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The Temporal Association between Alcohol, Negative Affect, and Dating Violence

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To the Graduate Council:

I am submitting herewith a dissertation written by Ryan Christopher Shorey entitled "The Temporal Association between Alcohol, Negative Affect, and Dating Violence." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

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The Temporal Association between Alcohol, Negative Affect, and Dating Violence

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Abstract

Dating violence is a serious problem, with psychological aggression being the most common topography of aggression. Unfortunately, there is a dearth of research on temporal risk factors for psychological aggression perpetration and victimization. Thus, the proposed study examined whether alcohol and negative affect increased the odds of psychological aggression perpetration and victimization, and whether these two risk factors interacted to temporally predict aggression. That is, consistent with the Attention-Allocation Model (AAM), it was hypothesized that at high levels of negative affect, acute alcohol consumption would *increase* the odds of aggression. However, at low levels of negative affect, acute alcohol consumption would *decrease* the odds of aggression. College students who had consumed alcohol in the previous month and were in a dating relationship participated (N=243; 72.4% female). For 90 consecutive days, students were asked to complete a daily survey that assessed their alcohol use, negative affect (anger, hostility, and irritation), and aggression perpetration and victimization. Consistent with predictions, the main effect of alcohol on aggression perpetration was moderated by negative affect, such that alcohol (i.e., any and heavy) was positively associated with aggression perpetration when participants experienced high negative affect but *negatively* associated with aggression when they experienced low negative affect. Findings did not vary by gender and were also found for physical aggression perpetration. These results significantly advance our theoretical understanding of the role of alcohol use in increasing or decreasing the risk for dating violence. Results suggest that interventions for alcohol-related aggression will be most effective by focusing on individuals who experience negative affect while drinking.

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Chapter 1

Introduction and General Information

Research indicates that the majority of college students will experience physical or sexual aggression from a dating partner prior to graduation (White & Smith, 2009). In fact, research shows that young adulthood is the time when the frequency of intimate partner violence (IPV) peaks (O'Leary, 1999). Further, males and females are equally likely to perpetrate and be victimized in dating relationships (Shorey, Cornelius, & Bell, 2008). Historically, the majority of research on dating violence has focused on physical and sexual aggression (Lewis & Fremouw, 2001). However, recent research on dating violence, and domestic violence broadly, has begun to focus on psychological aggression (Follingstad, Coyne, & Gambone, 2005).

Psychological aggression refers to behavior that "consists of coercive or aversive acts intended to produce emotional harm or threat of harm" (Murphy & Hoover, 1999, p. 40). Although this is a broad definition, psychological aggression includes verbal and behavioral acts that are designed to intimidate, humiliate, isolate, manipulate, control, and dominate one's partner (Follingstad et al., 2005). Unlike physical aggression, which threatens one's body, psychologically aggressive acts are intended to attack victims' sense of self, emotional well-being, and damage their self-concept (Murphy & Hoover, 1999).

Psychological aggression occurs at extremely high rates in dating relationships, with approximately 80% of college students experiencing psychological aggression (Shorey et al., 2008) and 27% experiencing severe forms of psychological aggression each year (e.g., threaten to physically hurt partner, destroy partner's personal belongings) (Bell & Naugle, 2007). Additionally, victims of psychological aggression report increased health symptoms, including depression (Katz & Arias, 1999), anxiety (Harned, 2001), drug use (Straight, Harper, & Arias,

2003), and cigarette smoking (Jun, Rich-Edwards, Boynton-Jarrett, & Wright, 2008). Regardless of physical aggression history, victims of psychological aggression evidence a 92% increase in health care services utilization compared to non-victims (Queen, Brackley, & Williams, 2009) and the deleterious health effects of psychological victimization remain after controlling for physical aggression victimization (Harned, 2001).

Additionally, psychological aggression is remarkably stable across time. Men and women in young relationships report perpetrating similar amounts of psychological aggression against a partner over 2 ½ years (Capaldi, Shortt, & Crosby, 2003). Additionally, over a 10-year period of time, Fritz and O'Leary (2004) found no significant within subjects change in the prevalence of psychological aggression perpetration for males and females, although there was a trend for male psychological aggression to *increase* in frequency. These findings stand in stark contrast to research on physical aggression that suggests that physical aggression may decrease in frequency over time (e.g., Fritz & O'Leary, 2004). Additional research indicates that psychological aggression is one of the best predictors of physical aggression perpetration (O'Leary & Slep, 2003). Murphy and O'Leary (1989) found that psychological aggression perpetration was a precursor to physical aggression perpetration among young engaged couples, and other researchers have found similar results with adolescents (Capaldi & Crosby, 1997; Fritz & Slep, 2009; O'Leary & Slep, 2003). In addition, the use of psychological aggression by one partner is predictive of the other partner's use of psychological aggression (Baker & Stith, 2008).

Thus, psychological aggression is associated with deleterious health consequences and often leads to physical aggression, further increasing the chances victims will experience health problems. Therefore, it is imperative that researchers and clinicians focus their attention on eliminating psychological aggression in dating relationships, as this may prevent harmful health

consequences for victims and decrease the chances for future physical aggression. Toward this end, research is needed to determine the conditions under which psychological aggression in dating relationships is most likely to occur, as this information could then be disseminated to dating violence prevention programs aimed at reducing aggression. Empirically, alcohol use has been shown to be related to aggressive and other negative behaviors among college students (Dawson, Grant, Stinson, & Chou, 2004). Theoretically, it has been postulated that alcohol use increases one's risk for experiencing psychological aggression and IPV (Leonard, 1993), and this may be an especially salient risk factor among college students due to their alarmingly high rates of alcohol use.

College students show higher rates of drinking than their non-college peers, and ages 18-24 have the greatest level of alcohol use (Ham & Hope, 2003). Approximately 80% of college students drink, 40% drink occasionally, 25% occasionally drink heavily, and 23% drink heavily at least three times every two weeks (O'Malley & Johnston, 2002). In addition, two out of five college students engage in heavy (binge) drinking, defined as the consumption of five or more standard drinks for men and four or more standard drinks for women on one occasion (Wechsler, Lee, Kuo, & Lee, 2000). It is estimated that 31% of college students meet diagnostic criteria for alcohol abuse and 6% for alcohol dependence (Knight et al., 2002). Although men have historically been found to engage in more frequent drinking than women (Ahlstrom & Osterberg, 2004/2005), evidence suggests that women are consuming alcohol at levels comparable to males (Lyons & Willott, 2008). Thus, college students are an at-risk group for problematic alcohol use, placing them at risk for experiencing negative consequences associated with alcohol. Theoretically (e.g., Leonard, 1993), given the high rates of both alcohol use and psychological aggression among college students, it is possible that acute alcohol use is temporally related to,

and increases one's risk for, psychological aggression.

Chapter 2

Alcohol Use and Dating Violence: Theoretical Considerations

The overarching theoretical framework for the current study is Leonard's conceptual model of alcohol use and IPV and the Attention-Allocation Model (AAM). Leonard (1993) postulated that acute alcohol intoxication is an immediate proximal antecedent condition to aggression between intimate partners, and that the alcohol use by both partners is a significant contributing factor to aggression (Leonard, 1993). Leonard argued that acute alcohol intoxication interacts with other negative situational and psychological factors (e.g., negative affect) to influence aggression (Leonard & Senchak, 1996). That is, in the context of negative situational factors, alcohol use is hypothesized to lead to aggressive behavior. Theoretically, it is proposed that irritability, anger, frustration, and hostility are negative affective states that influence the association between alcohol use and aggression (discussed in greater detail below). Leonard's model is consistent with recent theory on IPV that emphasizes the importance of investigating proximal conditions to aggression perpetration (i.e., Bell & Naugle, 2008), since proximal antecedent conditions are thought to influence IPV to a greater extent than more historical and distal antecedents. Leonard's model has received empirical support among men and women arrested for domestic violence (e.g., Stuart et al., 2006, 2008), but has yet to be investigated among college students in dating relationships.

