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Predicting problematic alcohol use and negative alcohol-related psychosocial consequences of use in a college-aged sample

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Predicting problematic alcohol use and negative alcohol-related psychosocial consequences of use in a college-aged sample

An Honors Thesis submitted in partial fulfillment of the requirements for Honors in Psychology.

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Under the mentorship of Dr. Jessica Brooks

ABSTRACT

Drinking motivation (Cooper, 1994), coping strategies (Laurent, Catanzaro, & Callan, 1996), and negative alcohol-related consequences (Young, 2003) are theorized constructs that have been demonstrated to be related to problematic alcohol use. These three areas of research vary in findings, which makes clarification of these findings vital to the understanding of problematic alcohol use. The purpose of the present study is to determine to what extent motivation to drink and styles of coping predict problematic alcohol use, as well as to what extent problematic alcohol use predicts the different consequences of use. Participants consisted of 71 undergraduate students (54.2% female; Mage = 20.14 years). The majority of participants were classified as social drinkers. Participants completed the Drinking Motives Questionnaire-Revised (Cooper, 1994), Alcohol Use and Disorder Identification Test (Saunders et al, 1993), Drinkers Inventory of Consequences (Miller et al., 1995), and Young Compensation Inventory (Young, 2003). Correlational analyses and a series of stepwise regression analyses were conducted. Social, conformity, and enhancement drinking motives all predicted problematic alcohol use (p <.05); coping motivation was not a significant predictor (p >.05). Consequences related to poor interpersonal, intrapersonal, and impulsivity issues were found to be significant predictors of problematic alcohol use (p<.001). Measures of coping strategies, including negativity, subjugation, and unrelenting standards, were not correlated with problem drinking. These findings provide insights into the complex relationships among alcohol use, coping strategies, drinking motivation, and negative consequences, in hopes of clarifying these relationships ultimately to assist in the creation of more effective and targeted treatment programs.

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In 2013, the National Institute of Alcohol Abuse and Alcoholism stated that approximately 18 million Americans had been formally diagnosed with alcohol dependence (alcoholism) or alcohol abuse, and it has been estimated that approximately 9% of the US population meet criteria for a current alcohol use disorder (Grant, Dawson, Stinson, Chou, Dufour, & Pickering, 2004), with lifetime prevalence rates approaching 20% (Kessler, Berglund, Demlar, Jin, Merikangas & Walters, 2005). Moreover, excessive alcohol use in college students is a well-documented problem over the past decade (Hingson, Heeren, & Winter, 2005; Karam, Kypri, & Salamoun, 2007; Wicki, Kuntsche, & Gmel, 2010). According to the 2013 National Data Survey on Drug Use and Health (NDSDUH), individuals aged 18 to 22 who were enrolled full time in college were more likely to report current heavy drinking than those who were not full time students.

The NDSDUH survey shows that among those who were enrolled full time, 39% were binge drinkers and 12.7% were heavy drinkers (Substance Abuse and Mental Health Services Association, 2014). It has been shown that approximately 20% of college students meet diagnostic criteria for alcohol abuse at any given time (Hasin, Stinson, Ogburn, & Grant, 2007). Therefore, it is important to study the reasons behind excessive alcohol use and dependence, especially in college populations. Although multiple factors influence drinking, motivational forces have been a defining feature in many theoretical models of addiction and research studies to date (Cox & Klinger, 1988).

Motivation to Consume Alcohol

The motivational model of alcohol has deemed underlying reasons for drinking (or motives) as one of the most important determinants, as well as the strongest predictors, of alcohol use behaviors (Cooper, Frone, Russell et al., 1995; Cox & Klinger, 1988). This model shows that people drink to improve their emotional (i.e., *internal*) or social (i.e., *external*) state of being, which results in positive or negative reinforcement of alcohol use in the future. Motivations to drink in order to enhance positive emotion (also known as "affect") and motivations to cope or avoid negative emotions are considered examples of internal drinking motivations, while drinking to increase social experiences and drinking to fit in are examples of external motivations (Cooper, 1994).

A wide variety of social aspects can indirectly influence alcohol use behaviors because of the importance of individuals gaining the approval of their peers (White, Bates, & Johnson, 1990). External motivations to drink alcohol, whether it be to engage more easily in social situations or to conform to others behavior, have been less consistently associated with problem drinking (Cooper, 1994; Cox & Klinger, 1988). It is believed that those who drink mainly for social reasons are engaging in "normative" behavior and therefore it should not be related to problem drinking (Cooper, Russell, & George, 1988).Unfortunately, little research has focused on social and conformity motives for drinking, leaving no consensus in the literature on their relationship with problematic drinking. However, according to studies that have looked at external motives, the most frequently reported drinking motive in higher education is social motivation, followed in order by enhancement, coping, and conformity motives (Nemeth, Urban, Kuntsche, San Pedro, Roales Nieto, Farkas, & Demetrovics, 2011; Van Damme, Maes, Clays, Rosiers, Van Hal, & Hublet, 2013)

Drinking alcohol is a motivated behavior with the intention to regulate emotional experiences (Cooper et al, 1995). Affective models state that individuals drink to decrease negative emotional experiences or to increase existing positive emotions, both which may lead to problematic drinking (Cooper, Krull, Agocha, Flanagan, Orcutt, Grabe, & Jackson, 2008; Kuntsche, Knibbe, Gmel, & Engels, 2005; Littlefield & Sher, 2010;). Those who are motivated to use alcohol to regulate their affective state tend drink larger quantities and drink more often, and are also at higher risk for developing alcohol-related problems, such as psychological distress and physical complications (Cooper, 1994; Cooper et al., 1988; Cooper et al., 1995). It has been found that both coping and enhancement drinking motives are positively related with heavy drinking, as well as alcohol-related problems in students (Birch, Stewart, Wall, McKee, Eisnor, & Theakston, 2004; Kuntsche, Knibbe, Gmel, & Engels 2006; Kuntsche, Knibbe, Gmel, & Engels 2006; Kuntsche, von Fischer, & Gmel, 2008; Kuntsche et al., 2005; Merrill & Read, 2010; Nemeth et al., 2011; Van Damme, Maes, Clays, Rosiers, Van Hal, & Hublet, 2013).

