

STEPPING OUTSIDE OF YOURSELF: SOCIAL ANXIETY, DISSOCIATION, ALCOHOL  
CONSEQUENCES, AND RELATIONSHIP SATISFACTION

by

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## ABSTRACT

**OVERVIEW:** Social anxiety disorder is the third most prevalent psychiatric disorder in the United States. Dissociation can arise during acute daily social stressors in individuals with social anxiety. This study examined the relationship between social anxiety and functional outcomes (i.e., alcohol-related consequences and relationship satisfaction) as moderated by levels of dissociation (i.e., depersonalization/derealization). It was hypothesized that dissociation would moderate the relationships between social anxiety and alcohol-related consequences and between social anxiety and relationship satisfaction. **METHOD:** College students who endorsed alcohol use within the past 30 days ( $n = 320$ ) and college students who reported having been in a romantic relationship lasting 30 or more days ( $n = 364$ ) were recruited through the Psychology Department's Sona system. All participants completed measures of social anxiety, dissociation, alcohol use motives, alcohol-related consequences, and relationship satisfaction as part of an online questionnaire. **RESULTS:** Findings indicated no moderation effect in either model; both social anxiety and dissociation predicted alcohol-related consequences via coping-motivated alcohol use. Additionally, there was a negative association between dissociation and relationship satisfaction. **CONCLUSIONS:** Future research should include longitudinal research designs or ecological momentary assessment designs and should examine these relationships in clinical samples.

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## CHAPTER 1: INTRODUCTION

Social anxiety disorder (SAD) is characterized by a fear of being scrutinized by others in social settings and/or acting in a way that would result in negative evaluations from others (American Psychiatric Association [APA], 2013). Individuals high in social anxiety experience anxiety nearly every time they enter feared social situations. Commonly feared social situations among individuals with SAD include initiating and maintaining conversations, attending meetings at work, engaging in spontaneous social activities or meetings, and attending parties (Beidel & Turner, 2007). Individuals with moderate to high levels of social anxiety will often attempt to avoid these types of situations in order to reduce the amount of distress they feel (Beidel & Turner, 2007). SAD is the most common anxiety disorder and the third most prevalent psychological disorder in the United States, behind major depressive disorder and alcohol use disorder (Beidel & Turner, 2007). Lifetime prevalence of SAD is estimated at 12%, and 12-month prevalence is approximately 7% (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012; Ruscio et al, 2008).

Social anxiety is associated with impaired psychosocial functioning in multiple domains (e.g., occupational, personal, familial; Beidel & Turner, 2007; Schneier 1994). Two of the domains that have been the focus of substantial research to date are alcohol-related variables and interpersonal relationship functioning. Social anxiety is positively related to alcohol-related consequences (ARCs; e.g., saying something embarrassing, risky sexual encounters) among college students (see Morris, Stewart, & Ham, 2005, and Schry & White, 2013 for reviews). Furthermore, research among adults has shown that when SAD is comorbid with an alcohol use disorder (AUD), the onset of SAD typically precedes the onset of the AUD (Buckner et al, 2008), indicating that social anxiety is a risk factor for problematic alcohol use. Consistent with

the self-medication hypothesis (Khantzian, 1985), coping-motivated alcohol use has been proposed as a mediator in the relationship between social anxiety and problematic alcohol use (Buckner, Heimberg, Ecker, & Vinci, 2013). Additionally, individuals with moderate to high levels of social anxiety also experience more difficulties in interpersonal relationships, such as romantic relationships (Sparrevohn & Rapee, 2009) and friendships (Davila & Beck, 2002; Schneier et al., 1994), than their peers low in social anxiety. Individuals high in social anxiety report greater dysfunction in romantic relationships, as evidenced by lower levels of reported intimacy (Schneier et al., 1994) and sexual satisfaction (Kashdan et al., 2011).

Dissociation — a category of symptoms commonly experienced by an individual under intense stress — has been conceptualized as an emotion-regulation strategy for intense emotions, including anxiety (Michelson & Ray, 1996); therefore, individuals high in social anxiety may engage in dissociation in an attempt to reduce anxiety in certain situations. To date, research examining dissociation within social anxiety is sparse, and no studies have examined how engagement in dissociation may moderate the relationship between social anxiety and functional outcomes. The purpose of this study is to examine the moderating effect of dissociation on the relationships between social anxiety and ARCs and between social anxiety and relationship satisfaction.

### **Dissociative Experiences**

Conceptualizations of dissociation in diagnostic systems (e.g., Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition [DSM-IV; APA, 1994], DSM-IV-Text Revision [APA, 2000], International Statistical Classification of Diseases and Related Health Problems, 10<sup>th</sup> revision [ICD-10; World Health Organization, 1992]) have been historically vague, inconsistent, and poorly understood in the psychological and psychiatric fields of study and

practice (Soffer-Dudek, 2014; Spiegel et al., 2011). Spiegel and colleagues (2011), combining domain concepts of dissociative disorders from the DSM-IV and the ICD-10, define dissociation as “a disruption of and/or discontinuity in the normal, subjective integration of one or more aspects of psychological functioning, including -- but not limited to -- memory, identity, consciousness, perception, and motor control” (p. 826). The most recent edition of the DSM (i.e. DSM-5; APA, 2013) has incorporated this definition into its description of Dissociative Disorders, describing these experiences “as unbidden intrusions into awareness and behavior” (i.e., positive symptoms) and/or the “inability to access information or to control mental functions that normally are readily amenable to access or control” (i.e., negative symptoms; p. 291). Positive dissociative symptoms include fragmented identity and feeling detached from the immediate environment, while negative symptoms include amnesia. This study will focus on depersonalization and derealization (DPDR), which are two symptom categories that include experiences of unreality, detachment from the immediate environment, observing one’s thoughts as if an outside observer, distorted sense of time, and emotional and physical numbing (APA, 2013). Theories that describe dissociative experiences have conceptualized dissociation on a spectrum comprising experiences ranging from every day, transient experiences (e.g. getting “lost” in the task at hand, daydreaming) on one end and more chronic and uncommon experiences that indicate pathological dissociation (e.g., inability to recall autobiographical information, detachment from bodily experiences) on the other end (Butler, 2004).

Individuals who experienced moderate dissociation during a traumatic event report higher levels of posttraumatic symptomatology than individuals who did not dissociate during a traumatic event (Butler, 2004; Shalev, Peri, Canetti, & Schreiber, 1996; Murray, Ehlers, & Mayou, 2002). Dissociation partially mediates the relationship between childhood sexual abuse

and more severe psychopathological outcomes (Kisiel & Lyons, 2001), and higher levels of dissociation have been shown to reduce treatment efficacy for agoraphobia, panic disorder, obsessive-compulsive disorder, and depression (Kleindienst et al., 2011, Michelson, June, Vives, Testa, & Marchione, 1998; Rufer, Fricke, Held, Cremer, & Hand, 2006; Spitzer, Barnow, Freyberger, & Grabe, 2007).

### **Social Anxiety, Emotion Dysregulation, and Dissociation**

Dissociative symptoms are common in many anxiety disorders (Dell & O’Neil, 2009; Michelson & Ray, 1996), and individuals with anxiety disorders who also experience dissociative symptoms exhibit higher levels of overall symptom severity, state anxiety, anticipatory anxiety, and avoidance of feared stimuli than individuals with anxiety disorders who do not experience dissociative symptoms (Cassano et al., 1989; Marquez, Segui, Garcia, Canet, & Ortiz, 2001). Much of the research investigating the relationship between dissociation, namely DPDR, and anxiety has been focused on emotion dysregulation in individuals with posttraumatic stress disorder (PTSD; Dell & O’Neil, 2009; Michelson & Ray, 1996). The emotional numbing that occurs during DPDR (i.e., flattening of affect, reduction in emotion sensitivity and intensity) is believed to be an automated coping strategy to avert distressing emotions related to trauma or chronic stressors, which “shuts down” the affective system when other, more effortful coping strategies (e.g., avoidance) are not effective in regulating distressing emotions or are not accessible in a given situation (Michelson & Ray, 1996). Chronic dissociation may even become a habitual response to daily life stressors and can continue for years after an initiating stressor (Dell & O’Neil, 2009).

Research on social anxiety and DPDR has suggested a link between social fears and DPDR. Simeon et al. (2003) found that 30% of a sample of 117 patients with depersonalization

disorder also met diagnostic criteria for SAD and 23% met diagnostic criteria for avoidant personality disorder. Hunter and colleagues (2003) found that social situations are the most frequently avoided situations among individuals with depersonalization disorder. In fact, DPDR occurs frequently in individuals with SAD when they encounter situations that are socially demanding and is closely related to mechanisms that sustain social anxiety (i.e., safety behaviors; Hoyer, Braeuer, Crawcour, Klumbies, & Kirschbaum, 2013).

Furthermore, research has established a link between social anxiety disorder and difficulties in emotional dysregulation. Turk et al. (2005) found that individuals with SAD reported less expression of positive emotions, poorer understanding of emotions (e.g., difficulty identifying and describing emotions), higher negative reactivity to emotions (e.g., fear of anxiety), and reduced ability to consciously improve negative mood states than individuals without SAD. If DPDR operates as an automatic coping strategy to avert distressing emotions in the presence of stressful events, then it should follow that individuals with social anxiety experience difficulties regulating their distressing their emotions and would experience DPDR in order to cope with these distressing emotions in the presence of stressful social situations.

The existing literature clearly describes an association between social anxiety and DPDR, and even begins to describe this relationship in terms of the inability to regulate, understand, and react to emotional states. Given that DPDR involves emotional numbing and disconnection with reality, DPDR may moderate relationships between social anxiety and functional outcomes (e.g., ARCs, relationship satisfaction).

## **Model 1**

**Alcohol use and alcohol-related consequences.** Alcohol use among college students is highly prevalent, with approximately 60% of college students ages 18 to 22 having consumed

alcohol in the past month (Lipari & Jean-Francois, 2016). Nearly one-third (32%) of college students report episodes of binge drinking (i.e., consuming five or more drinks on the same occasion), while only 24% of same-age peers not attending college report participating in binge drinking on at least one occasion in the past two weeks (Schulenberg et al., 2017).

College students experience numerous different ARCs, ranging from those that are more common and less severe (e.g., verbal altercations, hangovers, vomiting) to those that are less common and more severe (e.g., physical injury, driving while intoxicated, legal problems; Murphy & McDevitt-Murphy, 2005). Approximately 80% of college students who consumed alcohol at least weekly during their freshmen year of college reported experiencing at least two distinct ARCs during that same period, with approximately one-third reporting six or more distinct ARCs during that timeframe (Mallett et al., 2011). Additionally, female college students who experience ARCs report lower general life satisfaction and anticipated future satisfaction (Murphy & McDevitt-Murphy, 2005).

**Social anxiety and alcohol consequences.** SAD and alcohol use disorders are often comorbid. Among adults, individuals with SAD are more likely to have a diagnosis of alcohol dependence and alcohol abuse (27.3% and 20.9%, respectively) than individuals without SAD (12.5% and 17.8%, respectively; Schneier et al., 2010). While many studies using college samples have found a negative relationship (e.g., Clerkin & Barnett, 2012; ; Lewis et al, 2008) or no significant relationship (e.g., Buckner & Heimberg, 2010; Ham, Casner, Bacon, & Shaver, 2011; O'Grady, Cullum, Armeli, & Tennen, 2011) between social anxiety and the amount of alcohol an individual consumes, there does appear to be a positive relationship between social anxiety and ARCs (e.g., Buckner & Heimberg, 2010; Gilles et al., 2006; Norberg, Norton, & Olivier, 2009). In a meta-analysis examining social anxiety and alcohol variables among college

students, social anxiety was negatively associated with quantity and frequency of alcohol use, and positively associated with coping-motivated alcohol use and ARCs (Schry & White, 2013).

**Social anxiety and coping-motivated alcohol use.** Coping strategies may help partially explain the relationship between social anxiety and ARCs, even though individuals with social anxiety tend to consume less alcohol than their non-anxious peers. Coping strategies are actions an individual performs in order to reduce an uncomfortable emotion (e.g. anxiety; Davey, Burgess, & Rashes, 1995). Individuals who experience social anxiety may consume alcohol as a coping strategy (i.e., coping-motivated alcohol use) to reduce their anxiety in social situations (Buckner, 2011). According to the biopsychosocial model of SAD and substance use disorders, individuals with SAD use substances (such as alcohol) to cope with multiple components of social anxiety (e.g., physiological arousal, fear of evaluation, avoidance, low positive affect), which contributes to increased reliance on substances, which in turn increases risk of a substance use disorder (Buckner, Heimberg, Ecker, & Vinci, 2013).

