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Testing the Specificity of the Prospective Relationship between Social Anxiety Disorder and Drinking Motives

Michael Windle^{a,*} and Rebecca C. Windle^a

^aDepartment of Behavioral Sciences and Health Education, Emory University, 1518 Clifton Road NE, Atlanta, Georgia 30322, United States

Abstract

This study tested the specificity of the relationship between Social Anxiety Disorder (SAD) and coping drinking motives (versus enhancement drinking motives and social drinking motives) within the context of a range of potentially confounding variables measured during adolescence (e.g., quantity and frequency of alcohol use, coping drinking motives) and substantively important variables assessed during young adulthood (e.g., other anxiety disorders and Major Depressive Disorder). A sample of high school sophomores and juniors ($n=717$) completed measures of substance use and risk factors during adolescence and were then prospectively followed-up in early- and middle-young adulthood, and psychiatric diagnoses and drinking motives (i.e., coping, enhancement, social) were assessed each time. Findings indicated that SAD was specifically related to coping motives (measured during early-to-middle young adulthood) after controlling for the effects of a range of alcohol and mental health variables. In addition, adolescent variables predicted young adult drinking motives as did Major Depressive Disorder and other anxiety disorders. These findings are discussed within a conceptual framework of the functional role (e.g., self-medication) that drinking motives, and especially coping drinking motives, may play in the etiology of alcohol problems and disorders. Implications for prevention and treatment interventions are discussed.

Keywords

Adolescence; Young Adulthood; Drinking Motives; Social Anxiety Disorder

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*Corresponding Author: Department of Behavioral Sciences and Health Education, Emory University, 1518 Clifton Road NE, Room 564, Atlanta, Georgia 30322, United States. Tel.: +1 404 727 9868; fax: +1 404 727 1369. mwindle@emory.edu (M. Windle).

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Author Disclosure

Contributors

Dr. Windle designed the study and wrote the protocol. Ms. Windle conducted literature searches and provided summaries of previous research studies. Dr. Windle conducted the statistical analysis. Dr. Windle and Ms. Windle wrote the first draft of the manuscript and all authors contributed to and have approved the final manuscript.

Conflict of Interest

Neither author has a conflict of interest.

1. Introduction

Considerable research has been conducted on the proximal and differential role of motives for drinking on alcohol use, alcohol problems, and alcohol disorders (Kuntsche, Knibbe, Gmel, & Engels, 2005, 2006; Sher, Grekin, & Williams, 2005). However, studies of *precursors* of motives for drinking have been limited despite some recent studies supporting the potential role of motives for drinking as a mediator or moderator between social anxiety symptoms and disorders (SAD), a typically early onset disorder (in childhood/early adolescence), and alcohol use and alcohol problems in adolescence and young adulthood (Blumenthal, Leen-Feldman, Frala, Bandour, & Ham, 2010; Buckner, Schmidt, & Eggleston, 2006; Ham, Bonin, & Hope, 2007; Ham, Zamboanga, Bacon, & Garcia, 2009; Lewis, Hove, & Whiteside, 2008). Moreover, issues have been raised about the strength and specificity of the associations between SAD and drinking motives, particularly for coping motives for drinking. For example, Blumenthal et al. (2010) reported a significant, positive relationship between social anxiety and coping drinking motives but not between social anxiety and enhancement, social, or conformity motives. In contrast, Buckner et al. (2006) found that social anxiety was related to enhancement motives but not to social or coping motives.

Drinking motives are guided by the notion that individuals imbibe alcohol to achieve valued outcomes and that these motives involve cognitive-motivational aspects of decision-making (Cooper, Russell, Skinner, & Windle, 1992; Cox & Klinger, 1988). Cooper et al. identified three distinct drinking motives they referred to as coping, social, and enhancement motives. Social and enhancement motives were conceptualized as positively reinforcing motivations for drinking (e.g., social drinking to facilitate camaraderie; enhancement drinking to facilitate confidence in social situations or to enhance the impact of another drug), and coping motives were conceptualized as negatively reinforcing motivations for drinking (e.g., to cope with or escape from stress). These motivations for drinking have been linked to theoretical models of the etiology of alcohol disorders through positive and negative affect regulatory processes (Cooper, Frone, Russell, & Mudar, 1995; Sher, Grekin, & Williams, 2005).

