



# HHS Public Access

Author manuscript

*Addict Behav.* Author manuscript; available in PMC 2018 March 01.

Published in final edited form as:

*Addict Behav.* 2017 March ; 66: 101–107. doi:10.1016/j.addbeh.2016.11.009.

## Drinking Motives and Alcohol Outcome Expectancies as Mediators of the Association between Negative Urgency and Alcohol Consumption

Amber M. Anthenien, M.S.<sup>a</sup>, Jordanna Lembo, B.A.<sup>a</sup>, and Clayton Neighbors, Ph.D.<sup>a</sup>

University of Houston

### Abstract

**Objective**—To determine whether the effects of negative urgency, a unique facet of impulsivity marked by engaging in potentially unhealthy and rash behaviors in order to cope with anxiety or negative moods, on drinking behavior can be explained by positive and negative alcohol outcome expectancies and specific drinking motives (i.e., coping and enhancement).

**Methods**—College students ( $N = 194$ ) completed web-based surveys in exchange for course credit. Students completed measures of negative urgency, comprehensive effects of alcohol, drinking motives, and alcohol use behaviors.

**Results**—Results of path analysis indicated significant indirect effects of negative urgency and alcohol use through both alcohol outcome expectancies and enhancement motives. The effects of enhancement motives on drinking were mediated by positive alcohol outcome expectancies. The effects of coping motives on drinking were not attributable to negative expectancies.

**Conclusions**—Individuals high on negative urgency may consume alcohol in order to ameliorate their emotional distress due to strong desires to increase positive and decrease negative experiences associated with drinking. Emotion-focused impulsivity's influence on drinking outcomes can be ascribed to enhancement motives for drinking as well as positive and negative alcohol outcome expectancies. Prevention efforts should target drinking motives and alcohol outcome expectancies among those higher in negative urgency.

### Keywords

Negative urgency; alcohol outcome expectancies; drinking motives; alcohol use

---

Correspondence concerning this article should be addressed to Amber M. Anthenien, University of Houston, 126 Heyne Building, Houston, TX 77204; amanthenien@uh.edu.

<sup>a</sup>University of Houston, 126 Heyne Building, Houston, TX 77204

### Contributors

Amber Anthenien developed hypotheses, completed analyses, and wrote the introduction, results, and discussion sections for the manuscript. Clayton Neighbors supplied the data, assisted with data analysis and write-up, and provided feedback on all portions of the manuscript. Jordanna Lembo wrote the method section and provided feedback on all portions of the manuscript.

### Conflict of Interest

All authors declare they have no conflicts of interest.

**Publisher's Disclaimer:** This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# 1

Impulsivity is as an important risk factor for engaging in alcohol use among college students. Negative urgency, a personality characteristic marked by tendencies to behave impulsively in response to emotionally distressing situations, is associated with high rates of alcohol use (Cyders & Smith, 2008; Dir, Karyadi, & Cyders, 2013; Fischer Smith, Annus, & Hendricks, 2007; Magid & Colder, 2007; Settles, Cyders, & Smith, 2010; Smith et al., 2007; Verdejo-García, Bechara, Recknor, & Pérez-García 2007). However, little is known about the factors that contribute to their alcohol use. Identifying pathways through which negative urgency is associated with drinking may elucidate mechanisms of change that can be targeted by prevention efforts.

## 1.1 Negative Urgency

Negative urgency is a subscale of a greater measure of impulsivity known as the UPPS Impulsivity scale (Whiteside & Lynam, 2001). To better understand impulsivity within the constructs of the Five Factor Model of personality (FFM; McCrae & Costa, 1990), Whiteside and Lynam (2001) extracted four distinct measures of impulsiveness: Urgency, Premeditation, Perseverance, and Sensation-Seeking. These measures corresponded to three higher-order personality traits within the FFM, neurotism (urgency), conscientiousness (premeditation and perseverance), and extraversion (sensation seeking). Urgency describes an individuals' tendency to act rashly when experiencing positive or negative moods. A subscale of the UPPS Impulsivity scale, negative urgency describes tendencies to act impetuously when experiencing negative moods in order to escape emotional distress (Cyders & Smith, 2008; Whiteside & Lynam, 2001). Negative urgency demonstrates concomitance with alcohol use behaviors (Stautz & Cooper, 2013), and is strongly associated with problematic drinking (Adams, Kaiser, Lynam, Charnigo, & Milich, 2012; Fischer et al., 2007; Smith et al., 2007; Verdejo-García et al., 2007). However, the effects of negative urgency on drinking cannot be explained by affect alone as negative urgency is significantly associated with alcohol-related behaviors when controlling for negative affect (Anestis, Selby, & Joiner, 2007). What motivates people high on negative urgency to approach drinking, as opposed to other coping options, may provide important insights for prevention efforts.

## 1.2 Drinking Motives

Drinking motives describe specific motivations for engaging in alcohol use that one can endorse (Cooper, Russell, Skinner, & Windle, 1992; Cooper, 1994). Two of these motives are directly related to affect, drinking to enhance positive affect (enhancement motives) and coping with negative emotions (coping motives), and are proposed as potential factors that may account for negative urgency's effects on drinking. Research indicates that both coping and enhancement motives are associated with alcohol use and alcohol-related problems (Carey & Correia, 1997; Kuntsche, Stewart, & Cooper, 2008; Merrill & Read, 2010; Read et al., 2003). Drinking to ameliorate emotional distress is well documented (see Kuntsche, et al., 2005 for a review), and negative emotions, in particular, predict coping motives (Cooper, Frone, Russel, & Mudar, 1995). Those with little ability to refrain from engaging in risky

behaviors when experiencing negative emotions may be more likely to endorse coping and enhancement motives, anticipating relieving negative emotions and enhancing positive emotions.