Coping motives in particular have been found across multiple samples to be consistently related to problem drinking (Cooper, Russell, Skinner, Frone, & Mudar, 1992; Kassel, Jackson & Unrod, 2000; Kuntsche et al., 2005; Laurent, Catanzaro, & Callan, 1997; Park, Armeli, & Tennen, 2004; Park & Levenson, 2002). After controlling for alcohol consumption, it has been shown that only coping motives predict problem drinking directly (Cooper, 1994; Carey & Correia, 1997; Cunningham, Sobell, Sobell, Gavin, & Annis, 1995; Holahan, Moss, Holahan, Cronkite, & Randall, 2001; Krank,

Wall, Stewart, Wiers, & Goldman, 2005; Rafnsson, Jonsson, & Windle, 2006; Windle & Windle, 2006).

Coping Strategies, Alcohol-Related Consequences, and Alcohol Use

Several studies have examined coping strategies as potential risk factors for problematic alcohol use (Cooper, 1994; Cox & Klinger, 1988). Coping strategies can be characterized broadly as styles that are adaptive or maladaptive. While adaptive coping strategies are action oriented (Lazarus, 1991) and focus on changing the current problem causing distress (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986), whereas maladaptive coping strategies involve avoiding thoughts and feelings created by the stressful situation (Carver, Scheier, & Weintraub, 1989).

According to social learning models of alcohol use, drinking to cope is a maladaptive response, used when more adaptive coping strategies are not available (Abrams & Niaura, 1987; Cooper et al., 1995; Cooper et al., 1988) Research has focused mainly on maladaptive coping, more specifically avoidant coping (Carver et al., 1989) Avoidance coping has been found to lead to higher levels of drinking and alcohol-related problems (Bonin, McCreary, & Sadava, 2000; Cooper et al., 1988, 1992, 1995; Willis, Wallston, & Johnson, 2001). Alcohol consumption and consequences related to consumption have been positively correlated with the use of avoidant coping during adolescence (Laurent, Catanzaro, & Callan, 1996), as well as adulthood (Cooper et al, 1988). Previous research has examined avoidance coping in relation to drinking to cope. It has been found that one reason individuals drink to cope is due to a lack of other, more adaptive coping strategies (Cooper et al., 1995), especially when they desire to reduce negative affect (Marlatt & Donovan, 2005).

Researchers suggest that individuals develop maladaptive coping styles in order to adapt to schemas, or dysfunctional themes related to an individual and their relationship with others. These schemas are often developed during childhood and continued to be used into adulthood (Young, 2003). These maladaptive coping styles have been divided into three categories: Surrender (giving in to schemas), Avoidance (avoiding/escaping schemas), and Overcompensation (doing the opposite of what the schemas tells one to do). These coping styles are often adaptive when the individual is younger; however, they often develop into maladaptive strategies as they are carried into adulthood. Within these maladaptive coping styles, eighteen themes, or schemas, have been identified (Young, 2003), and of these schemas the coping strategy of 'subjugation' (i.e., the suppression of one's needs and emotions in order to avoid anger or abandonment from others) tends to be closely related to engagement in substance use behaviors.

Pessimism (negative worldview) and neuroticism (high levels of anxiety) have been identified in the literature as risk factors in the development of addiction (Lechner, Shadur, Banducci, Grant, Morse, & Lejuez, 2014; Wray, Dvorak, Hsia, Arens, & Schweinle, 2013). In theory, maladaptive coping strategies involving detachment and negativity (i.e., pessimism or focusing on negative aspects of everyday life), and overcompensation via unrelenting standards (i.e., the idea that one must strive to meet high internalized standards to avoid criticism), may be also be connected to problematic alcohol use but, to the authors' knowledge, research in this area does not exist.

Alcohol use can become a primary means of maladaptive coping for individuals. Coping motivated drinking has been linked to alcohol abuse and dependency (Cooper et al., 1992; Kassel et al., 2000; Kuntsche et al., 2005; Laurent et al., 1997; Park et al.,

2004; Park & Levenson, 2002) and over time can result in a variety of negative physical outcomes, such as physical violence, (Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994; Wells, Graham, Speechley, & Koval, 2005), hangovers (Mallett, Bachrach, & Turrisi, 2008), and unwanted sexual encounters (Mallett, Lee, Neighbors, Larimer, & Turrisi, 2006) .