The objective of the current study was to provide an evaluation of the potentially unique association between SAD and coping motives for drinking, relative to the association (or lack thereof) between SAD and social motives and SAD and enhancement motives. A hypothesized unique relationship between SAD and coping motives for drinking is an interesting research question given that it has been postulated that SAD may represent an especially potent risk factor (relative to other anxiety disorders) for the development of problematic alcohol use and alcohol disorders (Buckner et al., 2008), and that a self-medication or tension reduction process may at least partially explain this relationship (Carrigan & Randall, 2003; Carpenter & Hasin, 1999; Kushner, Abrams, & Borchardt, 2000). That is, some individuals with high levels of social anxiety may consume alcohol in feared social situations in an attempt to reduce the adverse physiological and psychological symptoms they experience. In many Western societies, the consumption of alcohol within the context of numerous types of social events (e.g., parties, weddings) is normative behavior; thus, socially anxious people who are motivated to use alcohol as a coping mechanism in social situations are able to do so without fear of negative evaluation by others. Across time, the continued use of alcohol for coping purposes may eventually result in the development of heavy drinking, alcohol-related problems, and/or alcohol disorders (Kushner, Sher, & Beitman, 1990). A finding that SAD is specifically related to coping drinking motives has implications for prevention and treatment interventions.

By focusing on this objective of investigating the association between SAD and coping motives for drinking, we aimed to advance the research literature in two ways. First, several methodological limitations of recent studies investigating the relationship between social anxiety and drinking motives include cross-sectional research designs, small sample sizes, and/or restricted samples, such as college students or a preponderance of female participants (Blumenthal et al., 2010; Buckner et al., 2006; Ham et al., 2009; Lewis et al., 2008; Stewart, Morris, Mellings, & Komar, 2006). In order to address these limitations, we used data from a long-term longitudinal project that spanned adolescence to young adulthood and included a relatively large community sample with a high representation of each gender (Windle, Mun, & Windle, 2005).

Second, most studies have used social anxiety as the *sole* predictor variable in regression or structural equation modeling analyses, with a range of drinking motives and/or alcohol use variables as outcomes (Blumenthal et al., 2010; Ham et al., 2007; Lewis et al., 2008). Given that other variables not included in these analyses might account for the relationship between social anxiety and drinking motives or alcohol use indicators, the objective of the current study was to provide a more rigorous test of the relationship between SAD and drinking motives by controlling some potential third variable influences. To accomplish this, we utilized linear regression models that included a range of potentially confounding and substantive variables in the equations. That is, with young adult coping, enhancement, and social drinking motives as outcomes, we included sex, adolescent alcohol consumption, and adolescent depressive symptoms as potentially confounding variables that may partially account for the relationship between SAD and young adult motives for drinking. Further, we included Time 1 (adolescent) coping drinking motives as a control for T2 (young adult) coping motives. Because of the high co-morbidity of SAD with major depressive disorders (MDD) and other anxiety disorders (Grant et al., 2005), we included lifetime diagnoses of MDD, SAD, and other anxiety disorders as substantive predictor variables. This allowed us to test the ability of SAD to predict coping (and possibly other) drinking motives after accounting for the effects of prior adolescent predictors and other potentially influential variables (e.g., other anxiety and major depressive disorders).

Within this context, we put forth three study hypotheses. First, based on the findings of previous research (Blumenthal et al., 2010; Ham et al., 2007), we hypothesized that SAD would be a significant predictor of coping motives for drinking. Second, we hypothesized that SAD would not be a significant predictor of social drinking motives given that such motives (e.g., drinking to be sociable, drinking to celebrate special occasions with family and friends) have generally been found to be more commonly endorsed and to be associated with nonproblematic alcohol consumption in social situations (Cooper, 1994; Kuntsche et al., 2005). That is, drinking alcohol in social situations for celebratory purposes is viewed as normative social behavior, and is generally not associated with internalizing psychopathology, such as anxiety and depression. With regard to our third hypothesis, Cooper (1994) conceptualized enhancement motives such that they would, in general, be characterized by heavier levels of alcohol consumption within social situations in which the goal was to get high and have fun, rather than to cope with internalized feelings of insecurity and fear. Some researchers have found no relationship between social anxiety and enhancement motives (Blumenthal et al., 2010; Cooper et al., 1995), others have found only a weak relationship (Ham, Bonin, & Hope, 2007), whereas others found that enhancement motives are related to social anxiety (Buckner et al., 2006; Ham et al., 2009). Within the context of these mixed results and based on Cooper's conceptualization, we hypothesized that SAD would not be a significant predictor of enhancement drinking motives.