Adams and colleagues (2012) investigated the role of drinking motives with respect to problematic drinking among those high on negative urgency. Negative urgency's influence on drinking behaviors was fully mediated by coping and enhancement motives (Adams et al., 2012). Other research suggests coping motives mediate the relationship between negative urgency and drinking when controlling for affect-related variables (Anestis et al., 2007). However, affect-related motives may not be the only or even the most proximal link in the association between negative urgency and drinking. Indeed, the mediation of coping and enhancement motives on the relationship between negative urgency and drinking is moderated by perceived benefits: Individuals high on negative urgency are more likely to respond to coping and enhancement motives if they perceive direct benefits to drinking (Coskunpinar & Cyders, 2012). Thus, consideration of perceptions of the probable effects of drinking (i.e., alcohol outcome expectancies) among those high on negative urgency is needed.

### 1.3 Alcohol Outcome Expectancies

Alcohol outcome expectancies describe perceptions of physical and social effects one might experience when engaging in alcohol consumption (Leigh & Stacy, 1993; Leigh, 1990). These effects can be separated into two broad categories: positive and negative (Jones, Corbin, & Fromme, 2001). While positive expectancies include feeling socially adept, sexually appealing, or enjoying one's self, negative expectancies include physical (i.e., feeling sick, vomiting, blacking out) and social (i.e., fighting, damaging property, drunk driving, and arrest) repercussions of drinking. Positive expectancies commonly encompass four unique subscales, enhanced sociability, tension reduction, liquid courage, and sexuality, and negative expectancies are comprised of three unique subscales, cognitive and behavioral impairment, risk and aggression, and self-perception. Although some research has been conducted using subscales of the broad measures of positive and negative expectancies, Leigh and Stacy (1991) indicated that the subscales of the alcohol outcome expectancies questionnaire are not independent and act as joint predictors of alcohol use. Indeed, they highlight findings indicating that none of the specific expectancies subscales are consistently associated with drinking behavior, whereas global positive and negative expectancies do in fact consistently predict alcohol use. Thus, each measure may be best examined as global indicators of drinking. Higher positive expectancies are associated with greater drinking, and higher negative expectancies are associated with lower drinking (Ham, Zamboana, Bridges, Casner, & Bacon, 2013; Sher, Wood, Wood, & Raskin, 1996; Wood, Read, Palfai, & Stevenson, 2001).

Fischer, Anderson, and Smith (2004) proposed individuals high on negative urgency develop expectancies that drinking will assuage negative feelings as a result of previous drinking experiences. Supporting evidence includes the finding that expecting that one will be able to modulate or escape negative emotions when intoxicated is predictive of problematic drinking, even when controlling for negative affect and drinking motives (Kassel, Jackson, &

Unrod, 2000). Other research suggests individuals with avoidant coping styles with high positive alcohol outcome expectancies (i.e., social lubrication, tension reduction) are more likely to consume alcohol (Cooper, Russell, Skinner, Frone, & Mudar, 1992; Kassel et al., 2000). Accordingly, negative urgency is associated with tension reduction expectancies (Fischer et al., 2004) as well as both positive and negative expectancies (Spillane, Cyders, & Maurelli, 2012). Fischer and colleagues (2004) examined whether the effects of urgency were mediated by alcohol outcome expectancies, but failed to find support for their hypothesis. The direct effect of urgency on drinking may not be attributable to expectancies alone.

#### 1.4 Two Indirect pathways to Alcohol use

More complex associations between negative urgency, alcohol use expectancies, and drinking motives may exist. Settles et al. (2010) demonstrated that urgency's effects on drinking can be attributed to both drinking motives and outcome expectancies. Whereas the effects of negative urgency on drinking behaviors can be attributed to coping motives, the effects of positive urgency (i.e., impulsive drinking in response to positive emotions) can be attributed to positive outcome expectancies (Settles et al., 2010). However, Settles and colleagues (2010) did not incorporate outcome expectancies in their model of negative urgency, and only examined one facet of drinking motives (i.e., coping).

Motivational models of alcohol use have commonly incorporated alcohol outcome expectancies (Kuntsche et al., 2005; Leigh & Stacy, 1993). These models rest upon the assertion that expectancies precede motivations: People anticipate specific outcomes when drinking, which fuel their motivations for drinking. Accordingly, research has commonly assessed expectancies as predictors of drinking motives, as opposed to motivations predicting expectancies, and found support for this position (Cooper et al., 1995; Fischer et al., 2004; Kuntsche, Knibbe, Engels, & Gmel, 2007; Urbán, Kokonyei, & Demetrovics, 2008). People high in negative urgency are predisposed to behave impulsively when experiencing negative emotions, but may not be explicitly attempting to engage in heavy drinking in order to cope with their negative emotions. Coping may not be the explicit goal of drinking, but rather these individuals engage in heavy drinking because they are impulsive when experiencing negative emotions. It has been suggested that people high on negative urgency may not simply be drinking to cope, but instead may be attributing their drinking to desires to cope with unpleasant emotions when reporting their use (Adams et al., 2012). While attempting to evaluate their motivations for drinking, these individuals may report that they drink to cope with their negative feelings in order to decrease negative affect. Extending the same rationale, people higher in negative urgency may report greater enhancement motives because they expect that drinking will result in increased positive affect. These individuals may explain their behaviors as the result of coping and enhancement motivations, and subsequently point to positive and negative outcome expectancies as explanations for their reported coping and enhancement motivations.

