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# Trauma, Personality, and Behavior: A Longitudinal Study Predicting Adverse Outcomes After Sexual Assault from Personality Prior to the Assault

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TRAUMA, PERSONALITY, AND BEHAVIOR: A LONGITUDINAL STUDY  
PREDICTING ADVERSE OUTCOMES AFTER SEXUAL ASSAULT FROM  
PERSONALITY PRIOR TO THE ASSAULT

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DISSERTATION

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A dissertation submitted in partial fulfillment of the  
requirements for the degree of Doctor of Philosophy in the  
College of Arts and Sciences  
at the University of Kentucky

By

Jessica Lynne Combs

Lexington, Kentucky

Director: Dr. Gregory T. Smith, Professor of Psychology

Lexington, Kentucky

2014

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## ABSTRACT OF DISSERTATION

### TRAUMA, PERSONALITY, AND BEHAVIOR: A LONGITUDINAL STUDY PREDICTING ADVERSE OUTCOMES AFTER SEXUAL ASSAULT FROM PERSONALITY PRIOR TO THE ASSAULT

Exposure to sexual assault results in ongoing harms for women. After an assault, some women engage higher levels of externalizing behaviors, such as drinking problems and drug use, and others experience higher levels of internalizing dysfunction, such as clinical anxiety and clinical depression. In a longitudinal sample of 1929 freshman college women assessed across three time points, I found the following. Pre-assault negative urgency (the tendency to act rashly when distressed) interacted with assault exposure to predict increased subsequent drinking and initiation of drug use. Pre-assault trait anxiety/depression interacted with assault exposure to predict increased subsequent clinical anxiety and depression. There was also the surprising finding that the interaction between assault and trait anxiety/ depression was a protective factor against drinking and drug use. Finally, mean levels of trait negative urgency were significantly higher after an assault, though the same was not true for trait anxiety/depression. Women with different personalities tend to experience different forms of post-assault distress. These results support the development of targeted treatment protocols for trauma specific to personality types.

**KEYWORDS:** Sexual Assault, Alcohol Use, Drug Use, Personality, Mood Disorders

Jessica L. Combs  
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May 14, 2014  
Date

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## Section 1: Introduction

### *Overview of Dissertation and Implications*

This study addresses the significant impact that sexual assault has on the mental health of college-aged women. One important and, as of yet, unexplained phenomenon is that some women respond to the trauma of sexual assault with symptoms of externalizing disorders, most notably heavy alcohol consumption and illicit drug use, but others respond to the trauma with increases in internalizing dysfunction, such as major depression and generalized anxiety disorder (Kendler, Builk, Silberg, Hetteima, Myers, & Prescott, 2000; Kilpatrick, Ruggiero, Acierno, Saunders, Resnick & Best, 2003; Kilpatrick et al., 1997; Ouimette & Brown, 2003; Sikkema, Hansen, Meade, Kochman, & Fox, 2009; Ullman & Nadjowski, 2009; Ullman & Nadjowski, 2009a; Ullman, Relyea, Peter-Hagene, & Vasquez, 2013). It is crucial to be able to identify which women are likely to respond to sexual trauma in which way, given that (a) heavy alcohol consumption and drug use is associated with many problems, including increased risk of re-victimization (Ullman & Nadjowski, 2009b); and (b) there are different empirically supported treatments for the two different kinds of dysfunction (Hayes et al., 1999; Linehan, 1993; Zapolski et al., 2010).

The intent of this study is to test this theoretical model: Women with elevations in personality traits that dispose them to engage in rash action when distressed (i.e., the trait of negative urgency) are more likely than other traumatized women to respond to the trauma with increases in heavy drinking and substance use. In contrast, women with elevations in personality traits that dispose them to internalizing dysfunction are more likely than other traumatized women to respond to the trauma with increased symptoms

of depression and anxiety, but they are less likely to engage in increased drinking and substance abuse. A successful model test will guide clinical researchers to apply different interventions to different assault victims, based on their personality characteristics.