2. METHODS

2.1. Study Participants

The data used in this study were collected as part of a larger, multi-wave panel design focused on risk factors and adolescent substance use and mental health (Windle et al., 2005). We refer to the study by the acronym LAT, which stands for Lives across Time: A Prospective Study of Adolescent and Adult Development. The initial principal objective of the LAT was to assess the onset, escalation, maintenance, and continuation (or termination) of alcohol and other substance use among 1,205 teens during the high-school years (with four waves of assessment at six-month intervals) in relation to a range of risk factors (e.g., temperament, peer substance use, family history of alcoholism). Data were collected within the adolescents' high school setting and the overall student participation rate was 76%. The sample consisted of high school sophomores (53%) and juniors (47%) recruited from two homogeneous suburban public high school districts (a total of three high schools) in Western New York and the average age of the respondents at the first occasion of measurement was 15.54 years ($SD = 0.66$), 98% were white, and 50.8% were females. Sample retention across the first four waves of measurement was uniformly high, in excess of 90%.

There was approximately a six-year gap between the Wave 4 assessment in adolescence and the Wave 5 data collection that occurred when the average age of the young adults was 23.5 years, and about five-years between Wave 5 and Wave 6 when the average age of young adults was 28.5 years. The Waves 5 and 6 assessments were modified from Waves 1–4 in that data collection changed from a large group, in-school survey format to individual interviews of the young adults and their mothers and fathers in their homes. Greater detail on the Wave 5 assessment is provided elsewhere (Windle et al., 2005). For this study, 717 young adults who had clinical diagnostic data in young adulthood, relevant Wave 4 adolescent data, and data on motives for drinking were included. For this sample of 717, less than 5% of the individual response data were missing; thus, missing data were estimated via maximum likelihood methods. Attrition analyses for participants and non-participants in the full sample on critical predictors (e.g., adolescent delinquency, family income) and outcomes indicated minimal differences; thus, there was no evidence of selective drop-out that could bias parameter estimates and statistical tests.

2.2. Procedure

During the adolescent phase (i.e., Waves 1–4), subsequent to receiving informed consent both from a parent and the target adolescent, a trained survey research team administered the survey to adolescents in large groups (e.g., 40–50 students) in their high school setting at each wave. The survey took about 45–50 min to complete and subjects received \$10.00 for their participation. Confidentiality was assured with a U.S. Department of Health and Human Services Certificate of Confidentiality. The young adulthood interviews at Waves 5 and 6 were conducted via one-on-one interviews either in the subjects' homes or at the host institute of the investigators. Subjects were paid \$40 to complete an interview that lasted approximately two hours. Computer-assisted personal interviews were used to collect data. Because some of the young adults resided out-of-the-state (e.g., due to military service, college attendance, and jobs), a reduced telephone interview was conducted with them.

2.3. Measures

2.3.1. Motives for drinking (Adolescence, Wave 4)—Eight items were used to assess coping motives for drinking. The items were consistent with prior coping drinking motives scales (e.g., Cooper et al., 1992), but we tailored the content for the adolescent age range. Reliability and validity data for this measure has been reported elsewhere (Windle, 1996; Windle & Windle, 1996). Sample items were "I drink because it helps me to escape

problems with my family" and "I drink to help with dating-intimacy problems." Items were rated on a 4-point Likert scale ranging from *never* (1) to *always or almost always* (4). The internal consistency estimate for this scale was .91.

2.3.2. Depressed affect (Adolescence, Wave 4)—The Center for Epidemiological Studies Depression Scale (CES-D) was used to assess depressive symptoms (Radloff, 1977; Roberts, Andrews, Lewinsohn, & Hops, 1990). The CESD consists of 20 self-report items and provides a unitary measure of current depressive symptoms, with an emphasis on the affective component of depressed mood. The CES-D has been used frequently in studies of middle adolescents (e.g., Roberts et al., 1990). The internal consistency estimate for the CES-D with this sample was .90.

2.3.3. Alcohol use (Adolescence, Wave 4)—Students completed questions relating to the quantity and frequency with which they consumed various types of alcohol (e.g., beer, wine, hard liquor) in the past 30 days. After applying standard conversion formulas (Armor & Polich, 1982) for the average amount of ethanol in each of the various beverage types, we obtained a measure of the average ounces of absolute alcohol consumed per day. To conform more closely to the assumption of distributional normality, we applied a logarithmic transformation to the resulting consumption values.