#### 1.5 The Current Study

Although drinking motives and expectancies have been examined in isolation, understanding how these two predictors operate in unison provides an integrative approach that synthesizes

the thus far fragmented literature on drinking motives and alcohol outcome expectancies among those high on negative urgency. We hypothesized that the relationship between negative urgency and alcohol use would be mediated by enhancement and coping motives, as well as positive and negative alcohol outcome expectancies. The pathway through which coping motives is associated with drinking as a function of negative urgency was hypothesized to be mediated by negative outcome expectancies. Coping motives may reflect facets of negative outcome expectations, including desire to avoid thinking, concentrating, or ruminating about problems (i.e., cognitive impairment), as well as a general lack of regard for or respect for perceived social and institutional rules or expectations (i.e., risk and aggression). It was anticipated that coping motives would be associated with negative outcome expectancies as students high in negative urgency may approach some of the facets of negative expectancies because they may provide an opportunity for them to escape their negative emotions. On the other hand, the relationship between enhancement motives was hypothesized to be mediated by positive outcome expectancies. Individuals high on negative urgency may attribute enhancement motives to positive outcome expectations, such as social lubrication (i.e., sociability and sexuality) and increased relaxation (i.e., tension reduction). A path analytic framework was employed to test the proposed associations.

## 2. Method

### 2.1 Participants and Procedures

Participants included 194 (87.6% female) undergraduate psychology students at a large public university. Ages of participants ranged from 18 to 56 years old, with the average participant being 24.16 years old ( $SD = 6.97$ ). Thirty-nine percent of participants identified as Caucasian, 30.73% as Hispanic, 19.79% as Asian, 16.04% as Black/African American, and 25.13% as other. Aside from the overrepresentation of women, these demographics were representative of the university population. The institutional review board approved all procedures, and consent was obtained electronically as participants completed web-based surveys.

### 2.2 Measures

**2.2.1 Negative urgency**—Tendencies to behave impulsively in response to experiencing negative affect were assessed with the UPPS Impulsive Behavior Negative Urgency Subscale (UPPS; Whiteside & Lynam, 2001). Negative urgency was measured with 12 items, such as “When I feel bad, I will often do things I later regret in order to make myself feel better now.” Participants responded to each item on a scale of 1 (*Agree Strongly*) to 4 (*Disagree Strongly*). Responses were averaged such that higher scores indicated greater negative urgency, and good reliability was indicated in the present study ( $\alpha = .89$ ).

**2.2.2 Drinking motives**—Motivations for consuming alcohol were measured with the Drinking Motives Questionnaire (DMQ; Cooper, 1994). The DMQ consists of 20 items, and assesses four drinking motives: enhancement and coping were of specific interest in the present research. Each motive is measured by five items (e.g., enhancement: “because it is exciting;” coping: “to forget about your problems”). Participants indicated how often they consumed alcohol for each reason from 1 (*Never/Almost Never*) to 5 (*Almost Always/*

*Always*) with higher averaged scores representing greater motives. Cronbach's alphas ranged from .88 to .93 for the subscales in the current study.

**2.2.3 Alcohol outcome expectancies**—Alcohol outcome expectancies were assessed with the Comprehensive Effects of Alcohol (CEOA) questionnaire (Fromme, Stool, & Kaplan, 1993). The CEOA assesses participants' beliefs regarding the extent to which they expected to experience 38 positive and negative effects while drinking on a scale of 1 (*Disagree*) to 4 (*Agree*). Twenty items assessed positive perceived effects, such as sociability, tension reduction, sexuality, and liquid courage. The remaining 18 items assessed negative effects, such as behavioral and cognitive deficits, risk and aggression, and negative self-perception. Responses were averaged to obtain final scores, higher scores indicating higher expectancies, and good reliability was indicated by alphas of .92 and .88 for positive and negative alcohol outcome expectancies, respectively.

**2.2.4 Daily drinking**—Daily drinking was measured with the Daily Drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985). The DDQ requires students to estimate their typical drinking over the past three months. Students are asked to think back over the last three months and fill in seven boxes, representing each day of the week, with the number of drinks consumed on that typical day. Weekly drinking is determined by summing responses for each day of the week to derive a total number of drinks consumed during the week. This measure has demonstrated good test-retest reliability (Neighbors, Dillard, Lewis, Bergstrom, & Neil, 2006) and high validity (Borsari & Carey, 2000; Neighbors, Oster-Aaland, Bergstrom, & Lewis, 2006).

### 3. Results

#### 3.1 Data Analytic Strategy

Path analysis with a full information maximum likelihood estimation using Amos version 22 was used to assess the hypothesized indirect effect negative urgency on students' reported drinks per week. Given the multifaceted nature of the associations between the six predictors and college students' reported drinking, structural equation modeling was chosen in favor of examining independent regression models and corresponding coefficients. Path analysis allows researchers to examine complex associations between multiple variables simultaneously, precluding the use of multiple specified regression models and reducing the likelihood of a Type I error, as well as allowing for the modeling of measurement error.