Although Leonard (1993) proposed that acute alcohol use increases the chances that psychological aggression will occur, particularly when under negative situational factors (e.g., negative affect), the mechanisms responsible for this association requires further explanation. That is, what are the underlying pharmacological and cognitive mechanisms responsible for the association between acute alcohol use and aggression? A number of theorists have argued that

being under the influence of alcohol increases the risk for aggression through its narrowing effect on attention, which has been termed the alcohol myopia model/AAM (Steele & Josephs, 1990). According to the AAM, alcohol affects behavior and emotion through the myopia it causes, namely reduced information processing abilities, which leads to a narrowing of attention (Steele & Josephs, 1990). Due to this reduced information processing, alcohol causes attention allocation processes to be restricted to the most salient, easy-to-access, and immediate aspects of a situation and, thus, less salient aspects of a situation are unlikely to be processed (Giancola, 2002). For instance, if an individual is under the influence of alcohol and experiences a negative, provoking situation, it is more likely that the individual will focus his/her attention on the negative, provoking situation and the accompanying negative thoughts/emotions (e.g., anger, frustration) than on inhibitory cues (e.g., alternative explanations for the provoking situation, emotion regulation). It is because of this narrowing of attention on negative situational cues when under the influence of alcohol that alcohol likely leads to aggression (Giancola, 2002). Indeed, a number of experimental studies have supported the AAM as an explanation for aggressive behavior (see Giancola, Josephs, Parrott, & Duke, 2010, for review).

Nonetheless, the AAM can also be used to predict that acute alcohol consumption may *decrease* the risk for aggression. Specifically, the AAM proposes that if inhibitory cues for aggression are more salient than instigating cues when an individual is under the influence of alcohol, then alcohol may lead that individual to be more focused on those inhibitory factors than on instigating factors. Thus, these individuals will be *less* likely to aggress compared to individuals in a similar context but not under the influence of alcohol (Giancola & Corman, 2007). In fact, experimental studies have provided support for this prediction of the AAM (Gallagher & Parrott, 2011; Giancola & Corman, 2007; Giancola, Duke, & Ritz, 2011). For

instance, intoxicated individuals who engaged in the Taylor Aggression Paradigm, a lab-based measure of aggressive responding, while being distracted from provocative stimuli engage in less aggressive responding than intoxicated and sober individuals who were not distracted from provocative stimuli (Gallagher & Parott, 2011; Giancola & Corman, 2007). Giancola, Josephs, DeWall, and Gunn (2009) posit that distraction away from a provocative cue likely reduces negative affect, therefore reducing alcohol-related aggression. However, both Leonard's model and the AAM have yet to be examined in a real-life context using longitudinal, temporal study designs, limiting our knowledge as to whether these theoretical models are useful for the understanding of psychological aggression between dating partners.

Alcohol Use and Dating Violence

Existing research indicates that alcohol use precedes and increases the risk of experiencing physical and sexual aggression victimization among college students (Parks & Fals-Stewart, 2004). Additionally, alcohol use is associated with increased rates of perpetrating physical and sexual aggression against a dating partner (Luthra & Gidycz, 2006; Shorey, Stuart, & Cornelius, 2011), and adult intimate partners (Stuart et al., 2008). However, there has been a dearth of research directed at the association between alcohol use and psychological aggression perpetration and victimization.

Roudsari, Leahy, and Walters (2009) cross-sectionally examined the association between alcohol use and psychological aggression in dating relationships. Results showed that female victims reported being under the influence of alcohol 72% of the time that they sustained psychological aggression, while male victims were under the influence of alcohol 61% of the time they were victimized. For perpetrators, reports showed that females were under the influence of alcohol 75% of the time they perpetrated psychological aggression, while males

were under the influence of alcohol 58% of the time they perpetrated. Thus, this study demonstrates the high level of association between alcohol use and psychological aggression. However, the cross-sectional nature of this study precludes the determination of the temporal relationship between alcohol use and psychological aggression and it is unknown how much alcohol was consumed prior to the aggression.

Parks, Hsieh, Bradizza, and Romosz (2008) investigated the temporal association between alcohol use and psychological aggression among female college students. Findings showed that the odds of experiencing psychological aggression were significantly higher on heavy drinking days compared to non-drinking days (OR = 2.25). No effect was found for non-heavy drinking days relative to non-drinking days. In addition, this study combined reports of perpetration and victimization into a single "aggression" variable. Similarly, Moore, Elkins, McNulty, Kivisto, and Handsel (2011) used a 60-day diary to examine whether alcohol was associated with aggression and found that the odds of perpetrating psychological and physical aggression against a dating partner were higher on a drinking day relative to a non-drinking day (ORs = 2.19 and 3.64, for psychological and physical aggression, respectively) and as the number of drinks increased (ORs = 1.16 and 1.13, for psychological and physical aggression, respectively).

Alcohol Use, Negative Affect, and IPV

Leonard's model and the AAM further propose that negative situational factors may increase the chances that acute alcohol use will lead to aggression perpetration. Specifically, it is likely that *state* negative affect could moderate the association between acute alcohol use and psychological aggression perpetration, such that the association between alcohol use and psychological aggression perpetration increases in strength when negative affect is high, yet

diminishes when negative affect is low. This is consistent with research that indicates that alcohol consumption alone is not a sufficient explanation for aggression perpetration, and that other proximal, moderating factors are present and increase the chances that alcohol intoxication will lead to aggression (Parrott & Giancola, 2007).

A number of cross-sectional studies have demonstrated an association between negative affect and female perpetrated dating violence (Hettrich & O'Leary, 2007; Shorey, Febres, Brasfield, & Stuart, 2011). In the only temporal study on the relation between proximal negaitve affect and dating violence to date, Elkins, Moore, McNulty, Kivisto, and Handsel (2013) demonstrated that the odds of psychological and physical aggression were higher with increases in proximal angry affect (ORs = 2.78 and 2.38, for psychological and physical aggression, respectively). That is, angry affect (i.e., anger, hostility, and irritation) experienced prior to seeing one's partner was associated with increased odds of aggression perpetration against a partner on the same day. However, none of the aforementioned studies examined whether acute alcohol consumption and proximal negative affect interacted to predict increased aggression when negative affect is high, yet decrease aggression when negative affect is low, as posited by the AAM.

Conclusions and Study Extensions

The prevalence of dating violence among college students is high, with the majority of students experiencing psychological aggression in their dating relationships. Psychological aggression is related to increased mental and physical health symptomatology among victims and is one of the best-known predictors of physical aggression. In an effort to reduce the chances of future occurrences of physical aggression and the devastating health impact of sustained psychological aggression, research is needed that examines under what circumstances

psychological aggression is most likely to occur. Theoretically, Leonard's model and the AAM argue that acute alcohol use, in the context of negative situational factors, is temporally related to aggression between intimate partners, and this may be an especially salient risk factor for psychological aggression among dating college students due to their high rates of alcohol use.

To date, the research conducted on the association between alcohol use and psychological aggression has been limited by cross-sectional designs, a failure to examine psychological aggression perpetration and victimization separately, and a lack of attention to temporal moderating factors of the alcohol-aggression association. The current study sought to address the previous methodological limitations by being the first known study to examine the proximal relationship between alcohol use, negative affect, and the interaction of these two variables in the prediction of psychological aggression perpetration and victimization among dating college students.

