need to belong was significant ($\beta=.11$, $t=2.42$, $p<.05$; see Figure 2) such that perceptions of best friend alcohol use was positively associated with willingness to use alcohol for those higher in the need to belong. Simple effects analyses (using 1 *SD* above and below the conditional mean) revealed that perceptions of best friend alcohol use was a significant predictor of willingness for individuals who were high in the need to belong ($\beta=.53$, $t=7.67$, $p<.001$) but was not for students lower in the need to belong ($\beta=.09$, $t=1.72$, $p=.08$).

Prototype favorability—Results indicated that male participants reported more favorable prototypes of alcohol users ($\beta=-.16$, $t=-3.37$, $p<.01$). Age did not significantly predict prototype favorability ($\beta=.03$, $t=.60$, $p=.55$). As expected, past alcohol use was positively associated with prototype favorability ($\beta=.34$, $t=5.88$, $p<.01$). Results again revealed a significant main effect of perceptions of best friend alcohol use, reporting that more of their best friends used alcohol was positively associated with more favorable prototypes of alcohol users ($\beta=.29$, $t=4.86$, $p<.01$). The need to belong main effect was not significant ($\beta=.08$, $t=1.64$, $p<.10$). The anticipated interaction between perceived best friend alcohol use and the need to belong was significant ($\beta=.10$, $t=1.99$, $p<.05$; see Figure 3) such that perceptions of best friend alcohol use was positively associated with favorable prototypes of alcohol users, but only for those who were higher in the need to belong. As found with willingness to use alcohol, simple effects analyses revealed that perceptions of peer alcohol use was a predictor of prototype favorability for individuals who were high in the need to belong ($\beta=.47$, $t=6.22$, $p<.01$) but not for those who were lower in the need to belong ($\beta=.09$, $t=1.70$, $p=.08$).

Mediation analyses—To better understand the impact that the best friend alcohol norms and need to belong interaction had on willingness, a mediation analysis was conducted. The specific mediation path tested was derived from the PW model (Gerrard et al., 2008). Specifically, the mediation analysis conducted examined prototype favorability as a potential mediator of the relationship between the Perceived Best Friend Alcohol Use \times Need to Belong interaction and willingness. The mediation analysis controlled for the main effect terms (need to belong and descriptive norms), age, gender, and past use and followed the guidelines set forth by Baron and Kenny (1986) such that in the first step, willingness was regressed on the perceptions of Peer Use \times Need to Belong interaction to show that there is an effect to be mediated. In the second step, prototype favorability and attitudes was regressed on condition. Next, willingness was regressed on prototype favorability and attitudes. Finally, to establish that full mediation, the effect of the Perceived Best Friend Alcohol Use \times Need to Belong interaction on willingness was tested controlling for prototype favorability.

The first two steps of the mediation analysis were just reported. In the final step of the mediation analysis, there was a significant relationship between prototypes and willingness ($\beta=.57$, $t=9.47$, $p<.001$) such that more favorable prototypes toward alcohol use was associated with greater willingness to use alcohol, whereas the relationship between the Norm \times Need to Belong effect and willingness became nonsignificant ($\beta=.06$, $t=1.25$, $p>.10$). Results of a Sobel test (1.99, $p<.05$; Sobel, 1982) further indicated that prototype favorability was a significant mediator between the Perceived Peer Use \times Need to Belong interaction and willingness (see Figure 4).

DISCUSSION

The current study expanded on previous research demonstrating the important influence of perceived descriptive norms on drinking cognitions among college students. In support of the central hypotheses, greater perceived alcohol use by best friends predicted higher levels of willingness to use alcohol, and more favorable prototypes of alcohol users, even when controlling for age, gender, and past alcohol use. Moreover, the relationships among perceived best friend alcohol use and drinking cognitions were moderated by the need to belong such that the relation between perceptions of best friend alcohol use and risky cognitions were stronger among students with a higher need to belong.