Multiple indices, including the Chi-square goodness of fit, the Bentler Comparative Fit Index (CFI; Bentler, 1990), the Bentler-Bonett Normed Fit Index (NFI; Bentler & Bonett, 1980), and Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1993), were consulted to assess model fit. As the present study had a sample slightly lower ( $N=194$ ) than the preferred 200 minimum (Bentler, 1990), CFI was used in addition to the NFI as the NFI often underestimates model fit with small samples, whereas CFI is not overly sensitive to sample size (Fan, Thompson, & Wang, 1999). Models with CFI values above .90 were considered decent, and values above .95 were considered good (Bentler, 1990; Byrne, 1994). NFI values above .95 were regarded as indicating a well-fitting model (Byrne, 1994; Schumacker & Lomax, 2004). RMSEAs below .08 indicated good model fit, and values

below .05 suggested excellent model fit (MacCallum, Browne, & Sugawara, 1996). Bootstrapping was used for estimating standard errors of parameter estimates as a means of addressing non-normality in the data.

The proposed model tested the indirect effects of negative urgency through drinking motives and alcohol outcome expectancies. Negative urgency was specified as the exogenous variable, whereas coping motives, enhancement motives, positive expectancies, and negative expectancies were specified as endogenous variables, in addition to reported weekly drinking. Direct effects of negative urgency on coping and enhancement motives as well as positive and negative expectancies were specified. Indirect effects of negative urgency on weekly drinking through both drinking motives and both expectancies were also included. Finally, direct effects of coping and enhancement motives on drinks per week completed the a-priori specified model.

### 3.2 Descriptive Statistics

Means, standard deviations for primary variables can be found in Table 1. On average, students consumed about six drinks per week, with a range of 0 to 57. Approximately 28.4% of students reported abstaining during the 30 days prior to being surveyed. Correlations are presented in Table 1. In addition to drinks per week, negative urgency was positively correlated with both indices of drinking motives as well as measures of expectancies. Coping motives for alcohol use were positively associated with enhancement motives, positive and negative expectancies, and alcohol use. Similarly, enhancement motives were positively correlated with positive expectancies and drinking, but were not associated with negative expectancies. Although positive expectancies and negative expectancies were significantly and positively correlated, only positive expectancies were associated with drinking.

### 3.3 Direct Effects

The hypothesized model was determined to account for 16% of the variance in students drinking, and provided excellent fit for the data ( $\chi^2(3, N = 194) = 4.50, p = .21, CFI = 1.00, NFI = 0.99, RMSEA = .051$ ). Negative urgency was associated with coping and enhancement motives, increases in negative urgency were associated with greater coping motives ( $\beta = 0.37, SE(\beta) = 0.08, 95\% CI[0.21, 0.49]$ ) and higher motives for drinking to enhance ( $\beta = 0.24, SE(\beta) = 0.08, 95\% CI[0.12, 0.37]$ ). Negative urgency was also associated alcohol outcome expectancies such that higher urgency predicted greater positive expectancies ( $\beta = 0.24, SE(\beta) = 0.05, 95\% CI[0.16, 0.33]$ ) and greater negative expectancies ( $\beta = 0.19, SE(\beta) = 0.07, 95\% CI[0.09, 0.31]$ ). Greater enhancement motives were associated with increased positive outcome expectancies ( $\beta = 0.50, SE(\beta) = 0.05, 95\% CI[0.41, 0.58]$ ), but coping motives were not associated with negative outcome expectancies ( $\beta = 0.06, SE(\beta) = 0.07, 95\% CI[-0.04, 0.17]$ ). Both positive and negative alcohol outcome expectancies were associated with weekly drinking: higher positive expectancies were related to more drinks per week ( $\beta = 0.20, SE(\beta) = 0.07, 95\% CI[0.08, 0.31]$ ), whereas higher negative expectancies were related to less drinks per week ( $\beta = -0.17, SE(\beta) = 0.08, 95\% CI[-0.30, -0.05]$ ). Although higher enhancement motives were associated with more drinks consumed

per week ( $\beta = 0.31$ ,  $SE(\beta) = 0.12$ , 95% CI[0.14, 0.55]), coping motives were not associated with drinking ( $\beta = -0.07$ ,  $SE(\beta) = 0.13$ , 95% CI[-0.34, 0.10]).

Next, coping motives were removed from the model because, although they were determined to be associated with negative urgency, no effects emerged between coping motives and negative expectancies or drinking. Parameter estimates, bootstrapped standard errors, and bootstrapped confidence intervals are presented in Table 2 and Figure 1. This model accounted for 16% of the variance in drinks per week, and also provided excellent fit for the data ( $\chi^2(2, N = 194) = 1.26$ ,  $p = .53$ , CFI = 1.00, NFI = 0.99, RMSEA = .00). Negative urgency was associated with enhancement motives such that higher urgency predicted greater enhancement motives. Negative urgency was also positively associated expectancies in that higher urgency was associated with greater positive and negative alcohol outcome expectancies. Higher enhancement motives were associated with greater positive expectancies, as well as greater drinks per week.

An alternative model in which expectancies were specified as antecedents of motives was also examined. However, poor model fit was indicated ( $\chi^2(3, N = 194) = 36.57$ ,  $p < .001$ , CFI = 0.88, NFI = 0.88, RMSEA = .241). Poor model fit was also indicated when coping motives were removed from the model ( $\chi^2(2, N = 194) = 15.73$ ,  $p < .001$ , CFI = 0.92, NFI = 0.92, RMSEA = .189).