### *Sexual Assault in a Pre-College to College Sample*

Sexual assault is a considerable source of concern for researchers and clinicians. The highest estimates of sexual assault are found in women aged 16-24, who are four times as likely to be sexually assaulted as any other age group (Danielson & Holmes, 2004). A recent study in pre-college girls found a staggering 51% of 7th-12th graders reporting some form of unwanted sexual contact (unwanted kissing, touching, hugging, or other sexual contact; Young, Grey, & Boyd, 2009). A full 12% of adolescents reported rape, 6% reported forced oral sex, and 1% reported attempted rape. Risk for sexual assault continues in college, with college women being at greater risk for assault than women in the general population (Belknap & Erez, 1995; Fisher, Cullen, & Turner, 2000; Koss, Gidycz, & Wisniewski, 1987). Sexual assault prevalence is consistently estimated at between 1 in 4 or 1 in 3 women reporting either rape or attempted rape (Abbey, Parkhill, BeShears, Clinton-Sherrod, & Zawacki, 2006; Humphrey & White, 2000; Koss et al., 1987; White & Koss, 1991; Wilcox, Jordan, & Pritchard, 2007). The repercussions of sexual assault are severe and can differ depending on a number of factors; thus, the prevalence of assault in this group of women is particularly concerning. Major notable maladaptive outcomes of sexual assault are drinking problems, drug use, clinical anxiety, and clinical depression. These outcomes can be understood to reflect externalizing dysfunction (drinking problems, drug use) and internalizing dysfunction (clinical anxiety,

clinical depression: Krueger & Markon, 2006; Miller, Greif & Smith, 2003; Miller, Kaloupek, Dillon, & Keane, 2004).

### *Outcomes Following Sexual Assault: Externalizing and Internalizing*

Sexual assault is consistently associated with maladaptive drinking and drug abuse. Reports of alcohol dependence in women post-assault range from 13-49% while reports of illegal drug use range from 28-61% (Frank & Stewart, 1984; Frank, Turner, Stewart, Jacob, & West, 1981; Kilpatrick, Best, Veronen, Amick, Villepontoux, et al., 1985; Petrak, Doyle, Williams, Buchan, & Forster, 1997). There is evidence that drinking is increased after assault at many different age ranges: childhood sexual abuse tends to lead to problem drinking, and alcohol initiation is more common in those who report sexual abuse (Combs, Smith, & Simmons, 2011; Wu, Bird, Liu, Duarte, Fuller, Fan, et al., 2010). Adult sexual abuse survivors report more overall drinking after assault as well as more drinking problems than other women (Kendler et al., 2000; Kilpatrick, Resnick, Ruggiero, Conoscenti, & McCauley, 2007; Kilpatrick et al., 1997; Ouimette & Brown, 2003; Ullman & Nadjowksi, 2009; Ullman, Relyea, Peter-Hagene, & Vasquez, 2013).

As drinking heavily and substance use is already a normative component of the college culture (Abbey, Ross, McDuffie, & McAuslan, 1996), a traumatic event which could lead to increases in these activities is concerning; many studies have described the significant relationship between sexual assault and substance use and problems in a college population (Abbey et al., 1996; Johnson & Johnson, 2013; Lindgren, Neighbors, Blayney, Mullins, & Kaysen, 2012). Increased levels of substance use are of particular note because re-victimization is already common for those who have been assaulted (Littleton, Axsom, & Grills-Taquechel, 2009; Messman-Moore, Brown, & Koelsch,

2005; Messman-Moore & Long, 2002; Testa & Parks, 1996), and the risk for re-victimization increases with the use of substances (Kilpatrick et al., 1997; Littleton & Ullman, 2013; Testa and Livingston, 2000). Though the single most consistent predictor of adult sexual assault is childhood sexual abuse, substance abuse is a close second (Gidycz, Coble, Latham, & Layman, 1993; Ullman, Nadjowski and Phillipas, 2009; White & Humphrey, 1997). This suggests that on top of the direct problems caused by substance abuse after sexual assault, there is significant risk of re-victimization due to the combination of prior assault and substance abuse.