Chapter 3

Hypotheses

Based upon Leonard's theoretical model and the AAM, the following hypotheses were examined:

Hypothesis 1: Alcohol use and negative affect will serve as proximal antecedents to psychological aggression perpetration. That is, the odds of perpetration will be significantly greater on drinking days (any drinking and heavy drinking) relative to non-drinking days and with increases in negative affect.

Hypothesis 2: Negative affect will moderate the association between alcohol use and the perpetration of psychological aggression. That is, increases in negative affect will increase the odds that perpetration will occur on drinking days (any and heavy) relative to non-drinking days, yet decreases in negative affect will reduce the odds that perpetration will occur.

Hypothesis 3: Alcohol use and negative affect will serve as proximal antecedents to psychological aggression victimization. That is, the odds of victimization will be significantly greater on drinking days (any drinking and heavy drinking) relative to non-drinking days and with increases in negative affect.

Hypothesis 4: Negative affect will moderate the association between alcohol use and psychological aggression victimization. That is, increases in negative affect will increase the odds that victimization will occur on drinking days (any and heavy) relative to non-drinking days, yet decreases in negative affect will reduce the odds that victimization will occur.

In addition, because physical aggression is highly prevalent among college students, physical aggression perpetration and victimization were also examined in the current study as secondary outcomes.

Chapter 4

Method

Participants

Male and female undergraduate students from a large Southeastern university, recruited from psychology courses, participated in the current study. To be eligible students had to (a) be at least 18 years of age, (b) be in a current dating relationship with a partner who was at least 18 years old that had lasted at least one month in duration, (c) have consumed alcohol in the previous month, and (d) have an average of at least 2 face-to-face contact days with their dating partner each week. A total of 455 students met eligibility criteria. Of the 455 students, 309 (67.9%) agreed to participate in a one-hour survey session involving the completion of self-report measures that confirmed eligibility requirements and assessed other personal characteristics. After that session, all students were invited to participate in the 90-day daily diary study. Of those 309 students, 243 (78.6%) began the daily diary. The final sample is comprised of 67 male and 176 female students who reported at least one day of face-to-face contact with their partner over the course of the 90-day diary portion of the study.

At the beginning of the study, the mean age of participants was 18.99 (*SD* = 1.72) years and the average length of participants' dating relationship in months was 15.59 (*SD* = 13.23). The majority of students were freshmen (62.1%), followed by sophomores (19.3%), seniors (9.9%), and juniors (8.6%). Ethnically, the majority of students identified as non-Hispanic Caucasian (86.4%); 7.4% identified as African American and the remainder identified as "other" (e.g., Hispanic, Asian American). The majority of students identified as being heterosexual (95.1%) and not currently living with their dating partner (94.2%).

Procedure

Each set of daily questionnaires was completed on SurveyMonkey.com. An email was sent to each participant at the same time each day (12:00 a.m.) that contained a link to that day's questionnaires. Each set of questionnaires asked participants to report about their previous day's behavior, defined as the time elapsed from when they awoke until they went to sleep. Completion of each day's questionnaires took approximately 5 minutes. As compensation for participating in this study, participants received .50 cents for each completed daily survey (for a possible total of $45.00). As an incentive to increase completion rates, participants who completed at least 70% of the daily surveys were entered into a random drawing for a $100.00 gift card to an online retailer. Participants completed an informed consent prior to beginning the first assessment. All procedures were approved by the Institutional Review Board of the University of Tennessee.

Daily Questions (Appendix A)

Contact with Dating Partner. Each survey asked participants if they had spoken with their partner over the phone, sent/received text messages with their partner, emailed with their partner, or had face-to-face contact with their partner during the previous day.

Dating Violence. On days when participants had contact with their dating partner, participants were asked to answer questions regarding their aggression perpetration and victimization by indicating whether they or their partner had engaged in each behavior using a "Yes/No" format. Psychological aggression perpetration was assessed using the Psychological Maltreatment of Women Inventory – Short Form (Tolman, 1989). Example items included: "I called my partner names;" "I treated my partner like an inferior;""I tried to keep my partner from doing things;" and "I monitored my partner's time." The PMWI has demonstrated good reliability and validity (Tolman, 1989).

Physical aggression was assessed using a modified version of the Physical Assault subscale of the Revised Conflict Tactics Scales (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996; Straus, Hamby, & Warren, 2003). Example items included: "pushed or shoved my partner;" "slapped my partner;" "choked my partner;" and "kicked my partner" (Straus et al., 1996). For psychological and physical aggression, a dummy code for each type of aggression was created. That is, if any psychological aggression perpetration [victimization] occurred, this was coded with a 1 and no aggression was coded with a 0. The same scoring procedure was used for physical aggression perpetration [victimization].

Alcohol Use. Each day participants were asked if they had consumed alcohol and, if so, how many standard drinks of alcohol they consumed. Participants were provided with examples of a standard drink (e.g., one 12 ounce beer). If participants reported that they consumed alcohol on a day in which aggression occurred, they were asked to indicate whether they had consumed any alcohol prior to the aggression and, if so, how many standard drinks of alcohol they had consumed. To avoid confounding drinking after violence with drinking before violence, any day on which drinking only occurred after violence was coded as a non-drinking day. In other words, a dummy code was created that indicated whether or not participants drank alcohol before any violence occurred, such that days in which people drank alcohol before perpetrating violence were coded with a 1, days on which participants drank alcohol but did not perpetrate violence were coded with a 1, days on which people drank alcohol after, but not before, violence were coded with a 0, and days on which participants did not drink alcohol were coded with a 0. A dummy code was also created that differentiated heavy drinking days from non-heavy drinking days, where days on which participants reported consuming 4/5 or more standard drinks, which is considered heavy drinking for females (4+ drinks) and males (5+ drinks) [National Institute on

Alcohol Abuse and Alcoholism (NIAAA), 1995], were coded with a "1" and all other days were coded with a "0". If alcohol was consumed both prior to and after aggression, only the number of drinks consumed prior to aggression was included in the index of number of drinks each day and for heavy drinking days.

Negative Affect. To assess participants' negative affect, three items from the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) were utilized. Specifically, the adjectives of "anger," "irritable," and "hostile" were used to measure the emotional, cognitive, and behavioral components of negative affect (Elkins et al., 2013). Each item was rated on a five-point scale (1 = very slightly to 5 = extremely; Watson & Clark, 1994). Participants were asked to answer these questions up to two times: once regarding their overall rating of affect for the entire previous day and, if aggression with their partner occurred, once regarding the affect they experienced immediately prior to aggression. One variable was created based on these responses, such that the sum of the three items that described the affect participants experienced during the entire previous day was used if no aggression was reported and the sum of the three items that described the affect participants experienced immediately prior to the aggression was used on days that aggression occurred. The use of these three items and scoring method is consistent with the only previous study to examine the temporal relationship between negative affect and dating violence perpetration (Elkins et al., 2013). Across all days with face-to-face contact, the internal consistency for these three items was .76.

Marijuana Use. Participants were also asked to indicate whether they had consumed marijuana each day and whether they had consumed marijuana prior to aggression. Marijuana use was dummy coded the same way alcohol use was dummy coded, and that code was controlled for in all analyses. Days in which marijuana occurred following aggression were

recoded into non-marijuana use days. Marijuana was controlled for due to previous research demonstrating its positive relation to IPV (Moore et al., 2008; Shorey et al., 2011).