### 3.4 Indirect Effects

Bootstrapped indirect effects and standard errors are presented in the bottom portion of Table 2. A positive indirect effect of enhancement motives on drinks per week through positive expectancies was indicated, and this indirect effect was determined to be significantly greater than zero. Indirect effect of negative urgency on positive expectancies through enhancement motives was determined to be greater than zero. Overall, negative urgency had a positive indirect effect on number of drinks consumed during a typical week.

## 4. Discussion

The purpose of the present study was to determine whether the effects of negative urgency, a dispositional characteristic marked by a predilection for behaving impulsively under emotional duress, on alcohol use can be ascribed to drinking motives and perceived alcohol outcome expectancies. Our results indicated that the relationship between negative urgency and alcohol use can be attributed to a unique pathway through enhancement motives such that motives for drinking in order to enhance positive affect are mediated by positive alcohol outcome expectancies. Negative urgency predicted enhancement motives, and the relationship between enhancement motives alcohol use was mediated by positive alcohol outcome expectancies. Individuals high on negative urgency consume alcohol in response to motivations to enhance one's positive affect, which are expressed when people hold perceptions that they will experience tension reduction or greater positive affect. However, although urgency was associated with coping motives, the relationship between coping motives and drinking was not mediated by negative outcome expectancies.



Our findings support prior research indicating that higher levels of negative urgency are associated with increases coping and enhancement motives (Adams et al., 2012; Jones et al., 2014). Results also support prior research indicating negative urgency is associated with greater positive alcohol outcome expectancies (Fischer et al., 2004), and extend research by examining the association between negative urgency and negative outcome expectancies. Although Urbán et al. (2008) found a negative association between sensation-seeking and negative outcome expectancies, a positive association between negative urgency and negative expectancies was indicated. Individuals high on negative urgency may approach negative expectancies because reduced cognitive performance and greater physical effects may be viewed as ways to avoid or alleviate negative emotions. However, these findings are consistent with Urbán et al.'s (2008) research in that negative expectancies were not associated with drinking motives. The current study is the first known attempt to model both alcohol outcome expectancies and drinking motives concurrently as mediators of the association between negative urgency and drinking behaviors, furthering research regarding the interplay of drinking motives and expectancies among this at-risk population.

Adams and colleagues (2012) proposed two possible explanations for the mediating role of coping motives in the relationship between negative urgency and drinking: that those prone to rash behavior in response to negative emotions drink in order cope with their emotions, or these individuals act impulsively and offer motivational and expectancy-based explanations for their actions (e.g., drinking to have fun and believing that drinking will result in positive affect). The findings of the present study provide support for the latter explanation as relatively poor fit was indicated for a comparison model specifying expectancies as predictors of drinking motives. The present study suggests that negative urgency demonstrates a unique pathway to alcohol use in which enhancement motives' influence on drinking can be attributed to positive alcohol outcome expectancies. While experiencing negative emotions, these individuals tend to act impulsively. These individuals' immediate intentions may not be to increase positive affect, but rather they may be acting impetuously, which manifests in drinking behavior. Thus, these individuals may falsely perceive that they are drinking in order to enhance positive emotions in order to alleviate distress. However, a similar pattern was not evident for coping motives and negative expectancies. Although we cannot confirm nor disconfirm the possibility that these individuals retrospectively label their coping motivations, the association between coping motives and alcohol use cannot be attributed to negative expectancies in the current study.

These findings diverge from our initial hypotheses that proposed facets of negative expectancies (e.g., cognitive impairment, risk taking) may be ascribed to coping motives among those high in negative urgency. Although it was hypothesized that students high in negative urgency would approach facets of negative expectancies, such as cognitive impairment, to cope with negative emotions, the same argument can be made, perhaps more strongly, for the tension reduction facet of positive expectancies. We therefore removed coping motives from the model because it does not theoretically distinguish between expectancies. We also evaluated a model in which the coping motives variable was specified as an antecedent of both positive and negative expectancies, but it was not significantly associated with either expectancy and the model fit was much better without coping motives.

These findings suggest people high in negative urgency may explain their motivations by indicating they expected to experience positive effects while drinking. However, previous research has provided strong support for the argument that expectancies precede motivations (Cooper et al., 1995; Fischer et al., 2004; Urbán et al., 2008). Although motivations preceded expectancies when predicting alcohol use in these data, it is important to replicate these findings in other samples. Overall conclusions that can be drawn from the current study are that drinking motives and alcohol outcome expectancies explain the relationship between negative urgency and alcohol use; both drinking motives and expectancies mediated the effects of emotion-focused impulsivity on college student drinking. Thus, although the reversed order of effects, motivations to expectancies, was empirically supported in this study, additional research is needed to further understanding of how negative urgency manifests in alcohol use behaviors by college students.

The association between enhancement motives and drinking behaviors was mediated by positive alcohol outcome expectancies, but no association was found between coping motives and negative outcome expectancies. Further, negative expectancies did not mediate the association between coping motives and drinking. That enhancement motives' influence on drinking was fully mediated by positive outcome expectancies suggests people are motivated to drink in order to escape from their negative or uncomfortable feelings engage in drinking because they perceive that they will experience the positive effects of alcohol (e.g., feeling socially competent, sexually appealing). However, that coping motives were not predictive of perceptions of the negative effects of alcohol, as hypothesized, suggests either this association does not exist or other factors contribute to the influence of coping motives on alcohol use.