Physical consequences of alcohol abuse and dependency have been well documented over time; however, he negative interpersonal and psychological-related consequences of alcohol use and abuse is an area in which research is not as prominent. However, researchers examining alcohol-related consequences have observed that poor impulse control was linked to alcohol abuse and dependence (Bennett, McCrady, Johnson, & Pandina, 1999; Blume, Schmaling, & Marlatt, 2006; Sher, Bartholow, & Wood, 2000; Grimaldi, Napper, & LaBrie, 2014). It has also been observed that individuals who have also experienced many negative alcohol associated interpersonal consequences, such as the loss or inability to sustain relationships with peers and loved ones, also displayed excessive and problematic alcohol use (Blume et al, 2006; Larimer & Kilmer, 2000; Moeller & Dougherty, 2001). Intrapersonal consequences, based on previous experiences with alcohol consumption and consequences related to drinking, have also been examined. A large amount of studies have been conducted demonstrating relationships between positive as well as negative expectancies and drinking (Adams and McNeil, 1991; Neighbors, 2003; Wood, 2001). However, more studies observing other alcohol-related consequences besides those of a physical nature are also necessary to fully understand their relationship with alcohol use and abuse.

Purpose

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The purpose of the current study is to evaluate and assess the relationships and predictive behavior between problematic alcohol use and drinking motives, strategies used to cope, as well as consequences of alcohol use. It is vital to clinical interventions and treatment programs of patients with problematic alcohol use to understand how these various constructs interact with one another in order to more effectively treat these individuals.

Aim 1. A well-documented positive relationship between drinking to manipulate affective states and engagement in problematic alcohol use exists in the literature; however, less consistent findings exist regarding the relationship of alcohol use with social, external drinking motives. Therefore, one goal of the current study was to determine the extent to which alcohol-related motivations, both internal and external, predict problematic alcohol use in a college sample.

Hypothesis 1.1. It is anticipated that problematic alcohol use will be predicted by high scores on internal drinking motives subscales (i.e., drinking to cope with negative affect and drinking to enhance positive affect).

Hypothesis 1.2. It is expected that high scores on external drinking motives subscales (i.e., drinking to be social and drinking to conform to others' behavior) will not be predictive of problematic alcohol use.

Aim 2. Previous literature has examined and cited a relationship between maladaptive coping strategies (i.e. avoidant coping) and problematic alcohol use. However, these studies have found mixed results in regards to how these two aspects interact with each other or which specific coping styles are more closely related to

problematic drinking behaviors. Therefore, another goal of this study was to determine the extent to which coping strategies predict problematic alcohol use in a college sample.

Hypothesis 2.1. Maladaptive coping strategies, such as suppression of needs and emotions, negativity, and holding of unrealistic standards will be predictive of problematic alcohol use.

Aim 3. There have been few studies focusing on consequences related to alcohol use. A wide majority of these studies have focused on physical consequences, while few have looked at other consequences, such as psychological or interpersonal consequences. This led to the final purpose of the current study: to determine to what extent level of alcohol use is predictive of negative alcohol-related consequences (e.g., psychological problems, interpersonal issues, and behavioral risks).

Hypothesis 3.1: It is expected that problematic alcohol use will be predictive of poor impulse control, interpersonal problems, and psychological distress.

Participants

Participants had to be at least 18 years of age in order to participate in the current study. Participants were recruited through SONA, an organizational system used by the GSU Psychology Department that allows students to sign up for studies of particular interest to them. One hundred and ten psychology undergraduate students from Georgia Southern University participated in the study for course credit or extra credit. Thirty-eight individuals reported that they have never consumed alcohol or do not currently drink alcohol, thus were excluded from the data set. Another individual failed to complete the last four questions of the final questionnaire, and the incomplete data was excluded from the final data analysis. In total, 71 participants were included in the data analysis (54.2% female). Participants ranged from 18-32 years old ($M = 20.14$; $SD = 2.835$), and identified their race as either White/Caucasian (83.3%) or Black/African American (16.7%). Overall, participants were characterized as "light" or "social" drinkers based on average scores on an alcohol screening measure ($M = 4.944$; $SD = 3.415$) (see Appendix A), where a score of 8 or higher is indicative of problematic alcohol use.

Measures

Problem Drinking. Participants completed the Alcohol Use Disorder Identification Test (AUDIT; Saunders et al., 1993; see Appendix E), which is a brief screening questionnaire of problematic alcohol use. The AUDIT inquires about alcohol usage using a Likert-type scale ranging from 1 (*never*) to 4 (*daily/almost daily*). Scores of 8 or higher, after the summation of all 10 items, indicate risk of problem drinking behaviors. This measure has shown consistent internal reliability ($\alpha =. 918$) (Kim, Lee,

Lee, Seo, Kim, Kang, & Choi, 2013). The AUDIT demonstrated poor internal reliability

(α =. 543), which is below the standard level of acceptance. Thus results involving the

AUDIT as a measure of problematic drinking should be interpreted with caution.

Drinking Motivation. To assess the relative frequency of alcohol consumption,

participants completed the Drinking Motives Questionnaire-Revised (DMQ-R; Cooper,

1994; see Appendix D). This self-report questionnaire consists of 20 items that examine

alcohol use using a Likert-type scale ranging from 1 (*almost never/never*) to 4 (*almost*

always/always) based on four different motives: Coping, Enhancement, Social, and

Conformity. In previous research conducted using this measure, Coping (α = .700),

Enhancement (α = .840), Social (α = .810), and Conformity (α =.820) subscales have

displayed acceptable internal reliability (Merrill & Thomas, 2013). All four motives

were used in the current study. Coping (α = .805), Enhancement (α = .883), Social (α =

.883), and Conformity (α = .777) subscales also showed acceptable internal reliability.