Data Analytic Method

Multilevel modeling was used to examine whether the odds of perpetrating or being victimized by psychological and physical aggression were (a) higher on drinking days relative to non-drinking days (and higher on heavy drinking days relative to non-heavy drinking days) and increased under conditions of negative affect, and (b) predicted by the interaction of alcohol use and negative affect. To estimate the unique associations between aggression and both drinking and negative affect, each form of aggression was regressed onto each drinking variable along with negative affect, controlling for marijuana use. The interactive effects of drinking and daily negative affect were examined by forming the product between each drinking variable and negative affect and entering each drinking variable, one at a time, along with negative affect and the appropriate interaction term. These analyses also controlled for marijuana use. Negative affect was standardized prior to forming interaction terms. Finally, all models were examined for gender differences, with gender entered in the second level of the model. That is, gender was examined as a moderator of the temporal relationship between the main effects of alcohol and negative affect, and the interaction of alcohol and negative affect, on dating violence. All models were estimated using HLM 7 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2011). All slopes were specified as random across individuals, with the exception of daily marijuana use and the interaction term of alcohol and negative affect, which were specified as fixed. A logit link function was specified using a Bernoulli sampling distribution due to the dichotomous nature of the dependent variables.

Significant interactions, like the ones predicted here, are sometimes decomposed by examining the simple effects on the focal variable at specific values of the moderating variable, such as one standard deviation above and below the mean (e.g., Aiken & West, 1991). In some cases, knowing the effect of one variable at a specific, meaningful value of another variable is of particular interest to researchers. However, as discussed by Cohen and Cohen (1983), one standard deviation above and below the mean is often an arbitrary cut-off that is sample-specific and thus may not provide the most accurate or complete theoretical and empirical description of an interaction because simple effects that emerge just beyond these (arbitrary) limits remain undetected. Therefore, the procedures recommended by Preacher, Curran, and Bauer (2006) to use the Johnson-Neyman method (P. O. Johnson & Neyman, 1936) was employed to identify the exact levels of negative affect at which alcohol (any and heavy) demonstrated significant associations with aggression perpetration (i.e., the regions of significance of the simple effects of affect). This approach to decomposing interactions is an increasingly common method with clinically relevant data (e.g., Amir, Taylor, & Donohue, 2011; Beeble, Bybee, Sullivan, & Adams, 2009; Low, Stanton, Bower, & Gyllenhammer, 2010; McNulty & Russell, 2010).

Chapter 5

Results

Daily Diary Descriptive Statistics

Participants completed a total of 12,946 (59.2%) of the 21,870 daily surveys. Because psychological aggression can occur over the phone and through other electronic forms of communication (e.g., email; Shorey, Febres, Brasfield, & Stuart, 2011), days in which participants had no face-to-face, telephone, or email contact with their partner were omitted for all analyses that included psychological aggression (1,084 days). Thus, the final data set for psychological aggression included 11,862 daily surveys that involved any contact between participants and their dating partners. Given that physical aggression was only possible on days in which partners have face-to-face contact, days in which no face-to-face contact occurred were omitted from analyses for all analyses that included physical aggression (6,349 days). This is consistent with previous research (Elkins et al., 2013; Moore et al., 2011). Thus, the final data set for physical aggression included 6,597 daily surveys that involved face-to-face contact between participants and their dating partners.

Across all contact days (i.e., face-to-face, phone, email), participants reported a total of 126 acts of psychological aggression perpetration and 206 acts of psychological aggression victimization. Across all face-to-face contact days, participants reported 79 acts of physical aggression perpetration and 83 acts of physical aggression victimization. Participants also reported a total of 1,682 drinking days (13.4% of any contact days; 15% of face-to-face contact days) and 509 marijuana use days (4% of any contact days; 4.8% of face-to-face contact days) during the study period. The mean negative affect score across all days was 3.87 (*SD* = 1.63; Range = 3-15).

Main Effects of Alcohol and Negative Affect on Dating Violence Perpetration

The first set of analyses examined whether dating violence perpetration was more likely (a) on drinking days relative to non-drinking days; (b) on heavy drinking days versus non-heavy drinking days; and (c) with increases in proximal negative affect. First, a model was run with any alcohol use and negative affect included in the first level of the model. A subsequent model was then run which included heavy alcohol use and negative affect in the first level of the model. Daily marijuana use was included in each model. Results appear in Table 1. For psychological aggression perpetration results demonstrated that any alcohol use did not increase the odds of aggression. However, heavy alcohol use did increase the odds of psychological aggression perpetration (OR = 1.93). In both the first (any drinking) and second (heavy drinking) models increases in negative affect was associated with increased odds of psychological aggression perpetration (ORs = 1.25 and 1.35, respectively). Marijuana use was negatively associated with psychological aggression perpetration in the first model only (OR = .68).

In the first model predicting psychological aggression perpetration (main effects of any alcohol use and negative affect), gender moderated the main effect of any alcohol (t = 2.55, p = .01, β = .06, SE = .41) but not negative affect (t = .94, p = .34, β = .06, SE = .07). That is, any alcohol use was associated with increased odds of perpetration for women (OR = 1.66, 95% CI = 1.21-2.26, p < .01) but not men (OR = .57, 95% CI = .27-1.21, p = .14). Similarly, in the second model, gender moderated the main effect of heavy drinking (t = 3.85, p < .001, β = .77, SE = .20 but not negative affect (t = .57, p = .56, β = .03, SE = .05). That is, heavy alcohol use was associated with increased odds of perpetration for women (OR = 1.79, 95% CI = 1.45-2.21, p < .001) but not men (OR = .83, 95% CI = .59-1.15, p = .26).

The above analyses were repeated with physical aggression perpetration as the dependent variable. In the first model (i.e., any alcohol use and negative affect) the only variable associated with increased odds of perpetration was negative affect (OR = 1.43). Gender did not moderate the main effects of any drinking (t = .57, p = .57, β = .17, SE = .31) or negative affect (t = 1.86, p = .06, β = .12, SE = .06). In the second model, none of the variables, heavy alcohol use, negative affect, or marijuana use, was significantly associated with increased odds of physical aggression perpetration. Gender did not moderate the main effect of heavy alcohol use (t = .54, p = .58, β = .18, SE = .34), but did moderate the main effect of negative affect (t = 2.22, p = .03, β = .19, SE = .08). That is, increases in negative affect was associated with increased odds of physical perpetration for females (OR = 1.39, 95% CI = 1.29-1.51, p < .001) but not males (OR = 1.14, 95% CI = .98-1.34, p = .08).

Interactive Effects of Alcohol and Negative Affect on Dating Violence Perpetration

The primary analyses examined whether daily alcohol use and daily negative affect interacted to predict the odds of dating violence perpetration (Table 2). The interaction between daily alcohol use (yes/no) and negative affect in predicting psychological aggression perpetration was examined first. As displayed in Table 2, this interaction was significantly associated with psychological aggression perpetration. Decomposition of this interaction using the Johnson-Neyman method (P. O. Johnson & Neyman, 1936) revealed that any alcohol use significantly increased the odds of psychological aggression perpetration among participants who experienced affect that was 1.25 SDs more negative than the mean but significantly *decreased* the odds of psychological aggression perpetration among participants who experienced affect that was more than 1.56 SDs less negative than the mean. Gender did not moderate the any alcohol by negative affect interaction (t = .47, p = .64, β = .05, SE = .11).

The interaction between heavy alcohol use and negative affect did not significantly predict psychological aggression perpetration. Gender did not moderate the heavy drinking by negative affect interaction (t = .26, p = .79, β = .05, SE = .19).