Since coping-motivated alcohol use is indicative of the desire to reduce negative affect, and since negative emotional states in social anxiety are accompanied by physiological arousal, it is important to understand the effect alcohol has on physiological arousal. While many studies have found that alcohol consumption has no direct impact on physiological arousal associated with social anxiety (e.g., Abrams, Kushner, Medina, & Voight, 2001; Himle et al., 1999; Naftolowitz, Vaughn, Ranc, & Tancer, 1994), there is evidence that consuming alcohol may attenuate the subjective experience of state anxiety in social situations (Abrams, Kushner, Medina, & Voight, 2001). Additionally, Abrams and colleagues (2002) found that participants who were served an alcoholic beverage before a speaking task reported greater decreases in negative thoughts than participants who received a nonalcoholic control beverage.

Coping-motivated alcohol use has been shown to predict ARCs and to mediate the relationship between distressing negative emotions and ARCs (Cooper, Frone, Russell, & Mudar, 1995). A longitudinal study of coping motives, negative affect, and ARCs found that negative affect and alcohol use are more strongly associated with ARCs at higher levels of coping-motivated alcohol use (Armeli et al., 2014). Buckner and Heimberg (2010) found that individuals higher in social anxiety, as opposed to those lower in social anxiety, reported more coping-motivated alcohol use and a higher rate of avoidance of social situations where alcohol was not readily available, which in turn mediated the relationship between social anxiety and ARCs. These findings indicate that coping-motivated alcohol use may serve to regulate the negative emotional states of individuals with social anxiety, and this coping-motivated use leads to a higher rate of ARCs in college students with social anxiety.

**Dissociation and alcohol use.** Research on the relationship between DPDR and alcohol use is limited. Much of the available literature pertaining to alcohol use and dissociation contains varying definitions of dissociation, or focuses on individuals who want to experience emotional numbing using alcohol to “chemically dissociate” (e.g., Roesler & Dafler, 1993). Kaysen et al. (2007) found coping-motivated alcohol use partially mediated the association between trauma symptoms (i.e., avoidance, dissociation, self-perception) and heavy episodic drinking, but it was unclear how dissociation was defined or measured. Therefore, more research on the relationship between dissociative symptoms and alcohol use is needed.

## **Model 2**

**Relationship satisfaction.** A review of social support and close interpersonal relationship functioning conceptualizes the human drive to form and maintain stable, satisfying relationships as a fundamental motivation (Baumeister & Leary, 1995). Baumeister and Leary



also assert that maintaining meaningful interpersonal relationships is a human need rather than a want, as evidenced by the plethora of physical and mental ills associated with deficits in these relationships. These deficits become more meaningful when considering that intimate relationships are often identified as a key concern for individuals and couples attending therapy (Shumway, Wampler, Dersch, & Arredondo, 2004). An important aspect of maintaining such relationships is an individual's subjective evaluation of their intimate relationships (i.e., relationship satisfaction; Hendrick, Dicke, & Hendrick, 1998). Low relationship satisfaction can interfere with the proper maintenance and functioning of intimate relationships, which in turn affects the mental and physical well-being of the individuals involved (Beach et al, 2006).

Demographic data suggests that the vast majority of individuals in the United States will marry at least once or will cohabitate with a romantic partner (U.S. Census Bureau, 2011). Individuals that experience a low level of satisfaction in their serious long-term romantic relationships are at risk for a variety of physical and mental health concerns (Beach et al, 2006), including poor treatment outcomes for anxiety disorders (Chambless & Steketee, 1999; Renshaw, Chambless, & Steketee, 2003) and increased depression relapse rates (Hooley & Teasdale, 1989). Furthermore, several studies have found that men and women who never engage in or remain single following serious long-term romantic relationships tend to have higher rates of depression, mood disorders, and various other psychological complaints (Coombs, 1991; Cotten, 1999).

Much of the growing evidence suggests that the association between relationship difficulties and anxiety symptoms is bi-directional (Beck, 2010). Relationship difficulties also contribute to, maintain, and inflame subjective experiences of anxiety (Beck, 2010). Similarly,

expressions of anxiety tend to contribute to problems in developing and sustaining multiple types of relationships (i.e., romantic, family, friends; Beck, 2010).

**Relationship functioning and social anxiety.** Functional impairments in individuals with moderate to high levels of social anxiety include difficulties in interpersonal relationships, such as romantic relationships (Sparrevoorn & Rapee, 2009) and friendships (Davila & Beck, 2002; Schneier et al., 1994). Sparrevoorn & Rapee also found that individuals high in social anxiety report lower levels of emotional expression and self-disclosure and that they experience less intellectual, sexual, recreational, and social intimacy with their romantic partners. The results of their study suggest poorer relationship quality for individuals with social anxiety disorder, even after controlling for depression and dysphoria.

Individuals with social anxiety disorder are also less likely to marry, enter into committed romantic relationships, and remain engaged in committed romantic relationships (Lampe, Slade, Issakidis, & Andrews, 2003; Sanderson, Di Nardo, Rapee, & Barlow, 1990). In a study that examined communication between individuals and their partners, participants high in social anxiety exhibited more negative behaviors when communicating, especially when discussing relationship problems with their partner, compared to participants low in social anxiety (Wenzel, Graff-Dolezal, Macho, & Brendel, 2005). Furthermore, individuals with social anxiety tend to have fewer and more negative relationships throughout their lives due to poor interpersonal behavior (e.g., poor emotional communication, avoidance of confrontation; Alden & Taylor, 2004).

As described previously, social anxiety is characterized by a fear of acting in a way that might result in embarrassment, humiliation, or negative evaluation from others. Several studies have found associations between social anxiety, poor emotional regulation and communication,

and poor relationship functioning (e.g., Alden & Bieling, 1998; Davila & Beck, 2002; Voncken, Alden, Bogels, & Roelofs, 2008). Davila and Beck examined the effect of social anxiety on close and intimate relationships in college students and found that social anxiety was associated with avoidance of emotional expression and avoidance of conflict.

**Relationship functioning, social anxiety, and dissociation.** Much of the literature on the satisfaction and functioning of intimate relationships describes the importance of emotional regulation and emotional communication (e.g., Beck, 2010; Bloch, Haase, & Levenson, 2014; Gross & John, 2003). For instance, Gross and John found that use of emotion regulation techniques focusing on reappraising emotion-eliciting situations was positively associated with relationship satisfaction and success in intimate relationships; whereas use of emotion suppression techniques to regulate emotional responses (i.e., emotional numbing) was associated with reduced sharing of positive and negative emotions, greater avoidance of and discomfort with closeness, and lower social support.

### **Current Study**

If DPDR acts as an unconscious coping mechanism to regulate negative emotional mood states in social anxiety, it should follow that individuals high in social anxiety who experience DPDR in socially demanding situations would have less cause to utilize alcohol as a coping mechanism. Therefore, this study seeks to contribute to the existing literature on social anxiety and alcohol by examining a moderated-mediation model examining the relationship between social anxiety and ARCs, via coping-motivated alcohol use, moderated by DPDR. Furthermore, individuals high in social anxiety who experience DPDR in their intimate relationships would have decreased ability to experience and communicate their emotions to their partners. This decreased ability, in turn, may lead to decreased relationship satisfaction. Therefore, this study

seeks to contribute to the existing literature on social anxiety and relationship satisfaction by examining a moderated model that investigates the relationship between social anxiety and relationship satisfaction, moderated by DPDR. As a result, it was hypothesized that:

- (1A) coping-motivated alcohol use would mediate the relationship between social anxiety and ARCs (i.e., social anxiety would be positively related to coping-motivated alcohol use which, in turn, would be positively related to ARCs, see Figure 1);
- (1B) in the mediation model, DPDR would moderate the relationship between social anxiety and coping-motivated alcohol use such that the relationship between social anxiety and coping-motivated alcohol use would be smaller at high levels of DPDR compared to low levels of DPDR (see Figure 2); and
- (2) DPDR would moderate the relationship between social anxiety and relationship satisfaction such that there would be a stronger negative relationship between social anxiety and relationship satisfaction among individuals high in DPDR compared to those low in DPDR (see Figure 3).

## CHAPTER 2: METHOD

### Participants

A total of 688 students in undergraduate psychology courses at the University of Central Florida (UCF) participated in this study. Participants were recruited during the spring and summer 2018 semesters using the Psychology Department's Sona Research Participation System. Sona is a research participant management software system in which participants can earn research participation credits that are either worth course credit or extra credit. Only students 18 years of age or older were able to participate in this study.

**Model 1.** A total of 320 participants were included in the analyses for model 1 (i.e., alcohol-related consequences). A total of 296 participants (43.1%) were removed from the overall sample because they reported they did not consume any alcohol in the past 30 days, an additional 70 participants (10.2%) were removed due to responding to two or more reading validity checks incorrectly. Two participants self-identified as “transgender;” because gender was a co-variate in this model, these participants were also excluded from the analyses. Participants ranged in age from 18 to 45 years old ( $M = 20.99$ ,  $SD, 4.04$ ). Approximately two-thirds ( $n = 212$ ; 66.3%) identified as female. Regarding race, the sample was 74.5% ( $n = 240$ ) White, 12.1% ( $n = 39$ ) Black, and 3.7% ( $n = 12$ ) Asian American/Pacific Islander. The remaining 9.6% ( $n = 31$ ) identified themselves as “other” or bi-/multi-racial. Additionally, 25.5% ( $n = 82$ ) of the sample identified as Hispanic. Lastly, 15.6% of participants ( $n = 50$ ) scored at or above the recommended clinical cutoff score of 30 on the SPAI-23 for social anxiety disorder.

**Model 2.** A total of 363 participants were included in the analysis for model 2 (i.e., relationship satisfaction). A total of 273 (39.7%) participants were removed from the overall sample due to not being involved in a romantic relationship lasting 30 or more days within the

past 12 months, and an additional 51 (7.4%) participants were removed due to responding to two or more reading validity checks incorrectly. Only one participant self-identified as “transgender;” because gender was a co-variate in this model, this participant was excluded from the analyses. Participants included in model 2 ranged in age from 18 to 57 years old ( $M = 21.10$ ,  $SD = 4.86$ ). The majority of the sample ( $n = 249$ ; 68.6%) identified as female. Nearly three quarters ( $n = 259$ ; 71.3%) identified as White, 11% ( $n = 40$ ) as Black, and 6% ( $n = 22$ ) Asian American/Pacific Islander. The remaining 11.6% ( $n = 42$ ) of participants indicated “other” or bi-/multi-racial ethnicities or did not disclose. Additionally, 26.7% ( $n = 97$ ) of this sample identified as Hispanic. Lastly, 16.5% ( $n = 60$ ) participants scored at or above the recommended clinical cutoff score of 30 on the SPAI-23 for social anxiety disorder.

### **Power Analyses**

This study’s target sample size was 636 participants. The total collected sample size of 688 participants provided adequate power to test both hypothesized models after removing non-drinkers, participants who were not involved in an intimate relationship lasting at least 30 days within the past 12 months, and participants who answered two or more reading validity checks incorrectly.

**Model 1.** A Monte Carlo simulation was conducted in MPlus version 8 (Muthen & Muthen, 1998-2017; Muthen & Muthen, 2009) to estimate the sample size needed for the analyses examining the relationship between social anxiety and ARCs. Average correlations ( $r$ ) were calculated based on data from similar studies in order to estimate effect sizes for the relationships in Model 1 (Buckner & Shah, 2015; Lewis et al., 2008; Schry & White, 2013). The estimated effect size for social anxiety and ARCs was .05, social anxiety and coping-motivated alcohol use was .26, and coping-motivated alcohol use and ARCs was .30. Additionally, the

effect size for dissociation on the relationship between social anxiety and coping-motivated alcohol use was .30 (Evren, Sar, Dalbudak, Oncu, & Cakmak, 2009). Because Evren and colleagues is the only study reporting on the relationship between dissociation and coping-motivated alcohol use, the effect size of .30 (i.e., a smaller effect than was reported in that study) was estimated in hopes of generating a conservative estimate of the needed sample size. Based on the results of this simulation, a sample size of 200 will provide 86% power to test hypotheses 1A and 1B. The final sample of 320 participants allowed for adequate power to test model 1.