Consequences of Alcohol Use. The Drinker Inventory of Consequences (DrInC-

2R; Miller et al., 1995; see Appendix B) was assessed the participant's perceived and

actual consequences of their alcohol consumption. The instrument asks them to assess

how often, from a list of 50 statements, have various negative consequences as a result of

alcohol consumption that have happened within the past 3 months using a Likert-type

scale ranging from 0 (*never*) to 3 (*daily/almost daily*). It focuses on five subscales based

on observed alcohol related consequences: Physical, Intrapersonal, Social Responsibility,

Interpersonal, and Impulse control. This measure has shown excellent overall internal

reliability (α = .930) in previous research, while also finding excellent internal

reliabilities for the Intrapersonal (α = .960), as well as Interpersonal (α = .910) subscales.

However, the Impulse Control subscale only displayed an average internal reliability (α = .790) (Miller, Tonigan, & Longabaugh, 1995). The current study explored Intrapersonal, Interpersonal, and Impulse Control Consequences. The Intrapersonal subscale showed adequate internal reliability (α = .746), while Interpersonal (α = .651) and Impulse Control (α = .675) subscales were slightly less reliable.

Coping Strategies. The Young Compensation Inventory (YCI-1; Young, 2003; see Appendix C) assessed participants' coping abilities by asking them to rate a list of 48 statements from 1 through 6, with '1' indicating the statement is completely untrue of themselves, to '6' indicating the statement describes them perfectly. The statements focus on how the individual copes with different situations on a day-to-day basis. This instrument consists of 16 subscales of maladaptive (or unhelpful) coping strategies: Emotional Deprivation, Abandonment, Mistrust/abuse, Social Isolation, Defectiveness/shame, Failure, Dependence Incompetence, Vulnerability to Harm/illness, Enmeshment, Subjugation, Self-Sacrifice, Unrelenting Standards, Entitlement, Lack of Self Control, Approval Research, and Negativity. Internal reliability of the YCI-1 subscales within the US population is sparse; however, the YCI-1 is a popular instrument used by psychologists in other countries to measure use of different coping strategies and has demonstrated adequate internal reliability with alpha values ranging from .60 to .80 (e.g., Karaosmanoglu, Soygut, & Kabul, 2013). This study examined Subjugation, Unrelenting Standards, and Negativity. In the current study, the Subjugation subscale had acceptable internal reliability (α = .787); however, Unrelenting Standards displayed less reliability (α = .635), while Negativity showed insufficient internal reliability (α = .575).

Procedure

Participants were assessed in groups of one, two, or three in a laboratory located on the Georgia Southern University campus within the Psychology Department. After participants read and signed the informed consent form, they completed a computerized task using MediaLab v2014 software. The task consisted of a battery of 5 questionnaires, presented in random order as a method of counterbalancing, with a total of 130 items from the following instruments: the Alcohol Use Disorder Identification Test (AUDIT), the Drinking Motives Questionnaire-Revised (DMQ-R), the Drinker Inventory of Consequences (DrInc-2R), and the Young Compensation Inventory (YCI-1). Participants also completed demographic questions prior to being debriefed. Following completion of all questionnaires, participants were debriefed and thanked for their participation.

Results

Drinking Motives

A series of correlational analyses were conducted in order to evaluate the relationship between drinking motives and problematic alcohol use (see Appendix A for Table 1). Enhancement motives ($r = .386$), social motives ($r = .386$), and conformity motives ($r = .349$) were significantly correlated with problematic alcohol use scores. However, coping motives were not significantly related to problematic alcohol use scores.

Two stepwise multiple regression analyses were conducted to evaluate the data. The first analysis was used to determine whether coping and enhancement drinking motives predict problematic alcohol use. In Step 1 of the analysis, the scores on the enhancement subscale were entered into the regression analysis and was found to be a significant predictor of problematic drinking scores $F(2,69) = 5.546$, $p < .05$. The multiple correlation coefficient (r) was .138, indicating approximately 11.4% of the variance of problematic drinking was accounted for by enhancement drinking motives. Coping motives did not enter into Step 2, due to the lack of correlation with the problematic drinking scale used in this study ($r = .218$).

The second stepwise multiple regression analysis was conducted to determine whether social and conformity drinking motives predict problematic alcohol use. In Step 1, scores on the social motive subscale were entered into the analysis and were found to be a significant predictor of problematic drinking scores $F(2,69) = 9.551$, $p<.0001$. The multiple correlation coefficient (r) was .217, indicating approximately 19.4% of the variance in problematic drinking could be accounted for by social drinking motives.

Conformity motives were entered into step 2 and were also found to be a significant predictor of problematic drinking scores F(2,69) = 9.551, $p<.0001$.

Coping and Alcohol Use

Correlational analyses were conducted to determine whether the coping strategies are related to problematic drinking (Table 2). Subjugation ($r = .219$), negativity ($r = -.225$), and unrelenting standards ($r = -.090$) coping strategies were not correlated with the problematic drinking measure. Therefore, no further analysis was conducted.

Alcohol-Related Consequences

A series of correlational analyses were also conducted to determine whether alcohol-related consequences are related to problematic drinking (Table 1). A significant correlation was examined for the interpersonal, intrapersonal, and impulse control subscales.

Therefore, a series of linear regression analyses were conducted in order to determine if problematic alcohol use predicts alcohol-related consequences. During the first analysis, problematic drinking scores were found to be significant predictors of interpersonal consequences F(1,70) = 20.769, $p < .0001$. The multiple correlation coefficient was .229, indicating that approximately 21.8% of the variance of interpersonal alcohol-related consequences could be accounted for by problematic drinking.