2.3.4. Anxiety and major depressive disorders (Young Adulthood, Waves 5 and 6)—DSM-IV disorders were derived in the young adulthood interviews via the World Health Organization (WHO) Composite International Diagnostic Interview (WHO-CIDI; WHO, 1997). Reliability data for the WHO-CIDI have been reported (WHO, 1997) and the disorders assessed in our research program included alcohol and other substance abuse disorders (not used in this study), major depressive disorder, and several anxiety disorders (phobias—including social anxiety disorder, generalized anxiety, and panic). This interview measure, or others similar to it, has been used extensively in epidemiologic studies in the United States (Kessler et al., 2005) and internationally (Andrade et al., 2003). Similar to findings from national studies (Kessler et al., 2005), the average age of onset for SAD with our sample was 12.9 years (SD=4.9 yrs.).

2.3.5. Motives for drinking (Young Adulthood, Wave 6)—Coping motives, social motives, and enhancement motives for drinking were assessed in young adulthood using a 15-item self-report measure developed by Cooper et al. (1992). A sample item for coping motives is "I drink to forget my worries." A sample item for social motives is "I drink to be sociable." A sample item for enhancement motives is "I drink because it is exciting." Confirmatory factor analyses supported the three-dimensional structure across racial and gender groups, internal consistency estimates ranged from .77 to .85, and each drinking motive was associated with common and unique features of substance use behaviors (Cooper et al., 1992).

2.4. Data analysis

Linear regression models were used with each of the three drinking motives as outcomes. The order of the predictor variables in the hierarchical regression equations were: (1) sex; (2) adolescent coping motives, alcohol use, and depressive symptoms; (3) lifetime psychiatric disorders for anxiety disorders and major depressive disorder. In the final step of the regression model, each of the regression coefficients is adjusted for other coefficients in the equation.

3. RESULTS

Wave 6 sample characteristics for the 717 young adults in this study are provided in Table 1; both sociodemographic variables and the prevalence of lifetime psychiatric disorders are provided. The prevalence of lifetime psychiatric disorders for this sample is similar to that reported for this demographic group in other national surveys (Kessler et al., 2005). Bivariate correlations among the variables used in the linear regression analyses are provided in Table 2 and include adolescent variables, lifetime anxiety and major depressive disorders, and motives for drinking at Wave 6. In addition, means and standard deviations are provided at the bottom of Table 2.

Table 3 provides a summary of the three regression equations predicting each of the three drinking motives in young adulthood. For coping drinking motives, support was provided for the statistically significant association of SAD with coping drinking motives while controlling for prior relevant adolescent variables, including adolescent coping motives, alcohol use, and depressed affect, and other lifetime anxiety disorders and major depressive disorder. The specificity of the SAD-to-coping drinking motives association was unique in that for the other two regression equations, SAD was not a significant predictor of social or enhancement drinking motives in young adulthood. Hence, support was provided for the salience of the SAD-coping motives relationship and this relationship did not generalize to other motives for drinking.

While highlighting the importance of the statistically significant SAD-to-coping motives relationship, secondarily it is also of importance that other variables in the regression analyses significantly predicted coping motives as well as social and enhancement motives. The adolescent variables of coping motives for drinking and alcohol use significantly predicted all three young adult motives for drinking approximately 11 years later. Likewise, lower depressive symptoms in adolescence significantly predicted higher levels of social and enhancement motives in young adulthood. Lifetime major depressive disorder and panic disorder were also significantly associated both with young adult coping and enhancement drinking motives, and generalized anxiety disorder was significantly associated with young adult coping drinking motives. Therefore, our findings supported the specific hypothesized association of SAD with coping drinking motives in young adulthood, but also indicated potentially important roles for other anxiety disorders and major depressive disorder, as well as adolescent behaviors, in understanding variation in motives for drinking in young adulthood.