**Model 2.** An a priori power analysis was conducted using G\*Power (Faul, Buchner, & Lang, 2009) to estimate the sample size needed for the analyses examining the relationship between social anxiety and relationship satisfaction. An effect size of  $f^2 = .10$  was calculated based on a correlation of -.26 between social anxiety and relationship functioning, -.25 between emotional suppression and relationship functioning, and .48 between social anxiety and DPDR (Gross & John, 2003; Hoyer, Braeuer, Crawcour, Klumbies, & Kirschbaum, 2013; Sparrevohn & Rapee, 2009). A sample size of 103 participants provides 80% power to detect a small effect size of  $f^2 = .10$  using an alpha level of .05. The final sample of 364 participants provided adequate power to test model 2.

## **Primary Measures**

**Demographic information.** Participants were asked to self-report their age, gender identity, ethnicity, sexual orientation, year in college, living environment (e.g., on-campus dormitory, fraternity/sorority housing, off-campus non-university housing), and relationship status. They were also asked to indicate if they are a member of any social Greek organizations. See Appendix A for a list of demographic questions.

**Alcohol use questions.** Participants responded to three items created by the National Institute of Alcohol Abuse and Alcoholism (NIAAA) assessing their alcohol use over the past 30 days (NIAAA, 2003). Specifically, participants were asked their frequency of alcohol use, typical quantity per drinking episode, and frequency of binge drinking in the past 30 days (see Appendix B). Binge drinking was defined as consuming five or more drinks on the same occasion, and one drink will be defined as half an ounce of absolute alcohol (e.g., a 12-ounce can or glass of beer or cooler, a 5-ounce glass of wine, or a drink containing 1 shot of liquor).

**Social anxiety.**

***Liebowitz Social Anxiety Scale - Self Report.*** The Liebowitz Social Anxiety Scale – Self Report (LSAS-SR; Cox 1998) is an adapted version of the clinician-administered LSAS (Liebowitz, 1987). The LSAS-SR is a 24-item self-report measure that assesses both fear and avoidance of performance and social situations. Participants rated their level of fear and avoidance for each item on 4-point Likert scales ranging from 0 (*None/Never*) to 3 (*Severe/Usually*). A total score was computed by adding together the sums of the fear scale and the avoidance scale. The LSAS-SR has demonstrated excellent internal consistency ( $\alpha = .94$ ; Fresco et al., 2001), and showed similarly excellent internal consistency in the current study ( $\alpha = .97$ ). Convergent and discriminant validity of scores from the LSAS-SR have been demonstrated (Fresco et al., 2001). See Appendix C.

***Social Phobia and Anxiety Inventory-23.*** The Social Phobia and Anxiety Inventory 23 (SPAI-23; Roberson-Nay, Strong, Nay, Beidel, & Turner, 2007) is an abbreviated version of the Social Phobia and Anxiety Inventory developed by Turner and colleagues (1989) that was developed using item-response theory. The SPAI-23 consists of a Social Phobia subscale and an Agoraphobia subscale, which are calculated by adding the items in each subscale together. A



Difference score is then calculated by subtracting the Agoraphobia score from the Social Phobia score. Participants are asked to rate how frequently they experience anxiety in a number of different social and public situations from 0 (*Never*) to 4 (*Always*). The SPAI-23 subscales have demonstrated high internal consistency (.85 for Agoraphobia subscale and .95 for Social Phobia subscale), correlated highly with the same subscales from the original measure, and showed good convergent validity with other commonly-used measures of social anxiety (Roberson-Nay et al., 2007). Furthermore, scores from the SPAI-23 has demonstrated acceptable test-retest reliability and convergent and divergent validity among college students (Schry, Roberson-Nay, & White, 2012). The SPAI-23 showed excellent internal consistency in the current study ( $\alpha = .96$ ).

**Depersonalization/Derealization.** The frequency and duration of DPDR experiences were assessed using the 29-item Cambridge Depersonalization Scale (CDS; Sierra & Berrios, 2000). Participants were asked to rate the frequency and duration of depersonalization experiences that have occurred in the past 6 months using two separate Likert scales; frequency of experiences is measured on a 5-point Likert ranging from 0 (*never*) to 4 (*all of the time*), and duration is measured on a 6-point Likert scale ranging from 1 (*a few seconds*) to 6 (*more than a week*). Total scores were computed by summing all items. Duration was only provided for frequency items that were not 0 (*never*). Internal consistency of the items is excellent ( $\alpha = .89$ ; Sierra & Berrios, 2000), and split-half reliability of the scores is excellent ( $r = .92$ ; Sierra & Berrios, 2000). Scores on the CDS have demonstrated stronger construct validity in a college undergraduate sample than the Dissociative Experiences Scale, and strong convergent validity with the Multiscale Dissociation Inventory ( $r = .82$ ) has been demonstrated (Blevins, Weathers, & Mason, 2012). In the current study, the CDS showed excellent internal consistency ( $\alpha = .94$ ). See Appendix D.

**Drinking motives.** The Drinking Motives Questionnaire - Revised (DMQ-R; Cooper, 1994) is a 20-item self-report questionnaire that measures drinking motives across four factors (i.e. social, coping, enhancement, and conformity). Participants rated the frequency with which they consume alcohol for each reason on a 5-point Likert that ranges from 1 (*never*) to 5 (*always*). Factor structure of the four subscales has been demonstrated (Cooper, 1994). Internal consistency of subscale scores is good, with Cronbach's  $\alpha$ s of .85 to .92 for the social subscale, .84 to .90 for the coping subscale, .87 to .88 for the enhancement subscale, and .81 to .85 for the conformity subscale (Cooper, 1994; MacLean & Lecci, 2000). In the current study, the coping subscale showed excellent internal consistency ( $\alpha = .89$ ). See Appendix E. This measure was only administered to participants who endorsed consumption of alcohol at least once in the past month.

**Alcohol-related consequences.** ARCs were assessed with the Young-Adult Alcohol Consequences Questionnaire (YAACQ; Read, Kahler, Strong, & Colder, 2006). The YAACQ is a 48-item self-report measure that assesses ARCs experienced in the past 30 days across 8 domains: social/interpersonal problems, impaired control, self-perception problems, self-care problems, risk-related behavior, academic/occupational problems, physical dependence, and blackout drinking. The YAACQ was created based on the results of a confirmatory factor analysis of several commonly used alcohol consequences measures (Read, Kahler, Strong, & Colder, 2006). Participants were asked to indicate whether they experienced 48 different ARCs in the past 30 days. A total score is computed by calculating the total number of ARCs experienced within the past 30 days. The ARC domains measured by the YAACQ have demonstrated strong concurrent and predictive validity, good test-retest reliability ( $r = .86$ ), and acceptable to excellent internal consistency in college samples ( $\alpha = .74$  to .98; Read Kahler,

Strong, & Colder, 2006; Read, Merrill, Kahler, & Strong, 2007. See Appendix F. This measure was only administered to participants who endorsed consumption of alcohol at least once in the past month.

**Relationship satisfaction.** The Relationship Assessment Scale (RAS; Hendrick, 1988) is a seven-item scale that assesses global relationship satisfaction. Participants were asked to rate their level of satisfaction regarding aspects of their current or most recent intimate relationship from 1 (*low satisfaction*) to 5 (*high satisfaction*). The RAS can be used with individuals in several types of intimate relationships (e.g., dating, cohabitating, engaged couples). Internal consistency is good ( $\alpha = .87$ ; Hendrick 1988) to excellent ( $\alpha = .90$ ; Renshaw, McKnight, Caska, & Blais, 2011) in college samples. Test-retest reliability has also been demonstrated (Hendrick, Dicke, & Hendrick, 1998; Renshaw, McKnight, Caska, & Blais, 2011). The RAS has also been found to produce scores that are strongly correlated with another well-established measure of relationship satisfaction (i.e. the Dyadic Adjustment Scale) in both clinical and non-clinical samples ( $r = .80$ ; Hendrick, 1988). The RAS showed excellent internal consistency in the current study ( $\alpha = .90$ ). See Appendix G. This measure was only administered to participants who reported having been in a romantic relationship lasting at least one month during the past 12 months.

## **Secondary Measures**

**Emotion regulation.** Difficulties in emotion regulation were assessed with the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), which is a 36-item self-report measure that assesses difficulties across 6 subscales: non-acceptance of emotional response, difficulties engaging in goal-directed behavior, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional

clarity. Participants indicated how often statements related to emotional awareness and difficulties apply to them from 1 (*almost never; 0-10%*) to 5 (*almost always; 91-100%*). The overall internal consistency of the DERS was found to be excellent ( $\alpha = .93$ ), with each subscale demonstrating good internal consistency ( $.80 \leq \alpha \leq .89$ ) in college samples (Gratz & Roemer, 2004). Additionally, the DERS has been shown to produce scores that are significantly correlated with another well-known measure of experiential avoidance and emotional expressivity, suggesting adequate construct validity (Gratz & Roemer, 2004). See Appendix H.

**Depression.** The Patient Health Questionnaire-9 (PHQ-9; Kroenke & Spitzer, 2002) is a nine-item self-report measure of depressive symptoms. The PHQ-9 asks participants to rate how much they have been bothered by symptoms of depression over the past two weeks from 0 (*not at all*) to 3 (*nearly every day*). The PHQ-9 has demonstrated good internal consistency in college student samples ( $\alpha = .84$ ; Eisenberg, Nicklett, Roeder, & Kirz, 2011). Test-retest reliability, criterion validity, and construct validity have been demonstrated (Kroenke, Spitzer, & Williams, 2001). See Appendix I.

**Trauma history.** The Life Events Checklist for DSM-5 (LEC-5; Weathers et al., 2013) is a 17-item self-report questionnaire that screens for exposure to potentially traumatic events during the participant's lifetime. Participants were provided with several specific events that have the potential to be traumatizing and are asked to indicate whether they have experienced, witnessed, learned about, or experienced as part of their job each item. See Appendix J.

## **Procedure**

Psychology undergraduate students signed up for the study via the Psychology Department's Sona system. After signing up for the study, students were provided a weblink that routed them to a Qualtrics survey. Participants were provided with information about the risks

and potential benefits of participation, after which they implied their consent to participate by continuing on to the survey. Participants received 0.5 Sona credits for participating in the study; compensation was not pro-rated, so all participants who began the study received full credit.

### **Data Preparation and Analytic Overview**

**Model 1.** The primary hypothesis of higher levels of DPDR attenuating the relationship between social anxiety and ARCs via coping-motivated alcohol use was examined using a moderated mediation model (Preacher, Rucker, & Hayes, 2007). MPlus version 8 (Muthen & Muthen, 1998-2017) was used to examine the main, indirect, and total effects of social anxiety and coping-motivated alcohol use on ARCs, as well as the conditional effects of DPDR on the relationship between social anxiety and coping-motivated alcohol use. Because social anxiety was assessed using both the LSAS and the SPAI-23 in this study, each primary and subsequent analysis of this model was performed twice: once with the LSAS as the predictor and once with the SPAI-23 as the predictor. Since the YAACQ produces a total score that is a count variable, a negative binomial distribution was specified in the analyses for model 1. In order to test model fit, negative binomial, zero-inflated negative binomial, and negative binomial hurdle distributions were compared to each other using Vuong's Closeness test and the distribution-free test (Clarke, 2003; Vuong, 1989). The results of these two tests indicated that a zero-inflated negative binomial distribution best fit the model for both the LSAS and the SPAI-23. Gender, age, alcohol use quantity, alcohol use frequency, and conformity drinking motives were entered into the model as covariates. Total LSAS scores, SPAI-23 difference scores, and CDS scores were mean centered, and interaction terms of LSAS x CDS and SPAI-23 difference x CDS were generated using the mean-centered total scores.

**Model 2.** The secondary hypothesis of higher levels of DPDR attenuating the relationship between social anxiety and relationship satisfaction was examined using a moderation analysis (Baron & Kenny, 1986). Mplus version 8 was used to examine the main effects of social anxiety and DPDR on relationship satisfaction and the interaction between social anxiety and DPDR on relationship satisfaction. Because social anxiety was assessed using the LSAS and the SPAI-23 in this study, each primary and subsequent analysis of this model was performed twice: once with the LSAS as the predictor and once with the SPAI-23 as the predictor. In this model, LSAS, SPAI-23 difference, and CDS scores were mean-centered, and interaction terms of LSAS x CDS and SPAI-23 difference x CDS were generated from the mean-centered total scores. Covariates were age, gender, and duration of the reported relationship.