The second linear regression analysis determined that problematic drinking scores were also significant predictors of intrapersonal consequences F(1,70) = 25.444, $p < .0001$. The multiple correlation coefficient was .267, which indicates that approximately 25.6% of the variance of intrapersonal alcohol-related consequences could be accounted for by problem drinking.

The final analysis determined that problematic drinking also significantly predicts impulse control consequences $F(1,70)= 31.767$, $p < .0001$. The multiple correlation coefficient was .312, meaning problematic drinking accounted for 30.2% of the variability in impulse control alcohol-related consequences.

Discussion

Significant relationships amongst problematic alcohol use, motives to drink alcohol, maladaptive styles of coping, and alcohol-related consequences have been well-documented in the literature. However, on each of these constructs has not been consistent across studies. Therefore, in order to aid in the current knowledge on these subjects, this study assessed the relationships between problematic alcohol use, motives for drinking, coping strategies, and alcohol-related consequences in a sample of college students.

Current literature related to predictive properties of drinking motives and coping strategies in regards to problematic drinking (Blume et al, 2006; Cooper, 1994; Cooper et al., 1992; Young, 2003), as well as on predictive properties of problematic drinking on consequences of alcohol consumption (Grimaldi, Napper, & LaBrie, 2014; Neighbors, 2003; Wood, 2001), has also presented mixed results. The present study aimed to determine the extent to which drinking motives and coping strategies are predictive of problematic alcohol use, as well as to what extent problematic (heavy) drinking is predictive of negative consequences related to alcohol use.

The results presented unexpected, yet interesting information for Aim 1. The findings for hypothesis 1.1 were not expected. Enhancement motives, but not coping motives, predicted problematic alcohol use. Results for hypothesis 1.2 were also unexpected. Both social and conformity drinking motives predicted problematic alcohol use in the sample. These findings are contradictory from a majority of previous research that connects internal drinking motives (coping and enhancement motives) to problem drinking (Cooper, 1994; Cooper et al., 1992; Cox & Klinger, 1988; Kassel et al., 2000;

Kuntsche et al., 2005; Laurent et al,, 1997; Park et al., 2004; Park & Levenson, 2002). The majority of the current sample was classified as "socially motivated drinkers," followed by enhancement motivated, by conformity motivated, and finally by coping motivated drinkers. However, a handful of studies conducted have yielded similar patterns to that demonstrated in the present study (e.g., Nemeth, Urban, Kuntsche, San Pedro, Roales Nieto, Farkas, & Demetrovics, 2011; Van Damme, Maes, Clays, Rosiers, Van Hal, & Hublet, 2013). The societal and cultural aspect of drinking in a college sample as a normative behavior may account for the overall "social motivation" of these undergraduate participants. Drinking motives have also been argued to be more of continuous constructs (versus stable) that vary within individuals over time (Littlefield, Verges, Rosinki, Steinley & Sher, 2012), highlighting another potential reason for the generally mixed results in research regarding drinking motives.

Perhaps the most unexpected results addressed in Aim 2 were the lack of relationships found between coping strategies and problematic alcohol use, which is in direct contradiction to a body of literature on coping in relation to alcohol use (Bonin, McCreary, & Sadava, 2000; Cooper et al., 1988, 1992, 1995; Willis, Wallston, & Johnson, 2001). Of the three subscales assessing maladaptive coping strategies (e.g., subjugation, negativity, and unrelenting standards), none were significantly correlated with the problem drinking. The lack of significance, however, may be due to a number of factors. The majority of the sample was characterized as socially motivated drinkers, which has not been directly linked to problematic alcohol use in the literature. From this, it could be hypothesized that these individuals may demonstrate adaptive coping strategies without relying on alcohol to regulate emotion. Another contributing factor in

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this lack of relationship might be due to the chosen measurement of coping strategies. That is, the YCI-1 may not have been the most appropriate measure of coping strategies since it not a well-established measure in the United States and did not demonstrate acceptable levels of internal reliability in the current study which could reduce the power of detecting significant relationships.

The results relating to the consequences of alcohol use addressed in Aim 3 support the hypothesis that interpersonal and intrapersonal consequences, as well as poor impulse control, are significant predictors of problematic alcohol use. These findings are consistent with research related to impulse control (Bennett, McCrady, Johnson, & Pandina, 1999; Blume, Schmaling, & Marlatt, 2006; Grimaldi, Napper, & LaBrie, 2014; Larimer & Kilmer, 2000; Moeller & Dougherty, 2001; Sher, Bartholow, & Wood, 2000), alcohol-related expectancies leading to intrapersonal consequences (Adams and McNeil, 1991; Neighbors, 2003; Wood, 2001), and interpersonal alcohol-related consequences (Blume et al, 2006; Larimer & Kilmer, 2000; Moeller & Dougherty, 2001). With limited research on this particular topic, it is difficult to fully understand *how* the experiences of certain alcohol-related consequences are predictive of problematic alcohol use. However, it can be speculated that alcohol abuse could affect individuals with current psychological distress or illness in a more behavioral or psychological way (i.e., potentially through maladaptive coping strategies or unidentified mediators, such as impulsivity that were not accounted for), than those without any affective or psychological problems. This study did not assess for personality characteristics, evaluate mental health status or inquire about past or current psychiatric diagnoses. Future research needs to be conducted to

further investigate the relationship between an individual's mental health and their perceptions of alcohol-related consequences.