The cross-sectional nature of this study prevents causal conclusions from being drawn. While negative urgency is considered a stable, trait-like disposition, drinking motives and outcome expectancies may change over time. Research has indicated that increased experience with alcohol influences one's perceptions of the effects of alcohol (Sher et al., 1996). Because alcohol outcome expectancies change over time, examining the proposed relationships within a single time point allowed for the preliminary assessment of the proposed relationships among these varying measures that would be best further tested with multiple measurements of each construct. However, controlling for amount of experience with alcohol or habit strength may be an important consideration for future researchers seeking to parse out the effects of negative urgency on these alcohol-related cognitions among students with varying levels of experience with alcohol. Additionally, the current study did not randomize the order of measurement instrument presentation to participants. As drinking motives proceeded alcohol outcome expectancies in the survey, order effects may offer an alternative explanation. Thus, examining how these relationships develop over time with randomized presentation order is needed to determine whether these associations can be found longitudinally and provide support for causal interpretations.

Individuals experiencing negative emotions and prone to acting impulsively to ameliorate those feelings may be more likely to harbor and respond to drinking motives and alcohol outcome expectancies. Predictors of these associations are important to identify in order to gain a more nuanced understanding of individual-level factors associated with consumption

in order to inform theory and prevention efforts. Experiencing negative affect may result in different motives for satisfying different needs (i.e., coping, enhancement), which influence behaviors only in the presence of high outcome expectancies for use (e.g., decreased negative affect, enhanced sociability). The present study suggests this at-risk population's tendencies to engage in alcohol use may be attributable to cognitions that may be targeted with prevention efforts.

## Acknowledgments

### Role of Funding Sources

Support for this research was provided by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) Grant R01AA014576 provided to Clayton Neighbors. NIAAA had no role in the study design, collection, analysis or interpretation of the data, writing the manuscript, or the decision to submit the paper for publication.

## References

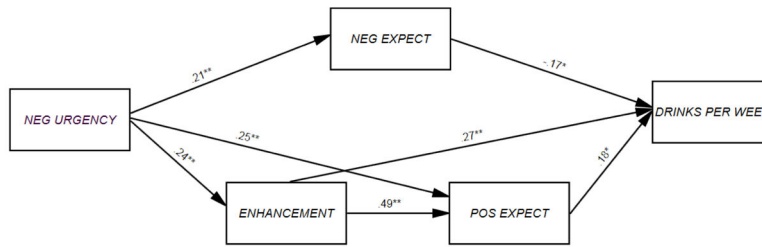
- Adams ZW, Kaiser AJ, Lynam DR, Charnigo RJ, Milich R. Drinking motives as mediators of the impulsivity-substance use relation: Pathways for negative urgency, lack of premeditation, and sensation seeking. *Addictive Behaviors*. 2012; 37(7):848–855. DOI: 10.1016/j.addbeh.2012.03.016 [PubMed: 22472524]
- Anestis MD, Selby EA, Joiner TE. The role of urgency in maladaptive behaviors. *Behaviour Research and Therapy*. 2007; 45(12):3018–3029. DOI: 10.1016/j.brat.2007.08.012 [PubMed: 17923108]
- Bentler PM. Comparative fit indexes in structural models. *Psychological Bulletin*. 1990; 107(2):238–246. DOI: 10.1037/0033-2909.107.2.238 [PubMed: 2320703]
- Bentler PM, Bonett DG. Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*. 1980; 88(3):588–606. DOI: 10.1037/0033-2909.88.3.588
- Borsari B, Carey KB. Effects of a brief motivational intervention with college student drinkers. *Journal of Consulting and Clinical Psychology*. 2000; 68(4):728–733. DOI: 10.1037/0022-006X.68.4.728 [PubMed: 10965648]
- Browne, MW., Cudeck, R. Alternative ways of assessing model fit. In: Bollen, KA., Long, JS., editors. *Testing structural equation models*. Beverly Hills, CA: Sage; 1993. p. 136-162.
- Byrne, BM. *Structural equation modeling with EQS and EQS/Windows: Basic concepts, applications, and programming*. Thousand Oaks, CA: Sage; 1994.
- Carey KB, Correia CJ. Drinking motives predict alcohol-related problems in college students. *Journal of Studies on Alcohol*. 1997; 58(1):100–105. DOI: 10.15288/jsa.1997.58.100 [PubMed: 8979218]
- Collins RL, Parks GA, Marlatt GA. Social determinants of alcohol consumption: The effects of social interaction and model status on the self-administration of alcohol. *Journal of Consulting and Clinical Psychology*. 1985; 53(2):189–200. DOI: 10.1037/0022-006X.53.2.189 [PubMed: 3998247]
- Cooper ML. Motivations for alcohol use among adolescents: Development and validation of a four-factor model. *Psychological Assessment*. 1994; 6(2):117–128. DOI: 10.1037/1040-3590.6.2.117
- Cooper ML, Frone MR, Russell M, Mudar P. Drinking to regulate positive and negative emotions: A motivational model of alcohol use. *Journal of Personality and Social Psychology*. 1995; 69(5):990–1005. DOI: 10.1037/0022-3514.69.5.990 [PubMed: 7473043]
- Cooper ML, Russell M, Skinner JB, Frone MR, Mudar P. Stress and alcohol use: Moderating effects of gender, coping, and alcohol expectancies. *Journal of Abnormal Psychology*. 1992; 101(1):139. doi: 10.1037/0021-843X.101.1.139 [PubMed: 1537960]
- Cooper ML, Russell M, Skinner JB, Windle M. Development and validation of a three-dimensional measure of drinking motives. *Psychological Assessment*. 1992; 4(2):123–132. DOI: 10.1037/1040-3590.4.2.123
- Coskunpinar A, Cyders MA. Mediation–moderation analysis of problematic alcohol use: The roles of urgency, drinking motives, and risk/benefit perception. *Addictive Behaviors*. 2012; 37(7):880–883. DOI: 10.1016/j.addbeh.2012.03.014 [PubMed: 22475583]