## CHAPTER 3: RESULTS

### Descriptive Statistics

**Model 1.** Independent samples *t*-tests were used to explore gender differences in social anxiety. Women reported significantly higher social anxiety scores on both the LSAS ( $M = 50.57$ ,  $SD = 26.87$ ;  $t(318) = 4.21$ ,  $p < .001$ ) and the SPAI-23 ( $M = 19.82$ ,  $SD = 12.29$ ;  $t(318) = 2.75$ ,  $p = .006$ ) than men ( $M = 37.82$ ,  $SD = 23.02$ ;  $M = 15.92$ ,  $SD = 12.29$ , respectively). Mann-Whitney U non-parametric tests were used to investigate gender differences in DPDR, frequency and typical quantity of alcohol use, drinking motives, and ARCs, as these variables were not normally distributed. Men consumed significantly more drinks per occasion over the past 30 days ( $Mdn = 3$ ,  $U = 3.951$ ;  $p < .001$ ) than women ( $Mdn = 2$ ). There were no significant differences between men and women on DPDR ( $U = 1.185$ ;  $p = .236$ ), frequency of alcohol use in the past 30 days ( $U = -.442$ ;  $p = .658$ ), level of coping motives for alcohol use ( $U = 1.509$ ;  $p = .131$ ), level of conformity motives for alcohol use ( $U = -1.392$ ;  $p = .164$ ), or total number of ARCs experienced in the past 30 days ( $U = -.183$ ;  $p = .855$ ). See Table 1 for descriptive statistics and bivariate correlations for model 1.

**Model 2.** In model 2, women reported significantly higher social anxiety scores on both the LSAS ( $M = 48.29$ ,  $SD = 25.94$ ;  $t(360) = 4.33$ ,  $p < .001$ ) and the SPAI ( $M = 19.41$ ,  $SD = 12.75$ ;  $t(360) = 2.75$ ,  $p < .001$ ) than men ( $M = 35.80$ ,  $SD = 24.59$ ;  $M = 14.29$ ,  $SD = 12.06$ , respectively). Women also reported higher levels of dissociative experiences ( $Mdn = 18.00$ ;  $U = 2.79$ ,  $p = .005$ ) than men ( $Mdn = 8.50$ ). There were no significant differences between males and females on the duration of the reported romantic relationship ( $U = 1.585$ ;  $p = .113$ ) or relationship satisfaction ( $U = 1.087$ ;  $p = .277$ ). There were no significant differences in SPAI-23 difference scores between participants who were included in this sample (i.e., those who had

been in a romantic relationship lasting at least 30 days in the past 12 months) and those who were excluded (i.e., those who had not been in a romantic relationship lasting at least 30 days in the past 12 months). However, there was a significant difference between LSAS total scores ( $t(573) = -2.39, p = .017$ ); specifically, participants who had not been in a romantic relationship had higher scores on the LSAS than those who had been in a romantic relationship. See Table 2 for descriptive statistics and bivariate correlations for model 2.

### **Primary Analyses**

**Distribution.** Because the YAACQ produces a total score that is a count variable, three different negative binomial distributions were tested using Vuong's Closeness Test and Clarke's Distribution-Free Test (CDF) in order to determine which model best fit the data separately for the models using the LSAS and the SPAI-23. For the model with LSAS as a predictor, when compared against a normal distribution, a negative binomial distribution was a better fit for the data ( $V = -6.81, p < .001$ ;  $CDF = -74, p < .001$ ). The negative binomial distribution was then compared to a zero-inflated negative binomial distribution, where tests of model fit indicated that the zero-inflated model was a better fit ( $V = -3.49, p < .001$ ;  $CDF = -96, p < .001$ ). Finally, the zero-inflated model was compared to a negative binomial hurdle model. Although Vuong's Closeness Test was nonsignificant ( $V = -0.06, p = .96$ ), the CDF test indicated that the zero-inflated model was a better fit for the data ( $CDF = 26, p < .05$ ). Based on these results, a zero-inflated negative binomial distribution was specified for model 1 when the LSAS was specified as the measure of social anxiety.

The same procedure was then conducted for this model in which the SPAI-23 was used as the measure of social anxiety. When compared to a normal distribution, the negative binomial distribution was a significantly better fit for the data ( $V = -6.57, p < .001$ ;  $CDF = -62, p < .001$ ).



Next, a zero-inflated negative binomial distribution was a significantly better fit than the negative binomial distribution ( $V = -4.17, p < .001$ ;  $CDF = -114, p < .001$ ). Lastly, the CDF test indicated that the zero-inflated negative binomial distribution fit significantly better than a hurdle distribution ( $CDF = 18, p = .027$ ), while the Vuong's Closeness test was nonsignificant ( $V = -.51, p = .609$ ). Based on these results, a zero-inflated negative binomial distribution was specified for model 1 when the SPAI-23 was the observed measure of social anxiety.

**Model 1 – LSAS.** In the initial model with the LSAS as the measure of social anxiety, the interaction term of LSAS x CDS was not a significant predictor of coping motives, indicating there was no moderated mediation effect (see Table 3 and Figure 4). Additionally, the total effect of social anxiety on ARCs was not significant ( $b = .004, p = .134$ ).

**Logistic Portion.** In the logistic portion of this model, significant covariates included age ( $b = -.136, p = .014$ ), gender ( $b = 1.584, p = .013$ ), and average quantity of alcohol use ( $b = 1.607, p < .001$ ). Coping drinking motives was a significant positive predictor of experiencing ARCs ( $b = .397, p = .016$ ), indicating that greater endorsement of coping drinking motives was positively associated with the likelihood of experiencing ARCs. Alcohol use frequency, social anxiety, DPDR, and conformity motives were not significant predictors of experiencing ARCs in this portion of the model.

**Count Portion.** In the count portion of the model with the LSAS specified as the measure of social anxiety, the interaction term of LSAS x CDS was not a significant predictor of coping motives, indicating there was no moderated mediation effect (see Table 3 and Figure 4). Additionally, the total effect of social anxiety on ARCs was not significant ( $b = .004, p = .134$ ). Age and gender were nonsignificant covariates. Significant covariates in this model were frequency of alcohol use ( $b = .201, p < .001$ ), average quantity of alcohol use ( $b = .170, p <$

.001), and conformity drinking motives ( $b = .031, p = .046$ ) which indicate that the frequency and typical quantity with which individuals consume alcohol and the use of alcohol to “fit in” during social events are positively associated with ARCs. The direct relationship between social anxiety and ARCs was not statistically significant; however, coping drinking motives was a significant predictor of ARCs ( $b = .029, p = .030$ ), such that higher levels of coping motives predicted a greater number of ARCs. When examining the mediator, both social anxiety ( $b = .038, p < .001$ ) and DPDR ( $b = .053, p < .001$ ) were significant predictors of coping drinking motives. Specific indirect and total effects were also calculated. Results indicated that the indirect effect of social anxiety on ARCs via coping motives was not significant.

The interaction term was then removed from the model and a direct path from DPDR to ARCs was specified because DPDR was positively associated with coping motives (see Figure 3). In this re-specified model, the total effects of both social anxiety and DPDR on ARCs were not significant ( $b = .005, p = .096; b = .000, p = .980$ , respectively). Consistent with the previous model, frequency of alcohol use ( $b = .202, p < .001$ ) and typical alcohol quantity ( $b = .167, p < .001$ ) were significant covariates. While the direct effect of social anxiety on ARCs remained nonsignificant, the effect of coping drinking motives was significant ( $b = .032, p = .016$ ). When examining the mediator, results indicated that both social anxiety ( $b = .037, p < .001$ ) and DPDR ( $b = .056, p < .001$ ) were significant predictors of coping drinking motives. Specific indirect effects indicated that the indirect effect of social anxiety on ARCs via coping motives was significant ( $b = .001, p = .043$ ). Lastly, the specific indirect effect of DPDR on ARCs via coping motives was significant ( $b = .002, p = .024$ ).

**Model 1 – SPAI-23.** Similar to the LSAS model, the interaction term of SPAI-23 x CDS was not significant, indicating that there is no moderated mediation effect (see Table 4 and Figure 5). The total effect of social anxiety on ARCs was not significant ( $b = .004, p = .324$ ).

**Logistic Portion.** Significant covariates in the logistic portion of the SPAI-23 model were age ( $b = -.116, p = .012$ ), gender ( $b = 1.215, p = .002$ ), and average quantity of alcohol use ( $b = 1.151, p < .001$ ). Social anxiety, coping motives, and DPDR were not significant predictors of experiencing ARCs in this portion of the model.

**Count Portion.** While age and gender were nonsignificant covariates in the count portion of this model, frequency of alcohol use ( $b = .188, p < .001$ ), average alcohol quantity ( $b = .146, p < .001$ ), and conformity drinking motives ( $b = .043, p = .015$ ) were significant predictors of ARCs. The direct relationship between social anxiety and ARCs in this model was not statistically significant; however, coping drinking motives was a significant predictor of ARCs ( $b = .041, p = .001$ ). Both social anxiety ( $b = .090, p < .001$ ) and DPDR ( $b = .057, p < .001$ ) were significant predictors of coping drinking motives. The specific indirect effect of social anxiety on ARCs via coping motives was significant ( $b = .004, p = .006$ ).

The model was re-analyzed after removing the interaction term and adding a direct path from DPDR to ARCs because DPDR was positively associated with coping motives (see Figure 5). In this re-specified model, the total effects of both social anxiety and DPDR on ARCs were not significant ( $b = .005, p = .285$ ;  $b = .001, p = .655$ , respectively). Frequency of alcohol use ( $b = .189, p < .001$ ) and typical alcohol quantity ( $b = .148, p < .001$ ) remained significant covariates. Conformity drinking motives also remained a significant covariate ( $b = .043, p = .014$ ). While the direct effects of social anxiety ( $b = .009, p = .074$ ) and DPDR ( $b = .001, p = .655$ ) on ARCs were not significant, the direct effect of coping drinking motives was a

significant predictor of ARCs ( $b = .039, p = .003$ ). When examining the mediator, both social anxiety ( $b = .087, p < .001$ ) and DPDR ( $b = .060, p < .001$ ) were significant positive predictors of coping drinking motives. Lastly, there was a significant indirect effect of social anxiety on ARCs via coping motives ( $b = .003, p = .012$ ) and a significant indirect effect of DPDR on ARCs via coping motives ( $b = .002, p = .006$ ).

**Model 2 – LSAS.** The interaction term of LSAS x CDS was not significant in this model, indicating no moderation effects (see Table 5). In this model, social anxiety and gender were nonsignificant predictors of relationship satisfaction; however, DPDR was a significant predictor of relationship satisfaction ( $b = -.042, p < .001$ ), indicating that higher levels of DPDR predict lower levels of relationship satisfaction. Age of the participant was a significant predictor of relationship satisfaction ( $b = -.216, p = .043$ ).

The interaction term was then removed and the model re-run. Age ( $b = -.225, p = .030$ ) and DPDR ( $b = -.037, p < .001$ ) remained significant negative predictors of relationship satisfaction. Additionally, duration of the reported relationship was a significant positive predictor of relationship satisfaction ( $b = .001, p = .038$ ). Social anxiety did not predict relationship satisfaction ( $b = -.005, p = .737$ ).

**Model 2 – SPAI.** The interaction term of SPAI-23 x CDS in this model was also not significant, indicating no moderation effect (see Table 6). Both age ( $b = -.213, p = .032$ ) and DPDR ( $b = -.038, p < .001$ ) were significant negative predictors of relationship satisfaction. Additionally, duration of the reported relationship was a significant positive predictor of relationship satisfaction ( $b = .001, p = .043$ ). Social anxiety was not a significant predictor of relationship satisfaction in this model.

As in the previous LSAS model, the interaction term was removed from this model and re-analyzed. Age ( $b = -.213, p = .032$ ) and DPDR ( $b = -.038, p < .001$ ) remained significant negative predictors of relationship satisfaction, and duration of the reported relationship remained a significant positive predictor ( $b = .001, p = .042$ ). Social anxiety was not a significant predictor of relationship satisfaction in this model ( $b = -.006, p = .843$ ).