These findings add to the social norms literature by focusing on perceived descriptive drinking norms and drinking cognitions. Descriptive norms research has generally focused more on alcohol use and less on specific cognitions, which demonstrates a gap in the literature because cognitions, such as willingness, prototype favorability, and attitudes toward alcohol, are often predictors of alcohol use (Borsari & Carey, 2001; Gerrard et al., 2008; Neighbors, Dillard, Lewis, Bergstrom, & Neal, 2006; Rimal & Real, 2003). Moreover, the majority of social norms and cognitions research has focused on injunctive or subjective norms and drinking intentions (Armitage & Conner, 2001). However, the current study expands the literature by evaluating descriptive drinking norms for several drinking cognitions under the framework of the PW model.

Specific to the PW model, the current research implies that the need to belong may serve as an individual difference variable that moderates the impact of descriptive norms on risk cognitions. Although previous research has examined social comparison as a moderator, the current study extends this literature by looking at the need to belong. Whereas the need to belong is an index of the degree to which people desire to be accepted and belong to social groups (Leary et al., 2006), social comparison is the process by which people assess their own characteristics by referring to other people's characteristics. Thus, the first is a motive, and the second is a means of self-assessment, and it is likely that the need to belong motivates more in-depth self-assessment via social comparison. Therefore, the present study offers one explanation as to why certain people may be engaging in more social comparisons. Understanding the role that individual differences, such as the need to belong, play in relation to the PW model helps our understanding of the role that socially based cognitions and individual differences play in health risk behavior decision making.

Although these data are cross-sectional, the current findings are consistent with conformity research and theory. A conformity explanation, consistent with social identity theory (Terry & Hogg, 1996), is that the more students feel the need to belong with a group, the more sensitive they are to group drinking norms (real or perceived), and the more likely they are to conform to those drinking norms. The present findings are also similar to research examining the relationships among identity, social norms, and alcohol consumption. For example, Neighbors and colleagues (2010) found that the relationship between perceived descriptive drinking norms and alcohol consumption was moderated by level of identification with the normative referent. Moreover, Reed, Lange, Ketchie, and Clapp (2007) conducted a similar study examining the relationship between alcohol consumption and both identity and perceived injunctive drinking norms. Perceived injunctive drinking norms were positively associated with consuming more drinks per occasion, which was especially true as identification increased. Together, these findings suggest that the relationship between social norms and alcohol consumption depends on how strongly students identify with the normative referent. The current study expands the literature to show patterns are similar when examining the need to belong as a moderator of the relationship between perceived descriptive drinking norms and drinking cognitions under the framework of the PW model.

Implications for Preventative Intervention

Although some research has examined the importance of group identification in the context of norms-based interventions (Lewis & Neighbors, 2007), this research has not evaluated the need to belong. Identification of moderators can increase scientific knowledge by inspiring improvement of and better targeting of preventative interventions. Interventions that include a normative component may be particularly efficacious for those with a higher need to belong. Specifically, interventions based on the PW model show that drinking cognitions are malleable (Brody et al., 2004; Gerrard et al., 2006). The present findings suggest that the efficacy of interventions based on the PW model may vary by the need to belong. Specifically, they may be more efficacious and important among people who are high in the need to belong. In addition, the current study highlights the possibility that individuals who are high in the need to belong and perceive that a majority of their peers are using alcohol

may be a group particularly at risk for alcohol use and related problems and, as such, should be a key target for interventions.

Limitations/Future Directions

The present article should be interpreted in light of several limitations. As noted earlier, the study was a cross-sectional examination of descriptive drinking norms, the need to belong, and drinking cognitions. Future research should replicate these findings with longitudinal data. An additional limitation is that best friends were utilized as the normative referent for descriptive norms. Because best friends are proximal normative referents, in comparison to a more distal normative referent such as the typical student, future research is need to determine if the need to belong will also moderate with a less proximal normative referent. It would also be prudent for future research to examine if the need to belong plays a similar role in the reasoned pathway of the PW model. Also, given that the drinking rates in the present sample are higher than national trends, it is possible that this sample may not be representative of college students in general, and as such, future research should aim on documenting these findings in other samples of college students. Finally, it may be particularly relevant to examine drinking cognitions in younger samples with less drinking experience, as this may aid in the development of preventative interventions prior to the start of heavy drinking.