4. DISCUSSION

The findings that emerged from this study supported the specificity of the relationship between a diagnosis of SAD and coping drinking motives. This finding of specificity occurred within the context of addressing several methodological limitations in the extant research literature. First, the data used in the current study were from a multi-wave prospective research project that included a relatively large number of high-school sophomores, juniors, and seniors with a high representation of males and females. It also included follow-up data, including psychiatric diagnostic data, collected when these individuals were in their early- (Wave 5) and mid-to-late 20s (Wave 6). Most existing studies on SAD and drinking motives have been cross-sectional, have had small sample sizes, have had a preponderance of females, and/or were drawn from college samples. Second, a number of studies have used measures of social anxiety as the sole predictor of coping motives and/or alcohol outcomes. Our finding that SAD was specifically related to coping drinking motives and not social or enhancement motives, while controlling for a

range of potentially confounding variables, was indicative of the strength of the relationship between SAD and coping motives for drinking.

Our finding of the specific relationship between SAD and coping drinking motives is not surprising in light of research that has suggested a link between SAD symptomatology and the perceived palliative effect of alcohol. For example, Stewart et al. (2006) found that coping drinking motives mediated the relationship between “fear of negative evaluation” and alcohol problems. Neither social motives nor enhancement motives mediated this relationship. Thomas, Randall, and Carrigan (2003) compared high socially-anxious and non-socially anxious matched controls on several variables related to the use of alcohol to cope in social situations. The high anxiety group, relative to the non-anxious group, was more likely to report 1) drinking to feel more comfortable or less anxious in social situations, 2) avoiding social situations in which alcohol was not available, and 3) reporting more relief from alcohol in social situations.

The tension-reduction, stress-dampening, and self-medication models of alcohol use may provide insights into the use of coping drinking motives to control or alleviate unpleasant emotional and/or physiological symptoms characteristic of SAD. To the extent that alcohol is perceived to effectively reduce or dampen these symptoms, the greater the likelihood that it will become a stable negative reinforcer of alcohol use. This may especially be the case for individuals with SAD who may experience emotional, psychological, and physical impairment, fewer constructive coping resources, and beliefs in the efficacy of alcohol as a tension-reducing or stress-dampening coping strategy (Carrigan & Randall, 2003; Kushner et al., 2000).

In addition to the finding that SAD and coping motives were uniquely related, several other findings are noteworthy. First, coping motives for drinking, alcohol consumption, and depressive symptoms assessed during adolescence were significant predictors of drinking motives in young adulthood. Our finding of cross-temporal stability of coping drinking motives is consistent with findings by Cooper et al. (1995) which indicated that the theorized pathways by which drinking motives predicted alcohol use behaviors were virtually identical for a sample of adolescents and a sample of adults¹. This suggests that drinking motives have formed by adolescence and continue to influence drinking patterns into adulthood.

Although not a primary focus in this article (i.e., used as covariates to control for comorbid relations with SAD), MDD, generalized anxiety disorder (GAD), and panic disorder (PD) were significantly related to coping drinking motives. The tension-reduction, stress-dampening, and self-medication models of alcohol use may provide insights into the use of coping drinking motives to control or alleviate unpleasant emotional and/or physiological symptoms characteristic of a more general, higher-order factor of negative affect that is common across MDD and the anxiety disorders. To the extent that alcohol effectively reduces or dampens these symptoms, the greater the likelihood that it will become a stable negative reinforcer of alcohol use. This may especially be the case for individuals with high levels of negative affect who may experience emotional, psychological, and physical impairment, fewer constructive coping resources, and beliefs in the efficacy of alcohol as a tension-reducing or stress-dampening coping strategy (Carrigan & Randall, 2003; Kushner, Abrams, & Borchardt, 2000). Furthermore, individuals characterized by high levels of negative affect may engage in higher levels of negative self-evaluation. To the extent that alcohol lessens such self-evaluations via impairment of cognitive processes, the use of alcohol again acts as a negative reinforcement coping strategy (Kushner, Sher, & Beitman, 1990).

Another noteworthy finding was that MDD and PD were significantly related to enhancement drinking motives. People who consume alcohol for enhancement reasons do so in an attempt to enhance feelings of positive affect and well-being (Cooper et al., 2000). Because individuals are motivated to use alcohol in order to regulate affective states, it is plausible that people experiencing the negative emotions characteristic of MDD consume alcohol both to alleviate negative affect and enhance positive affect. It may also be the case that alcohol is used to enhance the effect of other mood-altering substances (e.g., marijuana or cocaine). With regard to PD, one of the main symptoms characteristic of this disorder are recurrent and unexpected panic attacks which involve physiologically-unpleasant sensations. As such, persons with PD may use alcohol, in part, to facilitate a sense of well-being and a somatically more pleasant experience.