## CHAPTER 4: DISCUSSION

The present study investigated the relationship between social anxiety and functional outcomes (i.e., alcohol-related consequences and relationship satisfaction). It was hypothesized that social anxiety would be positively associated with ARCs via greater coping drinking motives and that DPDR would moderate the relationship between social anxiety and coping drinking motives such that relationship between social anxiety and coping-motivated alcohol use would be weaker at high levels of DPDR compared to low levels of DPDR. Additionally, DPDR was expected to moderate the relationship between social anxiety and relationship satisfaction such that there would be a stronger negative relationship between social anxiety and relationship satisfaction among individuals high in DPDR compared to those low in DPDR. Support for the hypotheses was mixed. Specifically, social anxiety did predict ARCs via coping motives, but DPDR did not serve as a moderator in either model, and social anxiety did not predict relationship satisfaction. Though not hypothesized, results also indicated that individuals who reported higher DPDR experienced more ARCs via coping-motivated alcohol use and that DPDR was a significant predictor of relationship satisfaction such that higher levels of DPDR were associated with lower relationship satisfaction.

Although some previous research has found a significant relationship between social anxiety and ARCs (Schry & White, 2013), the results in this study indicated that the total relationship between social anxiety and ARCs was not significant; this result is consistent with findings of previous research that also found no significant relationship between social anxiety and ARCs (e.g., Ham, Zamboanga, Bacon, & Garcia, 2009; LaBrie, Pedersen, Neighbors, & Hummer, 2008). The finding that social anxiety was indirectly related to ARCs via coping-motivated alcohol use is also consistent with previous findings (Buckner & Heimberg, 2010).

Although significant indirect effects typically occur when there is a significant total effect, the presence of a significant indirect effect in model 1 in the absence of a significant total effect may have occurred due to unexamined indirect effects working in the opposite direction (MacKinnon, Krull, & Lockwood, 2000). Although this study examined social anxiety as a risk factor for experiencing ARCs via coping drinking motives, it is possible that social anxiety may also be a protective factor for ARCs via other indirect effects (e.g., attending fewer social events). Due to the inconsistent relationship between social anxiety and alcohol outcomes in this study and in previous literature, the results of the current study highlight the importance of examining mediators of social anxiety and alcohol outcomes and of examining social anxiety as a possible protective factor against problematic alcohol outcomes.

There appear to be two primary limitations in previous studies that examined dissociation and alcohol motives/outcomes. First, “dissociation” has been historically vaguely and poorly defined and, thus, loosely measured (Soffer-Dudek, 2014; Spiegel et al., 2011). Second, dissociation is often measured in samples of trauma survivors. For instance, one study examined dissociation as part of a latent “trauma factor” variable, comprised in part of DPDR (Kaysen et al., 2007). Other studies have focused primarily on the dissociative experiences of survivors of sexual trauma; these studies indicate that dissociation is related to increased alcohol consumption (Briere & Runtz, 1987; Roesler & Dafler, 1993). The results of the current study provide an important next step in dissociation and alcohol use research since the current study appears to be the first study to examine specific, non-trauma-related DPDR experiences more broadly as a predictor of ARCs via coping-motivated alcohol use.

Furthermore, previous research on romantic relationships has highlighted the importance of emotional re-appraisal and emotional communication in maintaining satisfying relationships

with romantic partners (e.g., Beck, 2010; Bloch, Haase, & Levenson, 2014; Gross & John, 2003). Emotion suppression and numbing, such as the unconscious numbing inherent in DPDR, likely reduce the ability to identify and communicate emotions and have been linked to reduced relationship satisfaction (e.g., Alden & Bieling, 1998; Davila & Beck, 2002; Voncken, Alden, Bogels, & Roelofs, 2008). However, this appears to be the first study to investigate the impact of DPDR more broadly on relationship satisfaction. The results of the current study may serve to shed light on the numbing effect DPDR may have on relationship satisfaction in terms of closing off emotional communication.

### **Clinical Implications**

Findings from the current study suggest important clinical implications for the treatment of both social anxiety and DPDR experiences. Assessments of social anxiety in college students should be accompanied by assessment of alcohol use, including the motives for consuming alcohol. There are effective treatments for social anxiety (e.g., exposure therapy; Beidel & Turner, 2007) that may be augmented by including psychoeducation about alcohol use and related problematic outcomes, as well as a focus on developing more socially acceptable and less problematic coping skills to use when in social situations where alcohol is available.

Several studies have suggested the importance of mindfulness techniques in treating dissociative symptoms such as the DPDR experiences described and examined in the current study (Baslet & Hill, 2011; Langmuir, Kirsh, & Classen, 2012). Zerubavel and Messman-Moore (2015) suggest that the tendency for the individual's consciousness to take on the role of an observer is an important experiential factor common to both mindfulness and DPDR. Mindfulness allows an individual to capitalize on the familiarity of being an observer by focusing on the experience of the present moment, which offers a well-suited intervention to the



maladaptive consequences stemming from the inability to stay present common to DPDR (Zerubavel & Messman-Moore, 2015). Mindfulness skills that focus not only on DPDR but also on the urge to drink alcohol in order to cope with negative emotions may offer a more comprehensive skills-based intervention for DPDR. Additionally, it may also be helpful to discuss the importance of using mindfulness strategies when interacting with romantic partners when working with patients who experience DPDR in order to improve relationship satisfaction.

### **Limitations and Future Directions**

The current study is not without limitations. The primary limitation of this study is the cross-sectional study design, as directionality, or causality, cannot be determined in either model. Future research should incorporate ecological momentary assessments (EMA; Stone & Shiffman, 1994) into research designs to examine event-level alcohol consumption and the resulting ARCs, as well as the participants' momentary level of social fear and/or DPDR in the specific situation in which they consume alcohol. Research designs using EMA can also examine DPDR experiences in event-level interactions with romantic partners. Future research should also examine other mediators by which social anxiety exerts its effect on ARCs (e.g., avoidance of social situations), since social anxiety may also serve as a protective factor against problematic alcohol outcomes.

A second limitation is the sample collected in this study was a college analog sample rather than a clinical sample. Though social anxiety remains a prevalent psychological difficulty in community and college samples, future research should investigate these relationships among clinical samples.

Third, reports of relationship satisfaction were only obtained from one partner (i.e., the participant) in this study. It is recommended that future research collects information regarding

relationship satisfaction from both partners within the dyad when measuring the relationship between social anxiety and relationship satisfaction. It is possible that the individual in the relationship reporting higher levels of social anxiety may have a different perception of the romantic relationship compared to the partner lower in social anxiety. Additionally, participants who were excluded from Model 2 due to not having been in a romantic relationship last at least 30 days reported higher levels of social anxiety as assessed by the LSAS than those included in that model. Future research investigating social anxiety and intimate relationships should take into account that participants higher in social anxiety may be less likely to engage in romantic relationships due to their symptoms, and therefore, research examining predictors of both engagement in romantic relationships and satisfaction in relationships.

A fourth limitation of this study is that the CDS assesses DPDR experiences broadly and not during periods of acute stress. Future research investigating the relationship between social anxiety and DPDR should assess DPDR at the event level, during times of acute social stress (e.g., work meetings, parties, classroom discussions).

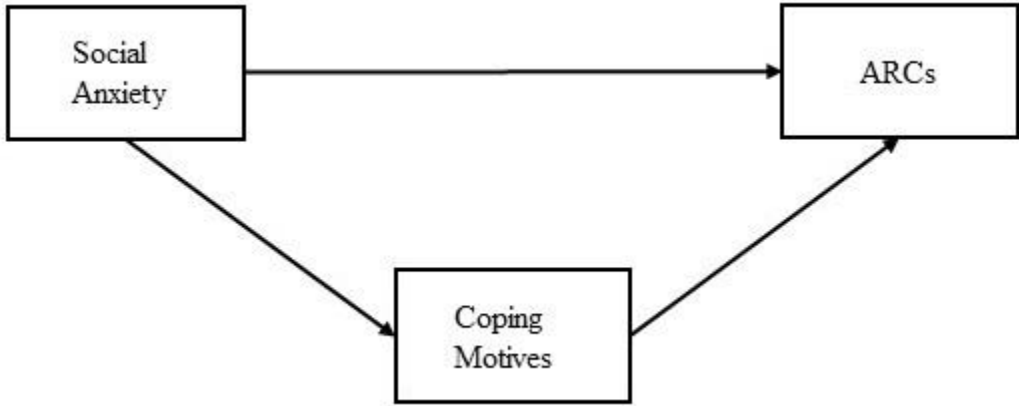
Lastly, the majority of the current study was female. Future research should strive to collect a more gender-balanced sample to aid in the generalizability of results.

## **Conclusion**

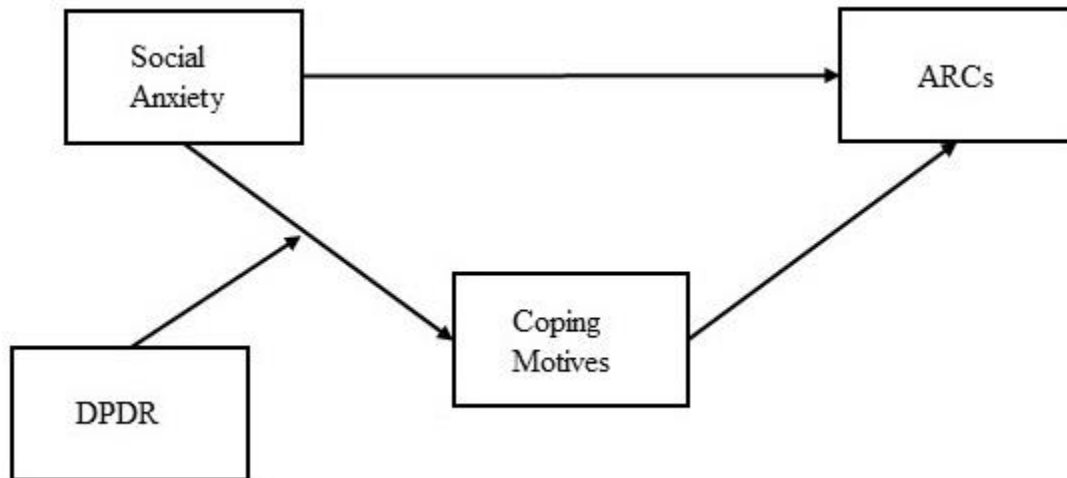
The present study examined the relationship between social anxiety and ARCs via coping-motivated alcohol use and examined DPDR as a moderator of the relationship between social anxiety and coping-motives. Additionally, DPDR was examined as a moderator of the relationship between social anxiety and relationship satisfaction. A path between DPDR and ARCs was added in the final analyses of model 1. Results suggest that DPDR does not moderate the relationship between social anxiety and coping motives or the relationship between social

anxiety and relationship satisfaction. Results also suggest that social anxiety and DPDR are indirectly associated with ARCs via coping motives, and that DPDR is negatively associated with relationship satisfaction. Future studies should further investigate these relationships along with other potential mediators to efficiently augment existing interventions for social anxiety and DPDR experiences.