Next, it was examined whether daily alcohol use and daily negative affect interacted to predict the odds of physical aggression perpetration. The interaction between any alcohol use and negative affect was examined first. As displayed in Table 2, this interaction was significantly associated with physical aggression perpetration. Decomposition of this interaction revealed that any alcohol use significantly increased the odds of physical aggression perpetration among participants who experienced affect that was .25 SDs more negative than the mean but significantly *decreased* the odds of physical aggression perpetration among participants who experienced affect that was more than .36 SDs less negative than the mean. Gender did not moderate the any alcohol by negative affect interaction in predicting physical aggression perpetration (t = -.82, p = .42, β = -.17, SE = .21).

Next, the interaction between heavy alcohol use and negative affect was examined. This interaction was also significantly associated with physical aggression perpetration. Decomposition of this interaction revealed that heavy alcohol use significantly increased the odds of physical aggression perpetration among participants who experienced affect that was .16 SDs more negative than the mean but significantly *decreased* the odds of physical aggression perpetration among participants who experienced affect that was more than .26 SDs less negative than the mean. Gender did not moderate the heavy alcohol by negative affect interaction in predicting physical aggression perpetration (t = -.16, p = .87, β = -.04, SE = .30).

Main Effects of Alcohol and Negative Affect on Dating Violence Victimization

The above analyses were repeated for dating violence victimization. That is, it was examined whether dating violence victimization was more likely (a) on drinking days relative to non-drinking days; (b) on heavy drinking days versus non-heavy drinking days; and (c) with increases in proximal negative affect. First, a model was run with any alcohol use and negative affect included in the first level of the model. A subsequent model was then run which included heavy alcohol use and negative affect in the first level of the model. Daily marijuana use was included in each model. Results appear in Table 3. For psychological aggression victimization results showed that both any alcohol use (OR = 1.21) and heavy alcohol use (OR = 1.17) increased the odds of victimization. Negative affect increased the odds of victimization in both the any alcohol and heavy alcohol models (ORs = 1.17 and 1.24, respectively). Marijuana use was associated with decreased odds of psychological victimization in both models (ORs = .76 and .67, respectively).

In the any alcohol and negative affect model predicting psychological victimization, gender moderated the temporal association between alcohol use and victimization (t = 2.23, p = .03, β = .39, SE = .17), such that any alcohol use did not increase the odds of victimization for males (OR = .86, 95% CI = .64-1.18, p = .37) but did for females (OR = 1.29, 95% CI = 1.11-1.52, $p < .002$). In the heavy alcohol use and negative affect model, gender did not moderate the relation between negative affect and psychological victimization (t = -.78, p = .43, β = -.03, SE = .05) or between heavy alcohol use and psychological victimization (t = -.72, p = .47, β = -.13, SE = .18).

For physical aggression victimization, results (Table 3) showed that any alcohol use increased the odds of victimization (OR = 1.21). In that same model, negative affect also increased the odds of victimization (OR = 1.19). Marijuana was not associated with physical

victimization in the any alcohol use model. Gender did not moderate the temporal association between any alcohol use and physical victimization (t = .31, p = .76, β = -.05, SE = .17) or between negative affect and physical victimization (t = .82, p = .41, β = .05, SE = .06). In the model containing both heavy alcohol use and negative affect, only negative affect was associated with increased odds of physical victimization (OR = 1.12). Gender did not moderate the temporal association between heavy alcohol use and physical victimization (t = 1.93, p = .07, β = -.43, SE = .22) or between negative affect and physical victimization (t = .83, p = .41, β = .04, SE = .05).

Interactive Effects of Alcohol and Negative Affect on Dating Violence Victimization

The final set of analyses examined whether daily alcohol use and daily negative affect interacted to predict the odds of dating violence victimization (Table 4). The interaction between daily alcohol use (yes/no) and negative affect in predicting psychological aggression victimization was examined first. As displayed in Table 4, the interaction between any alcohol use and negative affect did not predict psychological aggression victimization. However, the interaction between heavy alcohol use and negative affect did predict psychological victimization. Decomposition of this interaction revealed that heavy alcohol use significantly increased the odds of psychological aggression victimization among participants who experienced affect that was 1.75 SDs more negative than the mean but significantly *decreased* the odds of aggression victimization among participants who experienced affect that was more than 0.27 SDs less negative than the mean. Gender did not moderate the level 1 interaction for any alcohol use and negative affect (t = -.01, p = .97, β = -.00, SE = .18) or for heavy alcohol use and negative affect (t = .57, p = .57, β = .12, SE = .21).

Finally, for physical victimization, the interaction between any alcohol use and negative affect and the interaction between heavy alcohol use and negative affect did not predict

victimization. When gender was examined as a moderator of the level 1 interaction between any alcohol use and negative affect, as well as the interaction between heavy alcohol use and negative affect, the models were unable to converge. This may be due to the complexity of the models combined with the relatively low prevalence of physical victimization.

Chapter 6

Discussion

Psychological aggression in dating relationships is a serious and prevalent problem. Unfortunately, there is a dearth of research on risk factors for this form of aggression, specifically risk factors that are proximally connected with perpetration and victimization. The current study therefore aimed to determine whether alcohol and negative affect, two known risk factors for aggression, were temporally associated with psychological aggression (and physical aggression) perpetration and victimization within a sample of male and female dating college students. Moreover, consistent with Leonard's theoretical model of IPV, as well as the Attention-Allocation Model (AAM), the interaction between negative affect and alcohol was examined as a predictor of aggression, such that the odds of aggression would be higher on a drinking day (and heavy drinking day), relative to a non-drinking day (and non-heavy drinking day), when negative affect was high, yet alcohol would decrease the odds of aggression when negative affect was low. Results were largely supportive of hypotheses and, thus, the theoretical models of alcohol, negative affect, and IPV.

The main effect models were only partially consistent with predictions and prior research (i.e., Elkins et al., 2013; Moore et al., 2011; Parks et al., 2008). That is, heavy alcohol use was only associated with increased odds of psychological aggression perpetration (not physical aggression), although negative affect increased the odds of aggression perpetration (psychological and physical). Nevertheless, once these independent predictors were allowed to interact, alcohol use was associated with aggression, although not always positively; it was associated with *decreased* levels of aggression in some contexts, consistent with the AAM. That is, any alcohol use (for psychological and physical aggression) and heavy drinking (for physical

aggression only) increased the odds of aggression perpetration when participants reported high levels of proximal negative affect, but both indices of drinking were associated with decreased likelihood of aggression when proximal negative affect was low. This is the first empirical study to demonstrate that alcohol use is associated with *decreased* aggression perpetration under certain conditions in a real-life context. In addition, this study speaks to the importance of assessing how negative situational factors may increase the risk of dating violence perpetration when alcohol is consumed, as alcohol alone is not necessarily a sufficient cause of aggression.

It is also important to note the findings for dating violence victimization. For psychological aggression victimization, any and heavy alcohol use, as well as negative affect, increased the odds of aggression victimization. For physical aggression, any alcohol use, but not heavy, and negative affect increased the odds of victimization. The alcohol findings are consistent with prior research that has demonstrated the odds of victimization increase with alcohol use (Parks & Fals-Stewart, 2004; Parks et al., 2008; Stuart et al., under review). However, this is the first study to demonstrate the proximal negative affect increases the odds of victimization, as well as the first study to demonstrate that the AAM may also be applicable to aggression victimization. These findings should be interpreted cautiously, however, and should not be interpreted in a manner that places blame on the victim. Rather, it is likely that both partners were experiencing high levels of negative affect prior to aggression, possibly due to a mutual conflict, and thus one partner may have engaged in aggression. It is also likely that both partners engaged in aggression during the same conflict, as dating violence is often bi-directional (Shorey et al., 2008). Additional research is needed that explores this topic further. Thus, the mechanism underlying the associations between drinking, negative affect, and victimization are not entirely clear. Such questions could be disentangled in future research that involves a daily

assessment of drinking, negative affect, and physical and psychological perpetration and victimization in both partners in the relationship.