- Cyders MA, Smith GT. Emotion-based dispositions to rash action: positive and negative urgency. *Psychological Bulletin*. 2008; 134(6):807–828. DOI: 10.1037/a0013341 [PubMed: 18954158]
- Dir AL, Karyadi K, Cyders MA. The uniqueness of negative urgency as a common risk factor for self-harm behaviors, alcohol consumption, and eating problems. *Addictive Behaviors*. 2013; 38(5): 2158–2162. DOI: 10.1016/j.addbeh.2013.01.025 [PubMed: 23454879]
- Fan X, Thompson B, Wang L. Effects of sample size, estimation methods, and model specification on structural equation modeling fit indexes. *Structural Equation Modeling: A Multidisciplinary Journal*. 1999; 6(1):56–83. DOI: 10.1080/10705519909540119
- Fischer S, Anderson KG, Smith GT. Coping with distress by eating or drinking: role of trait urgency and expectancies. *Psychology of Addictive Behaviors*. 2004; 18(3):269–274. DOI: 10.1037/0893-164X.18.3.269 [PubMed: 15482082]
- Fischer S, Smith GT, Annus A, Hendricks M. The relationship of neuroticism and urgency to negative consequences of alcohol use in women with bulimic symptoms. *Personality and Individual Differences*. 2007; 43(5):1199–1209. DOI: 10.1016/j.paid.2007.03.011
- Fromme K, Stroot EA, Kaplan D. Comprehensive effects of alcohol: Development and psychometric assessment of a new expectancy questionnaire. *Psychological Assessment*. 1993; 5(1):19–26. DOI: 10.1037/1040-3590.5.1.19
- Ham LS, Zamboanga BL, Bridges AJ, Casner HG, Bacon AK. Alcohol expectancies and alcohol use frequency: Does drinking context matter? *Cognitive Therapy and Research*. 2013; 37(3):620–632. DOI: 10.1007/s10608-012-9493-0
- Jones BT, Corbin W, Fromme K. A review of expectancy theory and alcohol consumption. *Addiction*. 2001; 96(1):57–72. DOI: 10.1080/09652140020016969 [PubMed: 11177520]
- Kassel JD, Jackson SI, Unrod M. Generalized expectancies for negative mood regulation and problem drinking among college students. *Journal of Studies on Alcohol and Drugs*. 2000; 61(2):332–340. DOI: 10.15288/jsa.2000.61.332
- Kuntsche E, Knibbe R, Engels R, Gmel G. Drinking motives as mediators of the link between alcohol expectancies and alcohol use among adolescents. *Journal of Studies on Alcohol and Drugs*. 2007; 68(1):76–85. DOI: 10.15288/jsad.2007.68.76 [PubMed: 17149520]
- Kuntsche E, Knibbe R, Gmel G, Engels R. Why do young people drink? A review of drinking motives. *Clinical Psychology Review*. 2005; 25(7):841–861. DOI: 10.1016/j.cpr.2005.06.002 [PubMed: 16095785]
- Kuntsche E, Stewart SH, Cooper ML. How stable is the motive-alcohol use link? A cross-national validation of the Drinking Motives Questionnaire Revised among adolescents from Switzerland, Canada, and the United States. *Journal of Studies on Alcohol and Drugs*. 2008; 69(3):388–396. DOI: 10.15288/jsad.2008.69.388 [PubMed: 18432381]
- Leigh BC. Alcohol expectancies and reasons for drinking: Comments from a study of sexuality. *Psychology of Addictive Behaviors*. 1990; 4(2):91–96. DOI: 10.1037/h0080578
- Leigh BC, Stacy AW. On the scope of alcohol expectancy research: remaining issues of measurement and meaning. *Psychological Bulletin*. 1991; 110(1):147–154. DOI: 10.1037/0033-2909.110.1.147 [PubMed: 1891516]
- Leigh BC, Stacy AW. Alcohol outcome expectancies: Scale construction and predictive utility in higher order confirmatory models. *Psychological Assessment*. 1993; 5(2):216–229. DOI: 10.1037/1040-3590.5.2.216
- MacCallum RC, Browne MW, Sugawara HM. Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*. 1996; 1(2):130–149. DOI: 10.1037/1082-989X.1.2.130
- Magid V, Colder CR. The UPPS Impulsive Behavior Scale: Factor structure and associations with college drinking. *Personality and Individual Differences*. 2007; 43(7):1927–1937. DOI: 10.1016/j.paid.2007.06.013
- Merrill JE, Read JP. Motivational pathways to unique types of alcohol consequences. *Psychology of Addictive Behaviors*. 2010; 24(4):705–711. DOI: 10.1037/a0020135 [PubMed: 20822194]
- Neighbors C, Dillard AJ, Lewis MA, Bergstrom RL, Neil TA. Normative misperceptions and temporal precedence of perceived norms and drinking. *Journal of Studies on Alcohol*. 2006; 67(2):290–299. DOI: 10.15288/jsa.2006.67.290 [PubMed: 16562412]