Finally, none of the disorders was related to social drinking motives, and specific phobia (SP) was the only disorder not related to any of the drinking motives. The relationship between SP and alcohol problems and disorders has been inconsistent, with some studies indicating a significant relationship (Kessler et al., 1997) and others producing a non-significant relationship (Himle & Hill, 1991; Kushner et al., 1990). While we did not include alcohol use variables in our analyses, our finding that SP was unrelated to drinking motives is congruent with those studies that found no significant relationship between SP and alcohol use measures. Because the median age of onset for SP is 7 years (Kessler et al., 2005), it may be that SP is more appropriately viewed as a disorder more likely to occur during childhood and less likely to substantially impact functioning in adolescence and adulthood, unless it has a chronic, long-term manifestation. Likewise, our finding that social drinking motives were unrelated to the depression and anxiety disorders included in our study is compatible with research findings which indicate that social drinking motives are more benign and represent more normative reasons for alcohol use relative to coping or enhancement motives (Cooper et al., 1992; Cooper, 1994; Ham et al., 2009; Kuntsche et al., 2005).

Findings from the current study and other research have prevention and treatment implications. Drinking motives have been conceptualized as proximal predictors of alcohol outcomes, and thus as mediators of the relationship between more distal factors (e.g., social anxiety symptoms, personality traits such as neuroticism and extraversion) and alcohol problems and disorders (Cooper, 1994). Coping and enhancement drinking motives, along with their antecedents, are likely to be fruitful targets for prevention and treatment efforts. For example, cognitive behavioral interventions aimed at replacing coping drinking motives with positive problem-solving cognitions and skills would provide individuals with more adequate and constructive resources to deal with the stressors they encounter (Goldsmith, Tran, Smith, & Howe, 2009). Likewise, DeMartini and Carey (2011) have suggested that motivational interviewing with individuals high on anxiety sensitivity and who use alcohol to cope with unpleasant somatic symptoms might contribute to discussions on current motives for drinking and a focus on more adaptive responses to cope with their symptoms.

It is often the case that SAD and social anxiety symptoms precede the development of alcohol problems and disorders (Kessler et al., 2005; O'Neil, Conner, & Kendall, 2011). As such, targeting the amelioration of these symptoms in children and adolescents may curtail the development of coping drinking motives and alcohol problems in later years. With regard to enhancement drinking motives, some individuals who engage in these drinking motives may be characterized as having higher levels of sensation- or excitement-seeking, venturesomeness, and gregariousness (Stewart & Devine, 2000). Relatedly, they report consuming alcohol to enhance or increase their experience of positive emotional affect (Cooper et al., 1995). As such, interventions that facilitate the exploration of more positive

outlets to satisfy sensation-seeking needs may result in exchanging the use of alcohol to get high or to enhance positive emotions with more constructive activities and experiences.

The current study has several limitations. First, the sample is predominantly White, suburban, and middle class. Thus, the generalizability of the findings to more ethnically and sociodemographically diverse samples is needed. Second, the data were collected by means of self-reports, which may introduce mono-method bias that may affect the resulting findings. Third, while the regression analyses accounted for small-to-moderate amounts of variance in young adult drinking motives, more fully explicated models that include other potentially important variables (e.g., family history of alcoholism, personality variables such as neuroticism and extraversion, drinking motives of family members and friends) are needed to more fully account for additional variation in the outcomes of interest.

5. Conclusions

Our finding of the specific and unique relationship between SAD and coping drinking motives, within the context of other potentially confounding and substantively important variables, advances the extant literature that has investigated the relationship between single indicators of social anxiety and drinking motives. Furthermore, our findings have provided an enriched picture by indicating that behaviors occurring during adolescence, especially coping drinking motives, continue to influence drinking motives in young adulthood. In addition, while we found that SAD was uniquely related to coping motives for drinking, we also found that other anxiety disorders and MDD were related to coping motives and, in some instances, enhancement motives. This broader picture of drinking motives emerging during adolescence and the relationship of drinking motives with a range of internalizing disorders provides important insights for intervention and treatment purposes and for future research directions.

Highlights

- Social Anxiety Disorder was specifically related to coping motives after controlling for the effects of a range of alcohol and mental health variables.
- Adolescent variables of alcohol use and coping motives for drinking predicted young adult drinking motives 10-years later.
- Major depressive disorder and other anxiety disorders also predicted motives for drinking in young adulthood.