Conclusion

The present findings examined the need to belong as a moderator of the relationship between perceived descriptive norms for best friends and drinking cognitions under the framework of the PW model. Findings showed that perceptions of best friend alcohol use was positively associated with willingness to use alcohol, prototype favorability, and favorable attitudes toward alcohol for students more strongly for individuals high in the need to belong compared to those individuals low the need to belong. The incorporation of the PW model into the social norms literature can potentially enhance our understanding of the underlying mechanisms for efficacious alcohol interventions that include a normative component.

Acknowledgments

Manuscript preparation was supported by National Institute on Alcohol Abuse and Alcoholism Grant K01AA016966 awarded to M. A. Lewis.

References

- Abbey A, Saenz C, Buck PO, Parkhill MR, Hayman LW. The effects of acute alcohol consumption, cognitive reserve, partner risk, and gender on sexual decision making. *Journal of Studies on Alcohol and Drugs*. 2006; 67:113–121.
- Aiken, LS., West, SG. *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage; 1991.
- Armitage CJ, Conner M. Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*. 2001; 40:471–499. DOI: 10.1348/014466601164939 [PubMed: 11795063]
- Bandura, A. *The social foundations of thought and action*. Englewood Cliffs, NJ: Prentice-Hall; 1986.

- Baron RM, Kenny DA. The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*. 1986; 51:1173–1182. [PubMed: 3806354]
- Baumeister RF, Leary MR. The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*. 1995; 117:497–529. [PubMed: 7777651]
- Beal A, Ausiello J, Perrin J. Social influences on health-risk behaviors among minority middle school students. *Journal of Adolescent Health*. 2001; 28:474–480. [PubMed: 11377991]
- Blanton H, Gibbons FX, Gerrard M, Conger KJ, Smith GE. The role of family and peers in the development of prototypes associated with health risks. *Journal of Family Psychology*. 1997; 11:1–18.
- Borsari B, Carey KB. Peer influences on college drinking: A review of the research. *Journal of Substance Abuse*. 2001; 13:391–424. [PubMed: 11775073]
- Bot SM, Engels RCME, Knibbe RA, Meeus WHJ. Friend’s drinking behavior and adolescent alcohol consumption: The moderating role of friendship characteristics. *Addictive Behaviors*. 2005; 30:929–947. [PubMed: 15893090]
- Brody GH, Murry VM, Gerrard M, Gibbons FX, Molgaard V, McNair L, ... Neubaum-Carlan E. The Strong African American Families Program: Translating research into prevention programming. *Child Development*. 2004; 75:900–917. [PubMed: 15144493]
- Cohen, J., Cohen, P., West, SG., Aiken, LS. *Applied multiple regression/correlation analysis for the behavioral sciences*. 3. Mahwah, NJ: Erlbaum; 2003.
- D’Amico E, McCarthy D. Escalation and initiation of younger adolescents’ substance use: The impact of perceived peer use. *Journal of Adolescent Health*. 2006; 39:481–487. [PubMed: 16982381]
- Deutsch M, Gerard HB. A study of normative and informational social influences upon individual judgment. *Journal of Abnormal and Social Psychology*. 1955; 51:629–636.
- Erikson, EH. Growth and crises of the “healthy personality”. In: Senn, ME., Senn, ME., editors. *Symposium on the healthy personality*. Oxford, England: Josiah Macy, Jr. Foundation; 1950. p. 91-146.
- Gerrard M, Gibbons FX, Brody GH, Murry VM, Cleveland MJ, Wills TA. A theory-based dual focus alcohol intervention for pre-adolescents: Social cognitions in the strong African American families program. *Psychology of Addictive Behaviors*. 2006; 20:185–195. [PubMed: 16784365]
- Gerrard M, Gibbons FX, Houlihan AF, Stock ML, Pomery EA. A dual-process approach to health risk decision making: The prototype willingness model. *Developmental Review*. 2008; 28:29–61.
- Gerrard M, Gibbons FX, Reis-Bergan M, Trudeau L, Vande Lune LS, Buunk B. Inhibitory effects of drinker and nondrinker prototypes on adolescent alcohol consumption. *Health Psychology*. 2002; 21:601–609. [PubMed: 12433013]
- Gerrard M, Gibbons FX, Zhao L, Russell DW, Reis-Bergan M. The effect of peers’ alcohol consumption on parental influence: A cognitive mediational model. *Journal of Studies on Alcohol*. 1999; (Suppl):1332–1344.
- Gibbons FX, Gerrard M. Predicting young adults’ health risk behavior. *Journal of Personality and Social Psychology*. 1995; 69:505–517. [PubMed: 7562392]
- Gibbons, FX., Gerrard, M., Lane, DJ. A social reaction model of adolescent health risk. In: Suis, JM., Wallston, K., editors. *Social psychological foundations of health and illness*. Oxford, England: Blackwell; 2003. p. 107-136.
- Gibbons FX, Gerrard M, Ouellette J, Burzette B. Cognitive antecedents to adolescent health risk: Discriminating between behavioral intention and behavioral willingness. *Psychology and Health*. 1998; 13:319–340.
- Gibbons FX, Helweg-Larsen M, Gerrard M. Prevalence estimates and adolescent risk behavior: Cross-cultural differences in social influence. *Journal of Applied Psychology*. 1995; 80:107–121. [PubMed: 7706189]
- Hingson RW, Zha W, Weitzman ER. Magnitude of and trends in alcohol-related mortality and morbidity among U.S. college students ages 18–24, 1998–2005. *Journal of Studies on Alcohol and Drugs*. 2009 Jul.(Supplement No. 16):12–20. [PubMed: 19538908]