Finally, results demonstrated few gender differences in the association between alcohol, negative affect, and dating violence. No gender differences emerged when examining the interactions between alcohol and negative affect in predicting psychological or physical aggression perpetration and victimization. However, a few gender differences emerged when examining the main effects of alcohol and negative affect. The main effects of alcohol (any and heavy) increased the odds of psychological aggression perpetration for women, but not men; negative affect increased the odds of physical perpetration for women, but not men (controlling for heavy alcohol use); and any alcohol use increased the odds of psychological victimization for women, but not men. However, because findings also showed that these main effects were qualified by the interaction of alcohol and negative affect, and no gender differences emerged with the interactions, we should be cautious not to over-interpret these gender main effects.

Clinical and Theoretical Implications

These findings have crucial implications for the theoretical understanding of alcohol-related dating violence. Virtually every clinical approach to alcohol use other than the AAM assumes that alcohol increases the likelihood of aggression (see Shorey et al., 2011 for review). Consistent with such perspectives, alcohol use by the students in this study was indeed associated with an increased likelihood of perpetrating violence, on average. However, such main effects masked the more nuanced manner in which alcohol use was actually associated with violence, such that it was only the students who were experiencing moderate or relatively high levels of negative affect who were more likely to perpetrate aggression when they consumed alcohol. Among students who were experiencing relatively low levels of negative affect, alcohol

actually did the opposite—it decreased the likelihood that they would behave aggressively. Lending credibility to this pattern, it is consistent with notable theoretical perspectives of the role of alcohol in violence, Leonard's model and the AAM, as well as prior experimental work in the laboratory (e.g., Gallagher & Parrott, 2011; Giancola & Corman, 2007). Thus, a focus on the relation between alcohol use and dating violence without the concurrent examination of inhibiting and instigating cues for aggression, such as negative affect, may lead to erroneous conclusions about the relation between alcohol use and dating violence in some contexts.

These findings also have crucial implications for clinical efforts to prevent alcohol-related dating violence by highlighting the need to consider theoretical tenets of the AAM and Leonard's model in such efforts. Specifically, these theoretical frameworks, and the findings in the current study specifically, suggests that broad-based programs to reduce alcohol use will not necessarily reduce dating violence for all individuals—only for individuals for whom instigating cues, such as negative affect, are salient while they are under the influence of alcohol. Indeed, alcohol was associated with *decreased* odds of aggression for certain individuals in this sample (i.e., those with low negative affect). Thus, one-size intervention approaches for alcohol-related aggression might not be effective for certain individuals. Rather, this study suggests that targeted, individualized interventions for alcohol-related dating violence are needed and have the potential to improve clinical effectiveness.

In particular, this study suggests that interventions aimed at decreasing alcohol use may benefit from targeting individuals who are either prone to experience negative affect after the consumption of alcohol or those who drink alcohol when experiencing negative affect. For instance, interventionists could screen individuals for their propensities to experience negative affect when drinking, or general propensities to experience negative affect (e.g., high levels of

neuroticism; poor emotion regulation skills; high trait anger), and provide those that demonstrate such propensities specialized interventions, such as brief motivational interventions. For example, brief motivational approaches may be most appropriate in college student samples involving drinkers who are not alcohol dependent and not seeking treatment. Interventionists could provide clients with personalized feedback on individual risk factors for alcohol-related aggression, such as drinking when experiencing negative affect, which could be presented to participants using the non-confrontational, supportive approach of motivational interviewing. Strategies could then be discussed to reduce the risk of aggression under these high-risk conditions. For instance, individuals could develop plans to either refrain from drinking when they are experiencing negative affect, thus overall decreasing their risk for aggressive behavior, or, if they choose to drink, could implement harm reduction approaches for aggressive behavior, such as drinking away from their partner and/or agreeing not to see their partner until they are sober. This approach could also be implemented with both members of the dyad, thus potentially decreasing the risk for both dating violence perpetration and victimization simultaneously.

Alternatively, this study suggests that interventions to reduce alcohol-related aggression, and aggression due to negative affect in general, may be more effective to the extent that they decrease negative affect, possibly through mindfulness-based interventions. Mindfulness interventions attempt to increase psychological health by focusing on present moment experiences, increasing self-awareness, and learning that all experiences (e.g., emotions) naturally come and go, which helps to decrease reactive and impulsive behavior (Baer, 2003). Theoretically, one of the mechanisms through which mindfulness-based interventions are believed to promote psychological health is through decreases in negative affect, which is achieved through the enhancement of adaptive emotion regulation strategies (Hill & Updegraff,

2012). Indeed, research indicates that mindfulness interventions do effectively decrease negative affect in general (Baer, 2003). Thus, mindfulness-based interventions may help participants reduce the general experience of negative affect and/or learn more effective and adaptive ways to cope with negative affect when it occurs. Having reduced levels of general negative affect may, in turn, make it more likely that, when alcohol is consumed, affect will remain neutral or positive. Consistent with this idea, within the framework of the AAM, researchers have speculated that mindfulness could decrease alcohol-related aggression. That is, mindfulness may help to re-focus attention to non-aggressive cues during conflict situations, potentially even when under the influence of alcohol, decreasing the odds of aggression (Giancola et al., 2009). Empirical research is needed, however, to determine whether mindfulness interventions adapted for alcohol-related dating violence, or dating violence in general, are effective.

Future Directions

It will be important for future research to replicate our findings and to examine the interactions between both partners' alcohol use, negative affect, and aggression using a similar methodology as in the current study. For instance, it is possible that the odds of aggression would be considerably increased if both partners are drinking and experiencing negative affect, whereas the odds might be drastically decreased if both partners are drinking but experiencing low negative affect. Understanding the interplay of alcohol use and negative affect of both partners will further advance our understanding of alcohol-related aggression.

Findings indicate that an absence of negative affect is one factor that makes inhibiting cues for dating violence less salient and thus one factor that moderates the effects of alcohol on aggression. Still, it is possible that there are other proximal, instigating or inhibiting factors that may increase or decrease the alcohol-aggression association. For instance, given that negative

affect due to the partner may make aggressive cues particularly salient, it is possible that negative affect specific to a conflict with one's partner increases the risk for aggression when intoxicated more than does negative affect not related to the partner. In addition, given that the presence of other people likely inhibits dating violence, the presence of other people may moderate the alcohol-violence link, such that alcohol may decrease the likelihood that alcohol will lead to aggression (particularly physical aggression) when other people are present. Likewise, given that empathy tends to inhibit aggression (Bjorkqvist, Osterman, & Kaukiainen, 2000), levels of empathy may moderate the effects of alcohol on violence such that alcohol increases the risk of aggression among people who experience little empathy but decreases the risk of aggression among people who experience more empathy. Finkel (2007) summarized numerous factors that potentially inhibit aggression (e.g., high relationship commitment, self-regulation) and future research may benefit by examining the extent to which all these factors moderate the effects of alcohol on aggression in the ways suggested by the AAM.