Limitations

There are several limitations of this study that possibly affected the findings. First, the small sample size ($N = 71$) may limit generalizability of results to college populations generally, as well as reduce the ability to detect meaningfully significant results. This sample consisted solely of students currently enrolled in college, which makes the data less likely to reflect and represent patterns within other populations within the United States. Another limitation was in methodology: the current study consisted only of self-report measures, which make it easier for participants to alter their responses and potentially record false responses. Self-report methods have also been thought to be influenced by the values and beliefs of the society or culture of the participant instead of on the actual influences on their own reasons for drinking (Colder, 2001).

Limitations of the instruments used in the current study could have potentially contributed to lack of significant findings. The AUDIT measure, which assessed for problem drinking, demonstrated inadequate internal reliability in the current sample. This could be due to the small sample size, potential dishonesty of participants when answering these questions, or due to random responding by participants. The infrequent use and poorly established reliability of the YCI-1 in research conducted in the United States also could account for insignificant findings. In light of this, a more appropriate, better established instrument to evaluate coping strategies might have been more effective in detecting possible significant relationships with problematic drinking measures. On the other hand, the low Cronbach's alphas produced in this study could be

due to a small sample size, or possibly any random responding that was not controlled for in the design. Related specifically to random responding, the data as it currently stands may not accurately reflect the true nature of relationships if participants were not putting in the adequate amount of effort by not carefully reading and answering the questions.

Future Directions

A longitudinal design could more effective in accurately measuring and examine the relationship of alcohol use to drinking motives, coping strategies, and consequences related to alcohol consumption, in comparison to the cross-sectional, correlational method used in the current study. Specifically, longitudinal data collection could more accurately assess participant's drinking motives and coping strategies, since these constructs can quickly change from one classification to another based on the situation the individual is currently engaged. Future research is needed to determine if drinking motives differ based on personality traits and/or an individual's sensitivity to the effects and consequences of alcohol use.

Research has suggested that the relationship between coping strategies and the consumption of alcohol, as well as alcohol-related consequences, is more complex than previously thought, especially within the college population (Britton, 2004; Evans & Dunn, 1994; Fromme & Rivet, 1994). It is argued that the relationship between coping styles and alcohol use may also be different during the different stages of development. Avoidant coping styles used during adolescence as well as adulthood have been found to relate to the consumption of alcohol, along with negative consequences associated with consumption (Cooper et al, 1988; Laurent, Catanzaro, & Callan, 1996). However, college is a developmental period that poses unique challenges to individuals that might influence

this relationship. For example, some individuals rely on avoidant coping because they lack other strategies, while others might possibly observe their peers using alcohol as a coping mechanism and in turn engage in the behavior, even if they have more effective strategies available for use (Britton, 2004).

Future research should look to address other aspects of problematic drinking in relation to motives, coping, and consequences. For example, implicit measures of cognition should be incorporated, instead of strictly explicit self-report measures. Implicit measures could potentially predict behavior that is not related to conscious decision making. It is also important to incorporate gender differences, as well as family history of mental health issues and history of substance abuse, since these factors can also potentially influence results. One of the most important future research area focuses should be directed at socially motivated drinking in the context of problematic drinking, due to the lack of attention on this motive in particular. The social norms approach to interventions for these individuals are thought to be effective in reducing alcohol abuse by targeting misperceptions of normative behavior (Moreira, Smith, & Foxcroft, 2009). These are just a very few of the possible future research focuses related to alcohol use and underlying motives, related coping strategies, as well as positive and negative consequences associated with drinking,

Conclusion

The present study aimed to examine better understand problematic alcohol use in the college population. Specifically, the first aim investigated the relationship and predictive ability of drinking motives on detecting problematic drinking. It was found that problematic alcohol consumption was significantly predicted by social,

enhancement, and conformity motives. Coping motives were not found to be significant predictors. The second aim examined alcohol use and the role of maladaptive coping strategies. However, contrary to the hypotheses, coping strategies were not found to be related to problematic alcohol use. The third and final aim explored the relationship between alcohol-related consequences and problematic drinking and revealed that problematic alcohol consumption was predictive of poor impulse control, interpersonal consequences, and intrapersonal consequences as a result of use.

The findings of the present study have important implications on the development of treatment and intervention programs for engaging in problematic alcohol use. These findings can also aid in the understanding vital components involved in problematic alcohol consumption, especially in college populations which are known to be a high risk population for the development of alcohol abuse and dependence.

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Table 1. Summary of correlational analyses for measures used to predict drinking motives, coping strategies, and alcohol-related consequences.

	1	2	3	4	5	6	7	8	9	10	11
DMQR-Coping	---										
DMQR-Enhancement	.484**	---									
DMQR-Social	.557**	.798**	---								
DMQR-Conformity	0.17	0.175	.250*	---							
YCI-Subjugation	.366**	.399**	.424**	0.155	---						
YCI-Unrelenting Standards	0.186	0.084	0.195	-0.028	.571**	---					
YCI-Negativity	-0.091	-0.135	-0.051	-0.195	0.005	.471**	---				
DrInC-Interpersonal	.255*	.282*	.356**	0.221	.290*	0.227	-0.054	---			
DrInC-Intrapersonal	0.192	0.173	.340**	.398**	0.227	.239*	0.03	.549**	---		
DrInC-Impulse Control	.241*	.463**	.528**	.242*	.365**	0.032	-0.066	.599**	.435**	---	
AUDIT	0.218	.369**	.386**	.349**	0.219	-0.09	-0.225	.478**	.516**	.559**	---

Note: (*) significant at $p < .05$; (**) significant at $p < .01$.