- Neighbors C, Oster-Aaland L, Bergstrom RL, Lewis MA. Event-and context- specific normative misperceptions and high-risk drinking: 21st birthday celebrations and football tailgating. *Journal of Studies on Alcohol*. 2006; 67(2):282–289. DOI: 10.15288/jsa.2006.67.282 [PubMed: 16562411]
- Read JP, Wood MD, Kahler CW, Maddock JE, Palfai TP. Examining the role of drinking motives in college student alcohol use and problems. *Psychology of Addictive Behaviors*. 2003; 17(1):13–23. DOI: 10.1037/0893-164X.17.1.13 [PubMed: 12665077]
- Schumacker, RE., Lomax, RG. *A beginner's guide to structural equation modeling*. Mahwah, NJ: Psychology Press; 2004.
- Settles RF, Cyders M, Smith GT. Longitudinal validation of the acquired preparedness model of drinking risk. *Psychology of Addictive Behaviors*. 2010; 24(2):198–208. DOI: 10.1037/a0017631 [PubMed: 20565146]
- Sher KJ, Wood MD, Wood PK, Raskin G. Alcohol outcome expectancies and alcohol use: A latent variable cross-lagged panel study. *Journal of Abnormal Psychology*. 1996; 105(4):561–574. DOI: 10.1037/0021-843X.105.4.561 [PubMed: 8952189]
- Smith GT, Fischer S, Cyders MA, Annus AM, Spillane NS, McCarthy DM. On the validity and utility of discriminating among impulsivity-like traits. *Assessment*. 2007; 14(2):155–170. DOI: 10.1177/1073191106295527 [PubMed: 17504888]
- Spillane NS, Cyders MA, Maurelli K. Negative urgency, problem drinking and negative alcohol expectancies among members from one First Nation: A moderated- mediation model. *Addictive Behaviors*. 2012; 37(11):1285–1288. DOI: 10.1016/j.addbeh.2012.06.007 [PubMed: 22727788]
- Stautz K, Cooper A. Impulsivity-related personality traits and adolescent alcohol use: A meta-analytic review. *Clinical Psychology Review*. 2013; 33(4):574–592. DOI: 10.1016/j.cpr.2013.03.003 [PubMed: 23563081]
- Urbán R, Kökönyei G, Demetrovics Z. Alcohol outcome expectancies and drinking motives mediate the association between sensation seeking and alcohol use among adolescents. *Addictive Behaviors*. 2008; 33(10):1344–1352. DOI: 10.1016/j.addbeh.2008.06.006 [PubMed: 18619739]
- Verdejo-García A, Bechara A, Recknor EC, Pérez-García M. Negative emotion- driven impulsivity predicts substance dependence problems. *Drug and Alcohol Dependence*. 2007; 91(2):213–219. DOI: 10.1016/j.drugalcdep.2007.05.025 [PubMed: 17629632]
- Whiteside SP, Lynam DR. The five factor model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences*. 2001; 30(4):669–689. DOI: 10.1016/S0191-8869(00)00064-7
- Wood MD, Read JP, Palfai TP, Stevenson JF. Social influence processes and college student drinking: the mediational role of alcohol outcome expectancies. *Journal of Studies on Alcohol*. 2001; 62(1): 32–43. DOI: 10.15288/jsa.2001.62.32 [PubMed: 11271962]

### Highlights

- Alcohol use expectancies and motives mediate negative urgency's effects on drinking
- Positive alcohol outcome expectancies mediate the effects of enhancement motives
- Negative expectancies do not mediate the effects of coping motives



**Figure 1.** Model depicting the effects of negative urgency, enhancement motives, and positive and negative alcohol outcome expectancies on college students’ drinks per week.

**Table 1**

Means, Standard Deviations, and Correlations among Variables

	Mean	SD	Negative Urgency	Coping Motives	Enhancement Motives	Positive Expectancies	Negative Expectancies	Weekly Drinking
Negative Urgency	2.10	0.62	-					
Coping Motives	1.78	0.93	.37**	-				
Enhancement Motives	2.21	1.12	.24**	.63***	-			
Positive Expectancies	2.53	0.64	.36**	.45**	.54**	-		
Negative Expectancies	2.30	0.61	.21**	.16*	.03	.43**	-	
Weekly Drinking	5.89	8.16	.16*	.18*	.37**	.25**	-.09	-

Note. SD = Standard Deviation.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .



**Table 2**  
Regression Weights, Bootstrapped Standard Errors, and Confidence Intervals

	$\beta$	SE( $\beta$ )	95% CI	
			Lower	Upper
<b>Direct Effects</b>				
Urgency	0.24**	0.08	0.12	0.37
Urgency	0.25***	0.05	0.16	0.34
Urgency	0.21**	0.07	0.11	0.33
EN Motives	0.49**	0.05	0.40	0.57
NE Expect	-0.17*	0.07	-0.30	-0.07
PO Expect	0.18*	0.07	0.06	0.30
EN Motives	0.27**	0.08	0.14	0.41
<b>Indirect Effects</b>				
Urgency	0.09*	0.03	0.04	0.15
Urgency	0.12***	0.04	0.06	0.18
EN Motives	0.09*	0.04	0.03	0.16

Note. EN Motives = Enhancement Motives, PO Expect = Positive Expectancies, NE = Negative Expectancies.

\*  $p < .05$ .

\*\*\*  $p < .01$ .