Limitations

Although the current study has several notable strengths (e.g., temporal examination of Leonard's model/AAM; daily diary design; high-risk sample for alcohol-related aggression), it also has limitations. The use of a sample of undergraduate students who had consumed alcohol in the previous month, and who were primarily non-Hispanic Caucasian in ethnicity, limits the generalizability of findings to more diverse populations. Still, these findings provide important information on the group of students at high risk for alcohol-related violence, namely college students who consume alcohol. Corroborating reports of aggression or alcohol use from participant's partners were not obtained. Future research could improve upon this study by including both members of the dyad to corroborate reports of aggression and to determine

whether alcohol use and/or negative affect by both partners further increases the odds of aggression.

Information was not available on the individuals who qualified for the study but chose not to complete the study, limiting the ability to determine whether the individuals who completed the study differed on key characteristics relative to individuals who did not complete the study. The daily diary design of the current study likely reduced retrospective recall bias, although it is possible that some retrospective recall bias was still introduced due to the passage of time. Research that employs multiple surveys each day, or randomly prompts participants to rate behavior, may further reduce recall bias. The daily compliance rate (59%) was relatively low, although there is no known 90-day daily diary study with which to compare this compliance rate. Still, this relatively low compliance rate is partially offset by the increased power inherent in a daily diary design. Still, future research should try to improve daily compliance rates. It is also possible that participants may have had their own expectancies regarding the role of negative affect and alcohol in provoking violence, and these expectancies and beliefs may have influenced the data. However, it seems rather unlikely that participants would have expectancies regarding the interaction of negative affect and alcohol in *decreasing* violence, thus potentially attenuating some of the demand characteristic concerns.

Conclusions

Guided by Leonard's (1993) theoretical model of IPV and the Attention-Allocation Model (AAM; Steel & Josephs, 1990; Taylor & Leonard, 1983), the current study demonstrated that the odds of psychological and physical dating violence perpetration and victimization were increased on drinking days and with increases in negative affect. Moreover, this study was the first known empirical investigation to demonstrate that alcohol use and proximal negative affect

interacted to predict aggression when negative affect was high, but *decrease* the odds of aggression when negative affect was low. In addition to advancing our understanding of Leonard's model and the AAM as explanations for alcohol-related aggression, this study is the only known temporal investigation of the Leonard's model and the AAM within a real-life context. The implications of these findings, combined with previous research, suggest that interventions for dating violence should focus their attention on reducing alcohol use among individuals who are likely to experience negative affect when drinking, as well as on decreasing general levels of negative affect through the generation of adaptive emotion regulation skills.

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Appendices

Are you still dating the same partner you were with at the beginning of this study? (Y/N)

If NO: Please answer the following questions in regard to the dating partner you were with when you began this study.

1. Did you see (in person) your dating partner yesterday? (Y/N)

1a. If Yes: For how long did you see your dating partner? (<1hr, 1-2, 2-3, 3-4, 4-5, 5+hr)

2. Did you talk to your dating partner over the phone yesterday? (Y/N)

2a. If Yes: For how long did you talk to your dating partner over the phone? (<10min, etc.)

3. Did you talk to your dating partner through email, text messaging, facebook/myspace, or through other electronic communication yesterday? (Y/N)

4. Overall, how did you feel yesterday?

(Angry; Frustrated; Mad; Irritated; Happy; Sad; Depressed; Anxious; Hostile; Calm; Excited; all rated on a 5-point scale (1=not at all; 5=completely)

5. Did you consume alcohol yesterday? (Y/N)

5a. If Yes: How many standard drinks of alcohol did you consume? (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 or more)

5b. If Yes: What time did you start and stop drinking alcohol yesterday? (List of 24 hours)

6. Did you use drugs yesterday? (Y/N)

6a. If Yes: What type of drug did you consume? Select all that apply. (Marijuana, Cocaine, Hallucinogens, Stimulants, Opiates, Sedatives/Hypnotics [e.g., amobarbital, lorazepam], Anxiolytics [e.g., Xanax, Valium, Ativan], Other)

6b. If Yes: What time did you start and stop consuming drugs yesterday? (List of 24 hours)

7. Overall, how satisfied were you with your dating relationship yesterday? (1=not at all satisfied; 2=pretty unsatisfied; 3=neither satisfied nor unsatisfied; 4=pretty satisfied; 5=very satisfied)

Did any of these things happen between you and your dating partner yesterday (from the time you awoke until the time you went to sleep)? Check all that apply.

8) Threatened to hit or throw something at partner; destroyed something belonging to partner; did something to spite partner; accused partner of being a lousy lover

Did you do any one of these things? (Yes/No)

Did your partner do any one of these things? (Yes/No)

9) Called partner names (e.g., fat, ugly, asshole, etc.); insulted/swore at partner; yelled/screamed at partner

Did you do any one of these things? (Yes/No)
Did your partner do any one of these things? (Yes/No)

10) Treated partner like an inferior; told partner his/her feelings were irrational/crazy or tried to make him/her feel crazy; blamed partner for own problems
Did you do any one of these things? (Yes/No)
Did your partner do any one of these things? (Yes/No)

11) Monitored partners time/whereabouts; made important financial decisions without talking to partner; was jealous/suspicious of partner's friends; accused partner of having an affair.
Did you do any one of these things? (Yes/No)
Did your partner do any one of these things? (Yes/No)

12) Interfered in partner's relationships with family members; tried to keep partner from doing this to help him/herself; restricted partner's use of the telephone/email/facebook (myspace)
Did you do any one of these things? (Yes/No)
Did your partner do any one of these things? (Yes/No)

13) Grabbed, pushed/shoved, slapped, or threw something that could hurt at partner
Did you do any one of these things? (Yes/No)
Did your partner do any one of these things? (Yes/No)

14) Kicked, choked, punched, beat up, slammed against a wall/door, burned/scalded on purposed, or used a knife/gun against partner.
Did you do any one of these things? (Yes/No)
Did your partner do any one of these things? (Yes/No)

15) Insisted my partner have oral, vaginal, or anal sex when he/she did not want to but did not use physical force; forced my partner to have sex without a condom when he/she did not want to
Did you do any one of these things? (Yes/No)
Did your partner do any one of these things? (Yes/No)

16) Used force (like hitting, holding down, or using a weapon) or threats to make my partner have oral, anal, or vaginal sex
Did you do any one of these things? (Yes/No)
Did your partner do any one of these things? (Yes/No)

17) Fondled, kissed, or rubbed up against the private areas of partner's body (lips, breast/chest, crotch or butt) or removed some of their clothes without their consent *(but did not attempt sexual penetration)*
Did you do any one of these things? (Yes/No)
Did your partner do any one of these things? (Yes/No)

18a. If Yes to any: When did this happen? (List of 24 hours)

18b. If Yes to any: How did you feel prior to this happening? (Angry; Frustrated; Mad; Irritated; Happy; Sad; Depressed; Anxious; Hostile; Calm; Excited; all rated on a 5-point scale (1=not at all; 5=completely)

18c. If Yes to any: How did you feel after this happened? (Angry; Frustrated; Mad; Irritated; Happy; Sad; Depressed; Anxious; Hostile; Calm; Excited; all rated on a 5-point scale (1=not at all; 5=completely)

18d. If Yes to any: Did you consume any alcohol prior to this happening? (Y/N)

If Yes: How many standard drinks of alcohol did you consume? (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 or more)

18e. If Yes to any: Did you consume any drugs prior to this happening? (Y/N)

If Yes: What type of drug(s) did you consume? Select all that apply. (Marijuana, Cocaine, Hallucinogens, Stimulants, Opiates, Sedatives/Hypnotics [e.g., amobarbital, lorazepam], Anxiolytics [e.g., Xanax, Valium, Ativan], Other)

18f. If Yes to any: Did your dating partner consume any alcohol prior to this happening? (Y/N)

If Yes: How many standard drinks of alcohol did your dating partner consume? (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 or more)

18g. If Yes to any: Did your dating partner consume any drugs prior to this happening? (Y/N)

If Yes: What type of drug(s) did your dating partner consume? Select all that apply. (Marijuana, Cocaine, Hallucinogens, Stimulants, Opiates, Sedatives/Hypnotics [e.g., amobarbital, lorazepam], Anxiolytics [e.g., Xanax, Valium, Ativan], Other)

Table 1

Temporal Association between Alcohol Use, Negative Affect, and Dating Violence Perpetration.