Appendix B

Drinker Inventory of Consequences (DrInC-2R)

INSTRUCTIONS: Here are a number of events that drinkers sometimes experience. Read each one carefully and indicate how often each one has happened to you *DURING THE PAST 3 MONTHS* by circling the appropriate number (0 = Never, 1 = Once or a few times, etc.). If an item does not apply to you, circle zero (0).

DURING THE PAST 3 MONTHS, about how often has this happened to you? Circle one answer for each item.	**Never**	**Once or a few times**	**Once or twice a week**	**Daily or almost daily**
1. I have had a hangover or felt bad after drinking.	0	1	2	3
2. I have felt bad about myself because of my drinking.	0	1	2	3
3. I have missed days of work or school because of my drinking.	0	1	2	3
4. My family or friends have worried or complained about my drinking.	0	1	2	3
5. I have enjoyed the taste of beer, wine, or liquor.	0	1	2	3
6. The quality of my work has suffered because of my drinking.	0	1	2	3
7. My ability to be a good parents has been harmed by my drinking.	0	1	2	3
8. After drinking, I have had trouble with sleeping, staying asleep, or nightmares.	0	1	2	3
9. I have driven a motor vehicle after having three or more drinks.	0	1	2	3
10. My drinking has caused me to use other drugs more.	0	1	2	3

11. I have been sick and vomited after drinking.	0	1	2	3
12. I have been unhappy because of my drinking.	0	1	2	3
13. Because of my drinking, I have not eaten properly.	0	1	2	3
14. I have failed to do what is expected of me because of my drinking.	0	1	2	3
15. Drinking has helped me to relax.	0	1	2	3
16. I have felt guilty or ashamed because of my drinking.	0	1	2	3
17. While drinking, I have said or done embarrassing things.	0	1	2	3
18. When drinking, my personality has changed for the worse.	0	1	2	3
19. I have taken foolish risks when I have been drinking.	0	1	2	3
20. I have gotten into trouble because of drinking.	0	1	2	3
21. While drinking or using drugs, I have said harsh or cruel things to someone.	0	1	2	3
22. When drinking, I have done impulsive things that I regretted later.	0	1	2	3
23. I have gotten into a physical fight while drinking.	0	1	2	3

Now answer these questions about things that may have happened to you:

DURING THE PAST 3 MONTHS, how much has this happened? Circle one answer for each item.	Not at all	A little	Somewhat	Very much
24. My physical health has been harmed by my drinking.	0	1	2	3
25. Drinking has helped me to have a more positive outlook on life.	0	1	2	3
26. I have had money problems because of my drinking.	0	1	2	3
27. My marriage or love relationship has been harmed by my drinking.	0	1	2	3
28. I have smoked tobacco more when I am drinking.	0	1	2	3
29. My physical appearance has been harmed by my drinking.	0	1	2	3
30. My family has been hurt by my drinking.	0	1	2	3
31. A friendship or close relationship has been damaged by my drinking.	0	1	2	3
32. I have been overweight because of my drinking.	0	1	2	3
33. My sex life has suffered because of my drinking.	0	1	2	3

34. I have lost interest in activities and hobbies because of my drinking.	0	1	2	3
35. When drinking, my social life has been more enjoyable.	0	1	2	3
36. My spiritual or moral life has been harmed by my drinking.	0	1	2	3
37. Because of my drinking, I have not had the kind of life that I want.	0	1	2	3
38. My drinking has gotten in the way of my growth as a person.	0	1	2	3
39. My drinking has damaged my social life, popularity, or reputation.	0	1	2	3
40. I have spent too much or lost a lot of money because of my drinking.	0	1	2	3

Appendix C

Young Coping Inventory (YCI-1)

INSTRUCTIONS: Listed below are statements that a person might use to describe himself or herself. Please read each statement and decide how well it describes you.

If you desire, reword the statement so that the statement would be even more true of you. Then choose the **highest rating from 1 to 6** that describes you (including your revisions), and write the number in the space before the statement.

RATING SCALE:

Completely untrue of me = 1

Mostly untrue of me = 2

Slightly more true than untrue = 3

Moderately true of me = 4

Mostly untrue of me = 5

Describes me perfectly = 6

EXAMPLE:

A. ___4___ I worry that people I care about will not like me.

1. _____ I take out my frustrations on the people around me.

2. _____ I often blame others when things go wrong.

3. _____ I show a lot of anger when people let me down or betray me.

4. _____ I can't let go of anger without getting revenge.

5. _____ I get defensive when I'm criticized.

6. _____ It's important that others admire my accomplishments or achievements.

7. _____ The visible trappings of success (e.g., expensive car, clothing, home) are important to me.

8. _____ I work hard to be among the best or most successful.

9. _____ It's important to me to be popular (e.g., part of the in-crowd)

10. _____ I often have fantasies of success, fame, wealth, power, or popularity.

11. _____ I like to be the center of attention.

12. _____ I am more flirtatious or seductive than the average person.

13. _____ I put a lot of emphasis on having order in my life (e.g., organization, structure, planning, routine).

14. _____ I expend a lot of effort trying to avoid having things go wrong.

15. _____ I agonize over decisions so I won't make a mistake.

16. _____ I am quite controlling of the people around me.

17. _____ I like being in positions where I have control or authority over the people around me.

18. _____ I dislike other people having any say over my life.

19. _____ I have a hard time compromising or giving in.