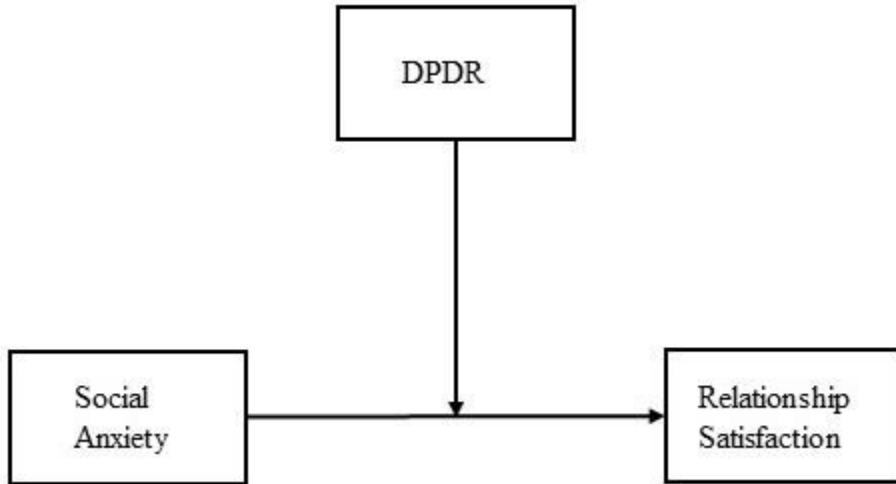
## APPENDIX A: FIGURES



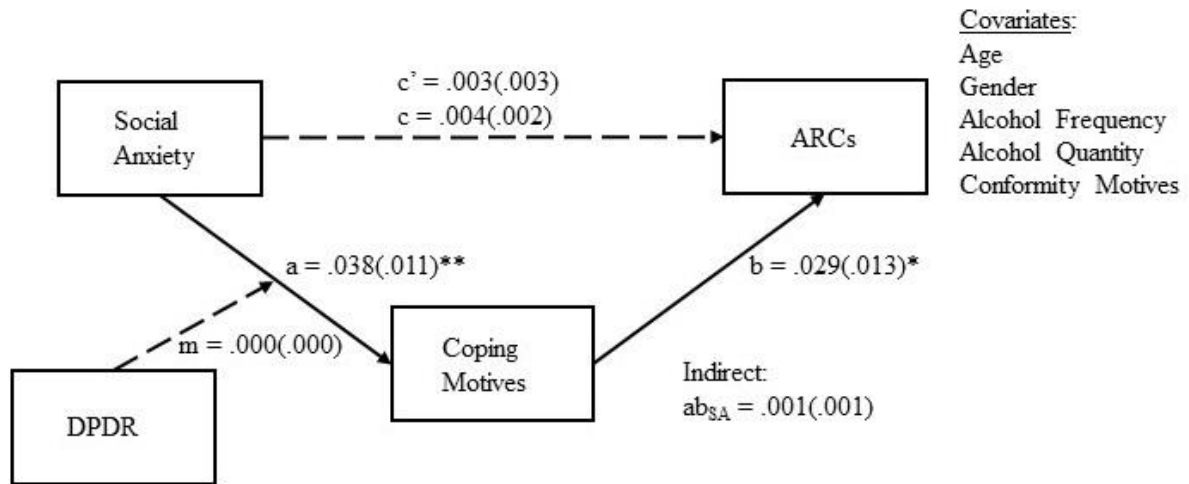
*Figure 1.* Mediation path model of social anxiety predicting ARC's via coping-motivated alcohol use.



*Figure 2.* Moderated mediation path model of DPDR moderating the mediated relationship of social anxiety and ARCs via coping-motivated alcohol use.



*Figure 3.* Moderation model of DPDR, social anxiety, and relationship satisfaction.



Initial Model - LSAS

Final Model - LSAS

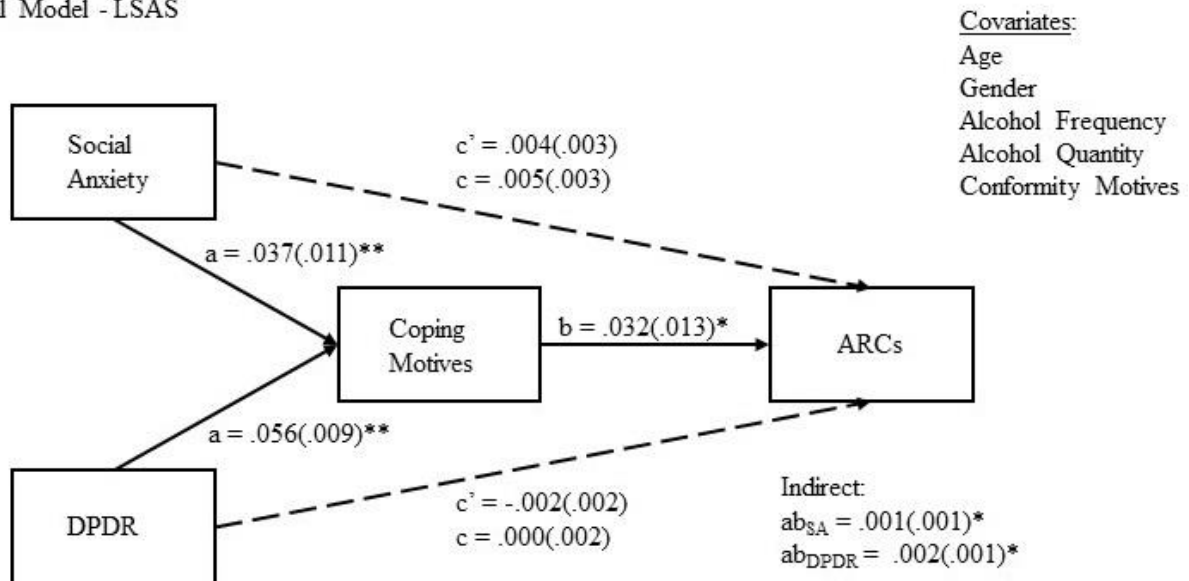
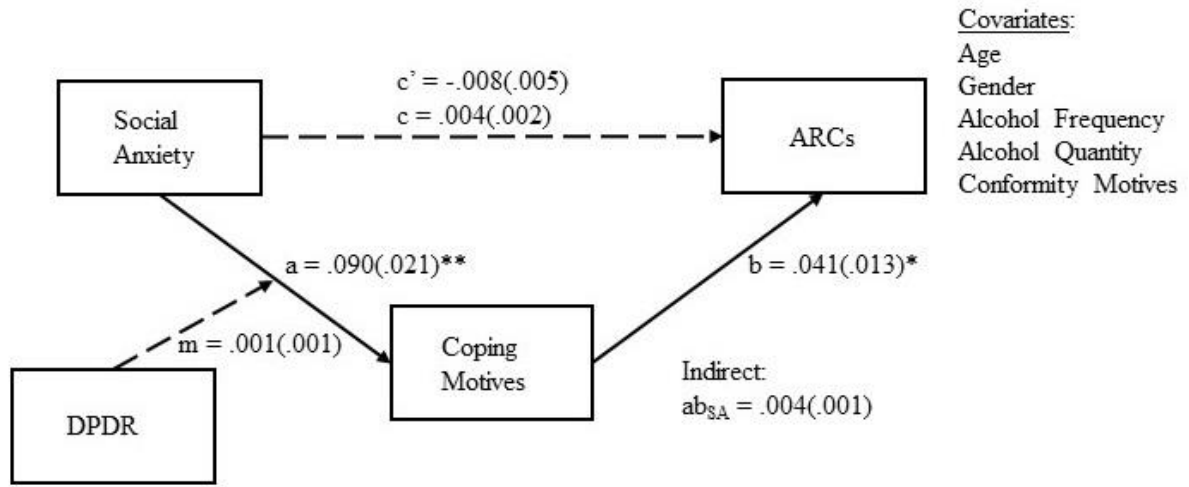


Figure 4. Initial moderated mediation model and final mediation model for model 1 using the LSAS. DPDR = Depersonalization/derealization; ARC's = Alcohol-related consequences. All values are unstandardized. Solid lines indicate significant associations, dashed lines indicated nonsignificant associations  $*p < .05$ ;  $**p < .001$





Initial Model – SPAI-23

Final Model – SPAI-23

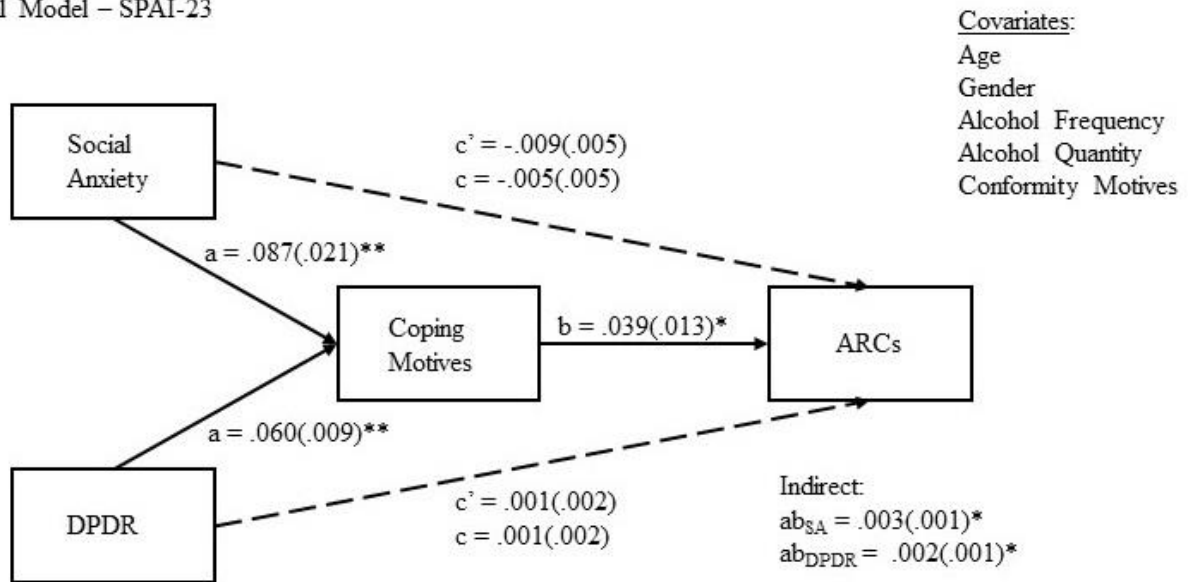


Figure 5. Initial moderated mediation model and final mediation model for model 1 using the SPAI-23. DPDR = Depersonalization/derealization; ARCs = Alcohol-related consequences. All values are unstandardized. \* $p < .05$ ; \*\*  $p < .001$

## **APPENDIX B: TABLES**

Table 1

*Model 1 descriptive statistics and bivariate correlations*

Variables	Mean	SD	Lower	Upper	1	2	3	4	5	6	7	8
1. Age	20.99	4.04	18	45	---							
2. LSAS	46.27	26.30	0	130	.04	---						
3. SPAI-23	18.50	12.11	-14	53	.07	.78**	---					
4. CDS	27.48	29.98	0	178	-.02	.52**	.36**	---				
5. AlcQuant	2.82	1.57	1	9	-.12*	-.20**	-.17**	-.05	---			
6. AlcFreq	2.55	1.41	1	7	.16**	-.08	-.01	.04	.36**	---		
7. DMQ-R Cope	9.69	5.04	5	25	-.04	.36**	.34**	.44**	.19**	.31**	---	
8. DMQ-R Con	7.18	3.33	5	24	.06	.25**	.26**	.21**	.01	.01	.39**	---
9. YAACQ	7.68	8.73	0	44	.02	.09	.03	.12*	.41**	.45**	.37**	.20**

*Note:* All values are unstandardized. All bold values are statistically significant. LSAS = Leibowitz Social Anxiety Scale; SPAI-23 = Social Phobia and Anxiety Inventory 23-Item scale; CDS = Cambridge Depersonalization Scale; AlcQuant = typical quantity of alcohol consumed; AlcFreq = average frequency of alcohol use; DMQ-R Cope = Drinking Motives Questionnaire – Revised, Coping motives subscale; DMQ-R Conform = Drinking Motives Questionnaire – Revised, Conformity motives subscale; YAACQ = Young Adult Alcohol Consequences Questionnaire. \* $p < .05$ ; \*\* $p < .001$

Table 2

*Model 2 descriptive statistics and bivariate correlations*

Variables	Mean	<i>SD</i>	Lower	Upper	1	2	3	4	5
1. Age	21.05	4.74	18	57	---				
2. LSAS	44.36	26.14	0	115	.06	---			
3. SPAI-23	17.80	12.75	-14	53	.06	.78**	---		
4. CDS	25.24	28.89	0	178	-.03	.53**	.36**	---	
5. Duration	664.98	969.70	30	8000	.38**	.04	.04	.07	---
6. RAS	28.01	6.62	7	35	-.11*	-.09	-.06	-.12*	.03

*Note:* All values are unstandardized. All bold values are statistically significant. LSAS = Leibowitz Social Anxiety Scale; SPAI-23 =

Social Phobia and Anxiety Inventory 23-Item scale; CDS = Cambridge Depersonalization Scale; Duration = duration in days of

reported romantic relationship; RAS = Relationship Assessment Scale. \* $p < .05$ ; \*\* $p < .001$

Table 3

*Alcohol-related consequences model results - LSAS*

	With Interaction		Without Interaction	
	Estimate ( <i>SE</i> )	<i>p</i>	Estimate ( <i>SE</i> )	<i>p</i>
<b>Direct Effects</b>				
Age → ARCs	.023(.018)	.201	.023(.017)	.198
Gender → ARCs	-.023(.121)	.847	-.053(.119)	.654
AlcFreq → ARCs	<b>.201(.040)</b>	<b>&lt; .001</b>	<b>.202(.041)</b>	<b>&lt; .001</b>
AlcQuant → ARCs	<b>.170(.037)</b>	<b>&lt; .001</b>	<b>.167(.037)</b>	<b>&lt; .001</b>
SA → ARCs	.003(.003)	.336	.004(.003)	.242
DPDR → ARCs	---	---	-.002(.002)	.438
Cope → ARCs	<b>.029(.013)</b>	<b>.030</b>	<b>.032(.013)</b>	<b>.015</b>
Conform → ARCs	<b>.031(.016)</b>	<b>.046</b>	.031(.016)	.052
SA → Cope	<b>.038(.011)</b>	<b>&lt; .001</b>	<b>.037(.011)</b>	<b>&lt; .001</b>
DPDR → Cope	<b>.053(.010)</b>	<b>&lt; .001</b>	<b>.056(.009)</b>	<b>&lt; .001</b>
SAXDPDR → Cope	.000(.000)	.679	---	---
<b>Indirect Effects</b>				
SA → Cope → ARCs	.001(.001)	.066	<b>.001(.001)</b>	<b>.043</b>
DPDR → Cope → ARCs	---	---	<b>.002(.001)</b>	<b>.024</b>
<b>Total Effects</b>				
SA → ARCs	.004(.002)	.134	.005(.003)	.096
DPDR → ARCs	---	---	.000(.002)	.980

*Note:* All values are unstandardized. All bold values are statistically significant. SA = social

anxiety; DPDR = Depersonalization/Derealization; AlcQuant = typical quantity of alcohol

consumed; AlcFreq = average frequency of alcohol use; Cope = Drinking Motives Questionnaire

– Revised, Coping motives subscale; Conform = Drinking Motives Questionnaire – Revised,

Conformity motives subscale; ARCs = Alcohol related consequences.