- Johnston, LD., O'Malley, PM., Bachman, JG., Schulenberg, JE. Monitoring the Future national results on adolescent drug use: Overview of key findings, 2009. Bethesda, MD: National Institute on Drug Abuse; 2010. NIH Publication No. 10-7583
- Kelly, KM. Individual differences in reactions to rejection. In: Leary, MR., editor. *Interpersonal rejection*. New York, NY: Oxford University Press; 2001. p. 291-315.
- Leary, MR. Belonging motivation. In: Leary, MR., Hoyle, RH., editors. *Handbook of individual differences in social behavior*. New York, NY: Guilford; 2009. p. 400-409.
- Leary, MR. Affiliation, acceptance, and belonging: The pursuit of interpersonal connection. In: Fiske, ST., Gilbert, DT., Lindzey, G., editors. *Handbook of social psychology*. Hoboken, NJ: Wiley and Sons; 2010. p. 864-898.
- Leary, MR., Kelly, KM., Cottrell, CA., Schreindorfer, LS. Individual differences in the need to belong: Mapping the nomological network. Wake Forest University; Wake Forest, IL: 2006. Unpublished manuscript
- Lewis MA, Neighbors C. Social norms approaches using descriptive drinking norms education: A review of the research on personalized normative feedback. *Journal of American College Health*. 2006; 54:213–218. [PubMed: 16450845]
- Lewis MA, Neighbors C. Optimizing personalized normative feedback: The use of gender-specific referents. *Journal of Studies on Alcohol and Drugs*. 2007; 68:228–237. [PubMed: 17286341]
- Martens MP, Page JC, Mowry ES, Damann KM, Taylor KK, Cimini MD. Differences between actual and perceived student norms: An examination of alcohol use, drug use, and sexual behavior. *Journal of American College Health*. 2006; 54:295–300. [PubMed: 16539222]
- Morrison KR, Wheeler SC, Smeesters D. Significant other primes and behavior: Motivation to respond to social cues moderates pursuit of prime-induced goals. *Personality and Social Psychology Bulletin*. 2007; 33:1661–1674. [PubMed: 18000101]
- Neighbors C, Dillard AJ, Lewis MA, Bergstrom RL, Neil T. Normative misperceptions and temporal precedence of perceived norms and drinking. *Journal of Studies on Alcohol*. 2006; 67:290–299. [PubMed: 16562412]
- Neighbors C, LaBrie JW, Hummer JF, Lewis MA, Lee CM, Desai S, ... Larimer ME. Group identification as a moderator of the relationship between perceived social norms and alcohol consumption. *Psychology of Addictive Behaviors*. 2010; 24:522–528. [PubMed: 20853938]
- Ouellette JA, Gerrard M, Gibbons FX, Reis-Bergan M. Parents, peers, and prototypes: Antecedents of adolescent expectancies, alcohol consumption, and alcohol-related life problems in rural youth. *Psychology of Addictive Behaviors*. 1999; 13:183–97.
- Perkins HW. Surveying the damage: A review of research on consequences of alcohol misuse in college populations. *Journal of Studies on Alcohol*. 2002; 14:91–100.
- Pickett CL, Gardner WL, Knowles M. Getting a cue: The need to belong and enhanced sensitivity to social cues. *Personality and Social Psychology Bulletin*. 2004; 30:1095–1107. [PubMed: 15359014]
- Reed MB, Lange JE, Ketchie JM, Clapp JD. The relationship between social identity, normative information, and college student drinking. *Social Influence*. 2007; 2:269–294.
- Rimal RN, Real K. Understanding the influence of perceived norms on behaviors. *Communication Theory*. 2003; 13:184–203.
- Rivis A, Sheeran P. Descriptive norms as an additional predictor in the theory of planned behavior: A meta-analysis. *Current Psychology*. 2003; 22:218–233.
- Simmons, RG., Blyth, DA. *Moving into adolescence: The impact of pubertal change and school context*. Hawthorne, NY: Aldine de Gruyter; 1987.
- Sobel, ME. Asymptotic confidence intervals for indirect effects in structural equation models. In: Leinhardt, S., editor. *Sociological methodology 1982*. Washington, DC: American Sociological Association; 1982. p. 290-312.
- Terry DJ, Hogg MA. Group norms and the attitude–behavior relationship: A role for group identification. *Personality and Social Psychology Bulletin*. 1996; 22:776–793.
- Urberg KA, Degirmencioglu SM, Pilgrim C. Close friend and group influence on adolescent cigarette smoking and alcohol use. *Developmental Psychology*. 1997; 33:834–844. [PubMed: 9300216]