20. _____ I don't like being dependent on anyone.

21. _____ It's crucial to me that I make my own decisions and support myself.

22. _____ I have trouble committing to one person or settling down.

23. _____ I like to be a "free agent", to have the freedom to do what I want.

24. _____ I have trouble limiting myself to one job or career; I like to keep my options open.

25. _____ I usually put my own needs before others.

26. _____ I am often demanding with other people -- I like everything to be "just right".

27. _____ I have to take care of myself first, the way other people do.

28. _____ It is very important to me that my environment be comfortable (e.g., temperature, light, furniture).

29. _____ I think of myself as a rebel; I often go against the established authority.

30. _____ I dislike rules and can get satisfaction from breaking them.

31. _____ I enjoy being unconventional, even if it's unpopular or I don't fit in.

32. _____ I don't try to be successful by society's standards (e.g., wealth, achievement, popularity).

33. _____ I've always "marched to a different drummer".

34. _____ I'm a very private person; I don't like people knowing a lot about my private life or feelings.

35. _____ I try to appear strong to other people, even if I feel vulnerable or unsure of myself.

36. _____ I can be very possessive or clinging with the people I value.

37. _____ I am often manipulative to achieve my goals.

38. _____ I often prefer indirect means of getting my way instead of directly asking for what I want.

39. _____ I keep people at a distance so they only see the parts of myself I want them to see.

40. _____ I am a highly critical person.

41. _____ I feel I'm under a great deal of pressure to meet my own standards or responsibilities.

42. _____ I am often tactless or insensitive in expressing myself.

43. _____ I try to be optimistic at all times; I don't let myself focus on the negative.

44. _____ I believe its important to "put on a happy face" regardless of what I feel inside.

45. _____ I often feel envious or frustrated when others are more successful or get more attention than I do.

46. _____ I will go to considerable lengths to be sure I get my fair share and am not cheated.

47. _____ I look for ways to outsmart people so they won't take advantage of me or hurt me.

48. _____ I know just what to say or do to get other people to like me (e.g., flattery, saying what they want to hear).

Now please indicate whether these things have happened to you DURING THE PAST 3 MONTHS.

Has this happened to you DURING THE PAST 3 MONTHS? Circle one answer for each item.	No	Almost	Yes, once	Yes, more than once
41. I have been arrested for driving under the influence of alcohol.	0	1	2	3
42. I have had trouble with the law (other than driving while intoxicated) because of my drinking.	0	1	2	3
43. I have lost a marriage or a close love relationship because of my drinking.	0	1	2	3
44. I have been suspended/fired from or left a job or school because of my drinking.	0	1	2	3
45. I drank alcohol normally, without any problems.	0	1	2	3
46. I have lost a friend because of my drinking.	0	1	2	3
47. I have had an accident while drinking or intoxicated.	0	1	2	3
48. While drinking or intoxicated, I have been physically hurt, injured, or burned.	0	1	2	3
49. While drinking or intoxicated, I have injured someone else.	0	1	2	3
50. I have broken things while drinking or intoxicated.	0	1	2	3

Appendix D

Drinking Motives Questionnaire-Revised (DMQ-R)

<u>**Directions:**</u> The following is a list of reasons that people sometimes give for drinking alcohol. Thinking of all the times you drink, how often would you say that you drink for each of the following reasons. In the space provided next to each reason, write the number that corresponds to how often it serves as a reason for you to drink on a scale of 1-5 with 1 representing almost never/never and 5 representing always.

How often would you say you drink…

1. To forget your worries.

2. Because your friends pressure you to drink.

3. Because it helps you to enjoy a party.

4. Because it helps you when you feel depressed or nervous.

5. To be sociable.

6. To cheer up when you are in a bad mood.

7. Because you like the feeling.

8. So that others won't kid you about not drinking.

9. Because it's exciting.

10. To get high.

11. Because it makes social gatherings more fun.

12. To fit in with the group you like.

13. Because it gives you a pleasant feeling.

14. Because it improves parties and celebrations.

15. Because you feel more self-confident and sure of yourself.

16. To celebrate special occasions with friends.

17. To forget about your problems.

18. Because it's fun.

19. To be liked.

20. So you won't feel left out.

Alcohol Use Disorder Identification Test (AUDIT)

Directions: Below are statements that represent your behavior. For each section, please indicate the answer that best matches your experience.

*For answering these questions, one drink is equal to 10 ounces of beer, or 4 ounces of wine, or 1 ounce of liquor.

(Rate your answer on a scale of 0-4, with 0 representing never and 4 representing four or more times a week.)

1. How often do you have a drink containing alcohol?

(Rate your answer on a scale of 0-4, with 0 representing 1-2 drinks and 4 representing four or more times a week.)

2. How many drinks containing alcohol do you have on a typical day when you are drinking?

(Rate your answer on a scale of 0-4, with 0 representing never and 4 representing daily or almost daily.)

3. How often do you have six or more drinks on one occasion?

4. How often during the last year have you found that you were not able to stop drinking once you had started?

5. How often during the last year have you failed to do what was normally expected from you because of drinking?

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

7. How often during the last year have you had a bad feeling of guilt or remorse after drinking?

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?

(Rate your answer on a scale of 0, 2, or 4, with 0 representing no, 2 representing yes, but not in the last year, and 4 representing yes, during the last year)

9. Have you or someone else been injured as a result of your drinking?

10. Has a relative or friend, or a doctor or other health worker been concerned about your drinking or suggested you cut down?