Table 4

*Model 1 – SPAI-23*

	With Interaction		Without Interaction	
	Estimate ( <i>SE</i> )	<i>p</i>	Estimate ( <i>SE</i> )	<i>p</i>
Direct Effects				
Age → ARCs	.031(.020)	.132	.030(.020)	.139
Gender → ACRs	-.013(.124)	.915	-.006(.123)	.959
AlcFreq → ARCs	<b>.188(.043)</b>	<b>&lt; .001</b>	<b>.189(.043)</b>	<b>&lt; .001</b>
AlcQuant → ARCs	<b>.146(.037)</b>	<b>&lt; .001</b>	<b>.148(.037)</b>	<b>&lt; .001</b>
SA → ARCs	-.008(.005)	.074	-.009(.005)	.074
DPDR → ARCs	---	---	.001(.002)	.655
Cope → ARCs	<b>.041(.013)</b>	<b>.001</b>	<b>.039(.013)</b>	<b>.003</b>
Conform → ARCs	<b>.043(.018)</b>	<b>.015</b>	<b>.043(.018)</b>	<b>.014</b>
SA → Cope	<b>.090(.021)</b>	<b>&lt; .001</b>	<b>.087(.021)</b>	<b>&lt; .001</b>
DPDR → Cope	<b>.057(.009)</b>	<b>&lt; .001</b>	<b>.060(.009)</b>	<b>&lt; .001</b>
SxDPDR → Cope	.001(.001)	.129	---	---
Indirect Effect				
SA → Cope → ARCs	<b>.004(.001)</b>	<b>.006</b>	<b>.003(.001)</b>	<b>.012</b>
DPDR → Cope → ARCs	---	---	<b>.002(.001)</b>	<b>.006</b>
Total Effect				
SA → ARCs	-.004(.005)	.324	-.005(.005)	.285
DPDR → ARCs	---	---	.001(.002)	.655

*Note:* All values are unstandardized. All bold values are statistically significant. SA = social

anxiety; DPDR = Depersonalization/Derealization; AlcQuant = typical quantity of alcohol

consumed; AlcFreq = average frequency of alcohol use; Cope = Drinking Motives Questionnaire

– Revised, Coping motives subscale; Conform = Drinking Motives Questionnaire – Revised,

Conformity motives subscale; ARCs = Alcohol related consequences.

Table 5

*Relationship Model – LSAS*

Variables	$R^2$	Estimate (SE)	$p$
With Interaction	<b>.065</b>		
Age		<b>-.216(.106)</b>	<b>.043</b>
Gender		1.379(.777)	.076
Duration		.001(.000)	.052
Social Anxiety		-.005(.014)	.737
DPDR		<b>-.042(.009)</b>	<b>&lt; .001</b>
SAXDPDR		.000(.000)	.255
Without Interaction	<b>.063</b>		
Age		<b>-.225(.104)</b>	<b>.030</b>
Gender		1.317(.770)	.087
Duration		<b>.001(.000)</b>	<b>.038</b>
Social Anxiety		-.005(.014)	.737
DPDR		<b>-.037(.010)</b>	<b>&lt; .001</b>

*Note:* All values are unstandardized. All bold values are statistically significant. SA = social anxiety; DPDR = Depersonalization/Derealization; duration in days of reported romantic relationship.

Table 6

*Relationship Model – SPAI-23*

Variables	$R^2$	Estimate ( <i>SE</i> )	<i>p</i>
With Interaction	<b>.061</b>		
Age		<b>-.213(.100)</b>	<b>.032</b>
Gender		1.302(.767)	.089
Duration		<b>.001(.000)</b>	<b>.043</b>
Social Anxiety		-.006(.029)	.843
DPDR		<b>-.038(.010)</b>	<b>&lt; .000</b>
SPAIxCDS		.000(.001)	.992
Without Interaction	<b>.063</b>		
Age		<b>-.214(.099)</b>	<b>.031</b>
Gender		1.325(.748)	.077
Duration		<b>.001(.000)</b>	<b>.042</b>
Social Anxiety		-.006(.029)	.832
DPDR		<b>-.038(.010)</b>	<b>&lt; .001</b>

*Note:* All values are unstandardized. All bold values are statistically significant. SA = social anxiety; DPDR = Depersonalization/Derealization; duration in days of reported romantic relationship.



**APPENDIX C: APPROVAL LETTER**



University of Central Florida Institutional Review Board  
 Office of Research & Commercialization  
 12201 Research Parkway, Suite 501  
 Orlando, Florida 32826-3246  
 Telephone: 407-823-2901 or 407-882-2276  
[www.research.ucf.edu/compliance/irb.html](http://www.research.ucf.edu/compliance/irb.html)

### Approval of Human Research

From: UCF Institutional Review Board #1  
 FWA00000351, IRB00001138

To: Matthew Cook and Co-PI: Amie R. Newins, PhD

Date: March 18, 2018

Dear Researcher:

On 03/18/2018 the IRB approved the following human participant research until 03/17/2019 inclusive:

Type of Review: UCF Initial Review Submission Form  
 Expedited Review Category #7

Project Title: Social Anxiety and Functional Outcomes

Investigator: Matthew Cook

IRB Number: SBE-18-13738

Funding Agency:  
 Grant Title:

Research ID: N/A

The scientific merit of the research was considered during the IRB review. The Continuing Review Application must be submitted 30 days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at <https://iris.research.ucf.edu>.

If continuing review approval is not granted before the expiration date of 03/17/2019, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a copy of the consent form(s).

All data, including signed consent forms if applicable, must be retained and secured per protocol for a minimum of five years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained and secured per protocol. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

In the conduct of this research, you are responsible to follow the requirements of the [Investigator Manual](#).

This letter is signed by:

Signature applied by Kamille Chaparro on 03/18/2018 04:42:42 PM EDT

Designated Reviewer

## **APPENDIX D: QUESTIONNAIRES**

## Demographic Questions

1. How old are you? \_\_\_\_\_
2. What gender best describes you?
  - Male
  - Female
  - Transgender
  - Other (specify): \_\_\_\_\_
3. Are you Hispanic or Latino(a)?    Y        N
4. What race/ethnicity best describes you?
  - Caucasian/white
  - African America/Black/African Origin
  - Middle Eastern
  - Asian American/Asian Origin/Pacific Islander
  - American Indian/Alaskan Native
  - Bi-racial/multi racial
  - Other (specify): \_\_\_\_\_
5. What sexual orientation best describes you?
  - Heterosexual/Straight
  - Homosexual/Gay/Lesbian
  - Bisexual
  - Questioning
  - Asexual
  - Other (specify): \_\_\_\_\_
6. What year are you in college?
  - 1<sup>st</sup> year
  - 2<sup>nd</sup> year
  - 3<sup>rd</sup> year
  - 4<sup>th</sup> year
  - 5<sup>th</sup> year
  - 6<sup>th</sup> year and beyond
7. What are you current living arrangements?
  - On-campus residence hall
  - Fraternity or sorority house
  - Other University housing
  - Off-campus, non-university housing
  - Parent or guardian's home
  - Other (specify): \_\_\_\_\_
8. Are you a member of a social (not academic) Greek organization/fraternity/sorority?
  - Yes
  - No

## Alcohol Use Questions

1. During the past 30 days, how often did you usually have any kind of drink containing alcohol? By a drink we mean half an ounce of absolute alcohol (e.g. a 12 ounce can or glass of beer or cooler, a 5 ounce glass of wine, or a drink containing 1 shot of liquor). Choose only one.

- Every day
- 5 to 6 times a week
- 3 to 4 times a week
- twice a week
- once a week
- 2 to 3 times in the past 30 days
- once in the past 30 days
- I did not drink any alcohol in the past 30 days

2. During the past 30 days, how many alcoholic drinks did you have on a typical day when you drank alcohol?

- 25 or more drinks
- 19 to 24 drinks
- 16 to 18 drinks
- 12 to 15 drinks
- 9 to 11 drinks
- 7 to 8 drinks
- 5 to 6 drinks
- 3 to 4 drinks
- 2 drinks
- 1 drink

3. During the past 30 days, how often did you have 5 or more (males) or 4 or more (females) drinks containing any kind of alcohol in within a two-hour period? Choose only one:

- Every day
- 5 to 6 days a week
- 3 to 4 days a week
- two days a week
- one day a week
- 2 to 3 days in the past 30 days
- one day in the past 30 days

Liebowitz Social Anxiety Scale – Self Report (Cox, 1998)

Answer the following questions with the most suitable answer listed. Base your answers on your experience in the *past month (past 30 days)*. Be sure to answer all items. The rating scales are as follows:

Fear or Anxiety

0 = None

1 = Mild

2 = Moderate

3 = Severe

Avoidance

0 = Never (0% of the time)

1 = Occasionally (1%-33% of the time)

2 = Often (34%-66% of the time)

3 = Usually (67%-100% of the time)

	Fear or Anxiety	Avoidance
1. Telephoning in public	_____	_____
2. Participating in small groups	_____	_____
3. Eating in public places	_____	_____
4. Drinking with other in public places	_____	_____
5. Talking to people in authority	_____	_____
6. Acting, performing, or giving a talk in front of an audience	_____	_____
7. Going to a party	_____	_____
8. Working while being observed	_____	_____
9. Writing while being observed	_____	_____
10. Calling someone you don't know very well	_____	_____
11. Talking with people you don't know very well	_____	_____
12. Meeting strangers	_____	_____

- |  |       |       |
|--|-------|-------|
| 13. Urinating in a public bathroom   | _____ | _____ |
| 14. Entering a room when others are already present                                | _____ | _____ |
| 15. Being the center of attention  | _____ | _____ |
| 16. Speaking up at a meeting   | _____ | _____ |
| 17. Taking a test  | _____ | _____ |
| 18. Expressing a disagreement or disapproval to<br>people you don't know very well | _____ | _____ |
| 19. Looking at people you don't know very well<br>in the eyes                      | _____ | _____ |
| 20. Giving a report to a group   | _____ | _____ |
| 21. Trying to pick up someone  | _____ | _____ |
| 22. Returning goods to a store   | _____ | _____ |
| 23. Giving a party   | _____ | _____ |
| 24. Resisting a high pressure salesperson  | _____ | _____ |

Cambridge Depersonalization Scale (Sierra & Berrios, 2000)

These questions describe strange and “funny” experiences that normal people may have in their daily life. We are interested in their frequency (i.e. how often have you had these experiences over the *past month/past 30 days*) and their approximate duration. For each question, please indicate the answers that suit you best. If you are not sure, give your best guess. Rating scales are as follows:

Frequency	Duration (in general, it lasts...)
0 = Never	1 = few seconds
1 = Rarely	2 = few minutes
2 = Often	3 = few hours
3 = Very often	4 = about a day
4 = All of the time	5 = more than a day
	6 = more than a week