Youniss J, Haynie DL. Friendship in adolescence. *Journal of Developmental and Behavioral Pediatrics*. 1992; 13:59–66. [PubMed: 1556203]

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

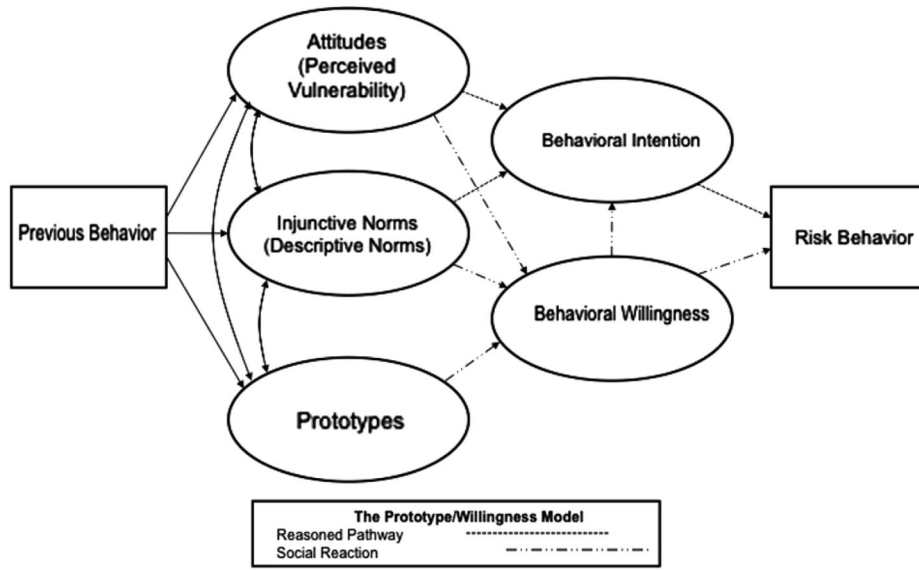


FIGURE 1.
Prototype Willingness model.