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Table 1

Wave 6 sample characteristics.

Variables	
Sex	
Males	306 (42.7%)
Females	411 (57.3%)
Ethnicity	
Non-Hispanic White	98.7%
Other	1.3%
Age	28.87 yrs. (<i>SD</i> =1.16)
Marital Status	
Currently Married	449 (62.6%)
Cohabitation	87 (12.1%)
Divorced	37 (5.2%)
Never Married	144 (20.1%)
Number of Children	
	0 (58.8%)
	1 (21.2%)
	2 (20.1%)
Average # Years of Education	15.83 (<i>SD</i> =2.33)
Employment Status	
Employed full-time	551 (76.7%)
Employed part-time	77 (10.7%)
Full-time homemaker	37 (5.2%)
Unemployed	52 (7.2%)
Median Family Income	\$40,000–\$54,999
<u>Lifetime DSM-IV Disorders <i>n</i> (%)</u>	
Social Anxiety Disorder (SAD)	91 (12.7%)
General Anxiety Disorder (GAD)	56 (7.8%)
Panic Disorder (PD)	46 (6.4%)
Simple Phobia (SP)	151 (21.1%)
Major Depressive Disorder (MDD)	206 (28.7%)

Table 2

Correlation matrix of variables used in regression analyses (N=717).

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Sex (1=M; 2=F)	--											
2. Adol-Coping	.05	--										
3. Adol-QFI	-.17 ^c	.32 ^c	--									
4. Adol-CESD	.12 ^b	.42 ^c	.03	--								
5. Lifetime MDD ^a	.11 ^b	.11 ^b	-.02	.15 ^c	--							
6. Lifetime SAD	.09 ^a	.16 ^c	.01	.21 ^c	.20 ^c	--						
7. Lifetime GAD	.10 ^b	.06	.03	.14 ^c	.19 ^c	.12 ^b	--					
8. Lifetime Panic Disorder	.04	.11 ^b	-.05	.10 ^b	.21 ^c	.17 ^c	.16 ^c	--				
9. Lifetime Simple Phobia	.17 ^c	.09 ^a	-.11 ^b	.13 ^b	.23 ^c	.29 ^c	.13 ^c	.17 ^c	--			
10. Young Adult—Coping Motives	-.03	.32 ^c	.28 ^c	.13 ^b	.24 ^c	.22 ^c	.16 ^c	.17 ^c	.11 ^b	--		
11. Young Adult—Social Motives	-.13 ^b	.16 ^c	.25 ^c	-.04	.07	.04	.01	.04	.05	.50 ^c	--	
12. Young Adult—Enhancement Motives	-.14 ^c	.22 ^c	.28 ^c	.01	.15 ^c	.12 ^b	.07	.17 ^c	.05	.70 ^c	.65 ^c	--
Mean	1.57	11.12	2.86	14.94	0.29	0.13	0.08	0.06	0.21	8.52	13.32	10.61
SD	0.50	4.03	0.66	10.01	0.45	0.33	0.27	0.24	0.41	2.74	2.82	3.31

^aPsychiatric diagnoses were assessed at Wave 5 and Wave 6.

^a p<.05;

^b p<.01;

^c p<.001

Table 3

Standardized coefficients for linear regression models predicting motives for drinking in young adulthood.

Variables	Coping Motives ^a	Social Motives	Enhancement Motives
	(n=717)	(n=717)	(n=717)
Sex (1=M; 2=F)	-.05	-.11 ^b	-.13 ^c
<u>Adolescent variables</u>			
Coping motives for drinking	.21 ^c	.13 ^b	.16 ^c
Alcohol consumption (QFI)	.21 ^c	.20 ^c	.22 ^c
Depressive symptoms (CESD)	-.04	-.11 ^b	-.10 ^b
<u>Lifetime disorders</u>			
Major depressive disorder	.16 ^c	.06	.12 ^b
Social anxiety disorder	.12 ^c	.01	.07
Generalized anxiety disorder	.08 ^a	-.01	.02
Panic disorder	.09 ^a	.02	.13 ^c
Simple phobia	.03	.07	.02
<i>F-Statistic (df=9,707)</i>	22.11 ^c	8.43 ^c	15.63 ^c
<i>Adjusted R² value</i>	.21	.08	.15

^aDrinking motives were assessed at Wave 6.^ap<.05;^bp<.01;^cp<.001