	Frequency	Duration
1. Out of the blue, I feel strange, as if I were not real or as if I was cut off from the world	_____	_____
2. What I see looks “flat” or “lifeless”, as if I were looking at a picture	_____	_____
3. Parts of my body feel as if they didn’t belong to me	_____	_____
4. I have found myself not <i>being frightened at all</i> in situations which normally I would find frightening or distressing	_____	_____
5. My favorite activities are no longer enjoyable	_____	_____
6. While doing something I have the feeling of being a		



- “detached observer” of myself \_\_\_\_\_
7. The flavor of meals no longer gives me a feeling of  
pleasure or distaste \_\_\_\_\_
8. My body feels very light, as if it were floating on air \_\_\_\_\_
9. When I cry or laugh, I do not seem to *feel* any emotions at all \_\_\_\_\_
10. I have the feeling of *not having any thoughts at all*, so that  
when I speak it feels as if my words were being uttered  
by an “automaton” \_\_\_\_\_
11. Familiar voices (including my own) sound remote  
or unreal \_\_\_\_\_
12. I have the feeling that my hands or my feet have become  
larger or smaller \_\_\_\_\_
13. My surroundings feel detached or unreal, as if there  
were a veil between me and the outside world \_\_\_\_\_
14. It seems as if things that I have recently done had taken  
place a long time ago. For example, anything I did  
this morning feels as if it were done weeks ago \_\_\_\_\_
15. While fully awake I have “visions” in which I can *see*  
myself outside, as if I were looking at my image  
in a mirror \_\_\_\_\_
16. I feel detached from memories of things that have  
happened to me – as if I had not been involved  
in them \_\_\_\_\_

17. When in a new situation, it feels as if I have been through  
it before \_\_\_\_\_
18. Out of the blue, I find myself not feeling any affection  
towards my family and close friends \_\_\_\_\_
19. Objects around me seem to look smaller or further away \_\_\_\_\_
20. I cannot feel properly the objects that I touch with  
my hands because it feels *as if it were not me*  
who were touching it \_\_\_\_\_
21. I do not seem to be able to picture thing in my mind,  
for example, the face of a close friend or a familiar  
place \_\_\_\_\_
22. When a aprt of my body hurts, I feel so detached from  
the pain that it feels as if it were “somebody else’s  
pain” \_\_\_\_\_
23. I have the feeling of being outside my body \_\_\_\_\_
24. When I move it doesn’t feel as if I were in charge of  
the movements, so that I feel “automatic” and  
mechanical as if I were a “robot” \_\_\_\_\_
25. The smell of things no longer gives me a feeling of  
pleasure or dislike \_\_\_\_\_
26. I feel so detached from my thoughts that they seem  
to have a “life” of their own \_\_\_\_\_
27. I have to touch myself to make sure that I have a body \_\_\_\_\_

or a real existence

\_\_\_\_\_

28. *I seem to have lost* some bodily sensations, for example

thirst or hunger, so that when I eat or drink, it feels

like an automatic routine

\_\_\_\_\_

29. Previously familiar places look unfamiliar, as if I had

never seen them before

\_\_\_\_\_

Drinking Motives Questionnaire – Revised (Cooper, 1994)

Thinking of all the times you drink alcohol, how often would you say that you drink for each of the following reasons?

1 = Never/Almost never

4 = Most of the time

2 = Some of the time

5 = Always/Almost always

3 = Half of the time

1. To forget your worries

1                      2                      3                      4                      5

2. Because your friends pressure you to drink

1                      2                      3                      4                      5

3. Because it helps you enjoy a party

1                      2                      3                      4                      5

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

1                      2                      3                      4                      5

5. To be sociable

1                      2                      3                      4                      5

6. To cheer up when you're in a bad mood

1                      2                      3                      4                      5

7. Because you like the feeling

1                      2                      3                      4                      5

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

1                      2                      3                      4                      5

9. Because it's exciting

1                      2                      3                      4                      5

10. To get high

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
|   | 1 | 2 | 3 | 4 | 5 |
| 11. Because it makes social gatherings more fun               |   |   |   |   |   |
|   | 1 | 2 | 3 | 4 | 5 |
| 12. To fit in with a group you like                           |   |   |   |   |   |
|   | 1 | 2 | 3 | 4 | 5 |
| 13. Because it gives you a pleasant feeling                   |   |   |   |   |   |
|   | 1 | 2 | 3 | 4 | 5 |
| 14. Because it improves parties and celebrations              |   |   |   |   |   |
|   | 1 | 2 | 3 | 4 | 5 |
| 15. Because you feel more self-confident and sure of yourself |   |   |   |   |   |
|   | 1 | 2 | 3 | 4 | 5 |
| 16. To celebrate a special occasion with friends              |   |   |   |   |   |
|   | 1 | 2 | 3 | 4 | 5 |
| 17. To forget about your problems                             |   |   |   |   |   |
|   | 1 | 2 | 3 | 4 | 5 |
| 18. Because it's fun  |   |   |   |   |   |
|   | 1 | 2 | 3 | 4 | 5 |
| 19. To be liked   |   |   |   |   |   |
|   | 1 | 2 | 3 | 4 | 5 |
| 20. So you won't feel left out                                |   |   |   |   |   |
|   | 1 | 2 | 3 | 4 | 5 |

Brief Young Adult Alcohol Consequences Questionnaire (Kahler, Strong, & Read, 2005).

Below is a list of things that sometimes happen to people either during, or after they have been drinking alcohol. Next to each item below, please indicate whether that item describes something that has happened to you in the past month.

In the past month...

		YES	NO
1.	While drinking, I have said or done embarrassing things		
2.	I have had a hangover (headache, sick stomach) the morning after I had been drinking		
3.	I have felt very sick to my stomach or thrown up after drinking		
4.	I often have ended up drinking on nights when I had planned not to drink		
5.	I have taken foolish risks when I have been drinking		
6.	I have passed out from drinking		
7.	I have found that I needed larger amounts of alcohol to feel any effect, or that I could no longer get high or drunk on the amount that used to get me high or drunk		
8.	When drinking, I have done impulsive things that I regretted later		
9.	I've not been able to remember large stretches of time while drinking heavily		
10.	I have driven a car when I knew I had too much to drink to drive safely		
11.	I have not gone to work or missed classes at school because of drinking, a hangover, or illness caused by drinking		
12.	My drinking has gotten me into sexual situations I later regretted		
13.	I have often found it difficult to limit how much I drink		
14.	I have become very rude, obnoxious or insulting after drinking		
15.	I have woken up in an unexpected place after heavy drinking		
16.	I have felt badly about myself because of my drinking		
17.	I have had less energy or felt tired because of my drinking		
18.	The quality of my work or schoolwork has suffered because of my drinking		

19.	I have spent too much time drinking		
20.	I have neglected my obligations to family, work, or school because of drinking		
21.	My drinking has created problems between myself and my boyfriend/girlfriend/spouse, parents , or other near relatives		
22.	I have been overweight because of drinking		
23.	My physical appearance has been harmed by my drinking		
24.	I have felt like I needed a drink after I'd gotten up (that is, before breakfast)		

Relationship Assessment Scale (Hendrick, 1988)

Below are some questions regarding your satisfaction in romantic relationships. Please rate your level of satisfaction or agreement regarding each question based on your *most recent* romantic relationship lasting 30 days or longer. If you are currently involved in a romantic relationship that has lasted 30 days or longer, then rate these questions based upon your current romantic relationship. Rating scale is as follows:

1 = Low satisfaction

5 = High satisfaction

1. How well does your partner meet your needs?

1                      2                      3                      4                      5

2. In general, how satisfied are you with your relationship?

1                      2                      3                      4                      5

3. How good is your relationship compared to most?

1                      2                      3                      4                      5

4. How often do you wish you hadn't gotten into this relationship?

1                      2                      3                      4                      5

5. To what extent has your relationship met your original expectations?

1                      2                      3                      4                      5

6. How much do you love your partner?

1                      2                      3                      4                      5

7. How many problems are there in your relationship?

1                      2                      3                      4                      5



Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004)

Please indicate how often the following statements apply to you by selecting the appropriate number from the scale below. Rating scale is as follows:

1 = Almost never (0-10%)

4 = Most of the time (66-90%)

2 = Sometimes (11-35%)

5 = Almost always (91-100%)

3 = about half the time (36-65%)

1. I am clear about my feelings.

2. I pay attention to how I feel.

3. I experience my emotions as overwhelming and out of control.

4. I have no idea how I am feeling.

5. I have difficulty making sense out of my feelings.

6. I am attentive to my feelings.

7. I know exactly how I am feeling.

8. I care about what I am feeling.

9. I am confused about how I feel.

10. When I'm upset, I acknowledge my emotions.

11. When I'm upset, I become angry with myself for feeling that way.

12. When I'm upset, I become embarrassed for feeling that way.

13. When I'm upset, I have difficulty getting work done.

14. When I'm upset, I become out of control.

15. When I'm upset, I believe that I will remain that way for a long time.

16. When I'm upset, I believe that I will end up feeling very depressed.

17. When I'm upset, I believe that my feelings are valid and important.

18. When I'm upset, I have difficulty focusing on other things.
19. When I'm upset, I feel out of control.
20. When I'm upset, I can still get things done.
21. When I'm upset, I feel ashamed at myself for feeling that way.
22. When I'm upset, I know that I can find a way to eventually feel better.
23. When I'm upset, I feel like I am weak.
24. When I'm upset, I feel like I can remain in control of my behaviors.
25. When I'm upset, I feel guilty for feeling that way.
26. When I'm upset, I have difficulty concentrating.
27. When I'm upset, I have difficulty controlling my behaviors.
28. When I'm upset, I believe there is nothing I can do to make myself feel better.
29. When I'm upset, I become irritated at myself for feeling that way.
30. When I'm upset, I start to feel very bad about myself.
31. When I'm upset, I believe that wallowing in it is all I can do.
32. When I'm upset, I lose control over my behavior.
33. When I'm upset, I have difficulty thinking about anything else.
34. When I'm upset I take time to figure out what I'm really feeling.
35. When I'm upset, it takes me a long time to feel better.
36. When I'm upset, my emotions feel overwhelming.

Patient Health Questionnaire-9 (Kroenke & Spitzer, 2002)

Over the *last 2 weeks*, how often have you been bothered by any of the following problems?

0 = Not at all      1 = Several Days      2 = More than half the days      3 = Nearly every day

1. Little interest or pleasure in doing things

0                      1                      2                      3

2. Feeling down, depressed, or hopeless

0                      1                      2                      3

3. Trouble falling or staying asleep, or sleeping too much

0                      1                      2                      3

4. Feeling tired or having little energy

0                      1                      2                      3

5. Poor appetite or overeating

0                      1                      2                      3

6. Feeling bad about yourself; or that you are a failure or have let yourself or your family down

0                      1                      2                      3

7. Trouble concentrating on things, such as reading or watching television

0                      1                      2                      3

8. Moving or speaking so slowly that other people could have noticed; or being so fidgety or restless that you have been moving around a lot more than usual

0                      1                      2                      3

9. Thoughts that you would be better off dead or of hurting yourself in some way

0                      1                      2                      3

Life Events Checklist for DSM-5 (Weathers et al., 2013)

Listed below are a number of difficult or stressful things that sometimes happen to people. For each event check one or more of the boxes to the right to indicate that: (a) it happened to you; (b) you witnessed it happen to someone else; (c) you learned about it happening to a close family member or close friend; (d) you were exposed to it as part of your job (e.g., paramedic, police, military, or other first responder); (e) you're not sure if it fits; or (f) it doesn't apply to you. Be sure to consider your *entire life* (growing up, as well as adulthood) as you go through the list of events.

Event	Happened to me	Witnessed it	Learned about it	Part of my job	Not sure	Doesn't apply
Natural disaster (e.g., flood, hurricane, tornado, earthquake)						
Fire or explosion						
Transportation accident (e.g., car accident, boat accident, train wreck, plane crash)						
Serious accident at work, home, or during recreational activity						
Exposure to toxic substance (e.g., dangerous chemicals, radiation)						
Physical assault (e.g., being attacked, hit, slapped, kicked, beaten up)						
Assault with a weapon (e.g., being shot, stabbed, threatened with a knife, gun, bomb)						
Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)						

Other unwanted or uncomfortable sexual experience						
Combat or exposure to a war-zone (military or civilian)						
Captivity (e.g., being kidnapped, abducted, held hostage, prisoner of war)						
Life-threatening illness or injury						
Severe human suffering						
Sudden violent death (e.g. homicide or suicide)						
Sudden accidental death						
Serious injury, harm, or death you caused to someone else						
Any other stressful event or experience						

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