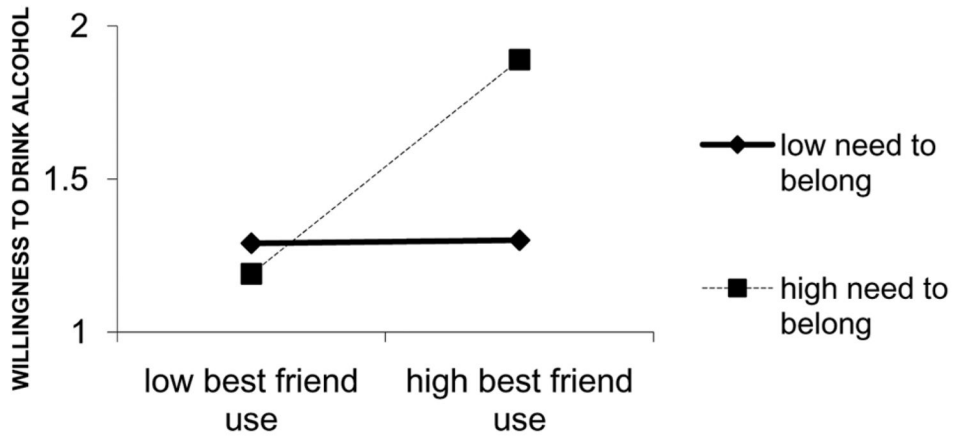


FIGURE 2. Willingness to use alcohol as predicted by best friend alcohol use and the need to belong.

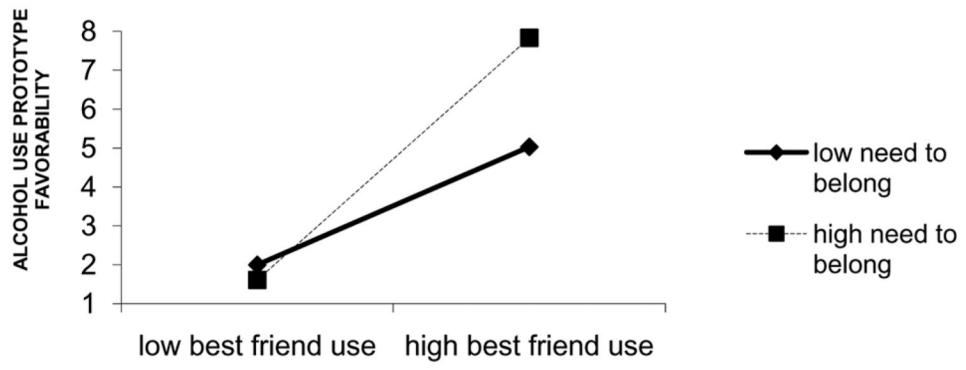


FIGURE 3. Alcohol user prototype favorability as predicted by best friend alcohol use and the need to belong.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

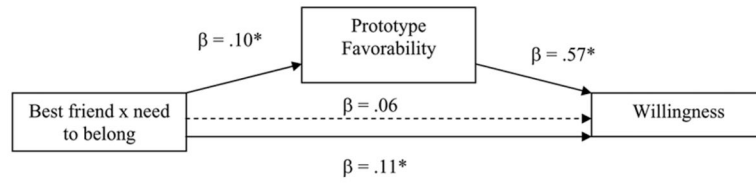


FIGURE 4.

Regression coefficients demonstrating mediation of the effect of the Perceived Best Friend Alcohol Use \times Need to Belong on willingness by prototype favorability. *Note.* * $p < .05$; dashed line indicates the path when perceived vulnerability was entered into the model.

TABLE 1

Means, Standard Deviations, and Correlations

	1	2	3	4	5	6	7
1 Willingness	—						
2 Prototype favorability	.49**	—					
3 Perceived best friend use	.40**	.42**	—				
4 Need to belong	.09	.12*	.11*	—			
5 Past alcohol use	.56**	.57**	.55**	.04	—		
6 Age	.11**	.04	-.05	-.01	.10	—	
7 Gender	-.24**	-.17**	-.05	.16**	-.20**	-.06	—
<i>M</i>	3.88	13.58		2.72	3.98	19.44	.57
<i>SD</i>	1.66	8.94		.17	2.32	1.89	.49
Range	1–7	1–49		1–5		18–24	

Note. *N* = 346. Gender (0 = male, 1 = female). All other variables coded such that high scores indicate more of the construct.

* *p* .05.

** *p* .01.

*** *p* .001.