	Psychological Aggression Perpetration				
	t	β	*SE*	OR	CI
Alcohol (Yes/No)	.09	.00	.01	1.00	.89-1.13
Negative Affect	15.42***	.22	.01	1.25	1.21-1.29
Marijuana Use	-3.57***	-.38	.10	.68	.55-.84
Alcohol (Heavy Drinking)	2.56*	.66	.25	1.93	1.16-3.22
Negative Affect	7.42***	.30	.04	1.35	1.25-1.47
Marijuana Use	-1.15	-.66	.57	.51	.16-1.59
	Physical Aggression Perpetration				
	t	β	*SE*	OR	CI
Alcohol (Yes/No)	1.28	.52	.61	1.69	.75-3.82
Negative Affect	7.75***	.36	.04	1.43	1.31-1.57
Marijuana Use	.76	.46	.61	1.59	.48-5.27
Alcohol (Heavy Drinking)	-.88	-.27	.31	.75	.41-1.39
Negative Affect	.78	.02	.03	1.02	.96-1.10
Marijuana Use	.32	.07	.22	1.07	.69-1.68

Note: SE = Standard error; OR = Odds ratio; CI = Confidence interval. Heavy drinking for psychological aggression perpetration was specified as a fixed effect.
*$p < .05$, **$p < .01$, ***$p < .001$

Table 2

Temporal Interactions between Alcohol Use and Negative Affect in Predicting Dating Violence Perpetration.

	Psychological Aggression Perpetration				
	t	β	*SE*	OR	CI
Alcohol (Yes/No)	.01	.00	.05	1.00	.90-1.11
Negative Affect	14.19***	.21	.01	1.24	1.20-1.28
Marijuana Use	-3.59***	-.37	.10	.68	.56-.84
Alcohol (Yes/No)× Negative Affect	2.48*	.12	.04	1.13	1.03-1.24
Alcohol (Heavy Drinking)	2.80**	.25	.08	1.28	1.08-1.53
Negative Affect	13.86***	.26	.01	1.30	1.25-1.35
Marijuana Use	-2.85**	-.53	.18	.58	.41-.85
Alcohol (Heavy Drinking)× Negative Affect	1.65	.15	.09	1.16	.97-1.39
	Physical Aggression Perpetration				
	t	β	*SE*	OR	CI
Alcohol (Yes/No)	-9.21	-1.45	.15	.23	.17-.32
Negative Affect	-.28	-.01	.03	.98	.92-1.07
Marijuana Use	1.88	.20	.11	1.22	.99-1.50
Alcohol (Yes/No)× Negative Affect	6.95***	.86	.12	2.36	1.86-3.02
Alcohol (Heavy Drinking)	-6.46***	-1.17	.18	.30	.21-.44
Negative Affect	-.41	-.01	.04	.98	.92-1.06
Marijuana Use	1.79	.18	.10	1.20	.98-1.47
Alcohol (Heavy Drinking)× Negative Affect	5.40***	.92	.17	2.53	1.81-3.55

Note: SE = Standard error; OR = Odds ratio; CI = Confidence interval. The main effect of heavy drinking for psychological aggression perpetration was specified as a fixed effect.
*$p < .05$, **$p < .01$, ***$p < .001$

Table 3

Temporal Association between Alcohol Use, Negative Affect, and Dating Violence Victimization.

	Psychological Aggression Victimization				
	t	β	*SE*	OR	CI
Alcohol (Yes/No)	4.62***	.19	.04	1.21	1.12-1.32
Negative Affect	11.54***	.16	.01	1.17	1.14-1.21
Marijuana Use	-2.39*	-.27	.11	.76	.61-.95
Alcohol (Heavy Drinking)	2.25*	.16	.07	1.17	1.02-1.35
Negative Affect	11.74***	.21	.02	1.24	1.19-1.28
Marijuana Use	-2.04*	-.39	.19	.67	.46-.98
	Physical Aggression Victimization				
	t	β	*SE*	OR	CI
Alcohol (Yes/No)	2.63**	.18	.07	1.21	1.05-1.39
Negative Affect	6.89***	.18	.02	1.19	1.14-1.26
Marijuana Use	1.55	.27	.17	1.31	.93-1.86
Alcohol (Heavy Drinking)	-.58	-.04	.08	.95	.81-1.12
Negative Affect	5.75***	.11	.02	1.12	1.08-1.16
Marijuana Use	1.66	.18	.11	1.19	.96-1.48

Note: SE = Standard error; OR = Odds ratio; CI = Confidence interval. The slope for heavy drinking was specified as fixed for psychological aggression victimization. The slope for any alcohol use was specified as fixed for physical victimization.

*$p < .05$, **$p < .01$, ***$p < .001$

Table 4

Temporal Interactions between Alcohol Use and Negative Affect in Predicting Dating Violence Victimization.

	Psychological Aggression Victimization				
	t	β	*SE*	OR	CI
Alcohol (Yes/No)	5.18***	.20	.04	1.23	1.14-1.33
Negative Affect	10.61***	.15	.01	1.17	1.14-1.21
Marijuana Use	-2.39*	-.27	.11	.76	.61-.95
Alcohol (Yes/No)× Negative Affect	1.64	.08	.05	1.08	.98-1.19
Alcohol (Heavy Drinking)	-1.11	-.08	.07	.92	.79-1.07
Negative Affect	10.67***	.19	.02	1.22	1.17-1.26
Marijuana Use	-1.94*	-.37	.19	.68	.47-1.00
Alcohol (Heavy Drinking)× Negative Affect	2.76**	.25	.09	1.28	1.08-1.54
	Physical Aggression Victimization				
	t	β	*SE*	OR	CI
Alcohol (Yes/No)	3.79***	.25	.07	1.29	1.13-1.48
Negative Affect	6.52***	.18	.03	1.21	1.14-1.27
Marijuana Use	1.53	.27	.17	1.31	.93-1.84
Alcohol (Yes/No)× Negative Affect	-1.46	-.11	.07	.89	.77-1.04
Alcohol (Heavy Drinking)	-2.49*	-.21	.08	.80	.67-.95
Negative Affect	3.89***	.08	.02	1.09	1.04-1.14
Marijuana Use	1.53	.16	.11	1.17	.95-1.46
Alcohol (Heavy Drinking)× Negative Affect	1.65	.14	.08	1.15	.97-1.37

Note: SE = Standard error; OR = Odds ratio; CI = Confidence interval.
*$p < .05$, **$p < .01$, ***$p < .001$

Vita

Ryan C. Shorey received his B.S. from Grand Valley State University in May, 2008 and his M.A. in Psychology from the University of Tennessee – Knoxville in May, 2010. His current research interests are in the area of domestic violence and substance use, including the intersection of substance use and violence. Ryan will be completing his pre-doctoral APA approved internship in Clinical Psychology at the Medical University of South Carolina.