Drinking heavily and substance abuse are examples of what has been called “externalizing” dysfunction, which is often marked by impulsive behaviors, high negative emotionality and aggression. Externalizing dysfunction has been described as a subtype of post-trauma pathology in combat veterans as well as a major subtype of dysfunction in adolescents, normal adults, and alcoholic women (Miller et al., 2003; Miller et al., 2004; Settles, Fischer, Combs, Gunn, & Smith, 2012).

Sexual abuse is also highly associated with subsequent anxiety and depressive disorders (Breslau, 2002, Frazier, Anders, Perera, Tomich, Tennen, Park, et al., 2009; Petter & Whitehill, 1998). Reportedly, 13-51% of women develop depression after an assault, while 73-82% develop fear and/or anxiety (Acierno, Brady, Gray, Kilpatrick, Resnick, & Best, 2002; Clum, Calhoun, & Kimerling, 2000; Dickinson, deGruy, Dickinson, & Candib, 1999; Frank & Anderson, 1987; Ullman & Siegel, 1993). This type of dysfunction is considered internalizing dysfunction, which is marked by low positive emotionality and high negative emotionality, and is often expressed as anxiety or

depressive disorders (Krueger & Markon, 2006; Miller & Resick, 2007; Settles et al., 2012).

As shown here, there have been numerous studies relating sexual assault to both externalizing and internalizing maladaptive outcomes cross-sectionally and longitudinally; however, these studies have not yet explored the role of pre-assault personality in the prediction of these outcomes (Campbell, Dworkin, & Cabral, 2009). There is a wealth of evidence for the influence of personality factors on the differentiation of internalizing and externalizing subtypes, however, and this will be summarized next.

#### *Personality Correlates of Substance Use and Anxiety and Depression*

The fact that only a portion of women who have experienced a sexual trauma go on to develop substance abuse problems, and only a portion develop clinical anxiety or clinical depression, suggests that there are important individual differences contributing to risk for those negative sequelae to sexual trauma exposure. One source of such individual differences is personality. The Neuroticism domain of personality is one of the primary correlates of risk for both substance use (Sher & Trull, 1994) and clinical anxiety and depression (Hettema, Neale, Myers, Prescott, & Kendler, 2006). There is increasing evidence that, within that personality domain, an important distinction can be made between specific Neuroticism traits that dispose individuals to externalizing dysfunction and others that dispose individuals to internalizing dysfunction (Settles et al., 2012). Of particular relevance to this study is the distinction between negative urgency, the tendency to act rashly when distressed (Cyders & Smith, 2008; Whiteside & Lynam, 2001), which predicts substance abuse and other externalizing behavioral dysfunction

(Fischer, Peterson, & McCarthy, 2013; Pearson, Combs, Zapolski, & Smith, 2012; Pryor, Miller, Hoffman, & Harding, 2009; Settles, Cyders, & Smith, 2010), and trait anxiety and trait depression, which predict internalizing dysfunction (Hettema et al., 2006; Settles et al., 2012). The association between these two traits and internalizing dysfunction has been shown in 5th grade children, college students, and adult women diagnosed with major depression (Settles et al., 2012).

### *The Interaction between Pre-Assault Personality and Assault*

A difficult methodological challenge for studying the impact of pre-assault personality on responses to assault concerns how to assess personality in women prior to their exposure to sexual assault. Although there are several longitudinal studies examining outcomes after sexual assault, very few include pre-trauma measures (see review by Campbell, Sprague, Cottrill, & Sullivan, 2011). The only study I found that considers personality in a prospective study of sexual assault was done by Messman-Moore and colleagues (2013), who examined the mediation of emotion dysregulation in predicting re-victimization from alcohol and substance use in women who reported previous assault; alcohol and drug use did not predict re-victimization above and beyond initial use but emotion dysregulation did. There is no research assessing the possible interaction between pre-assault personality and sexual assault and the impact of that interaction on the development of future post-assault symptomatology.

To address this question, I assessed 1,929 women before they began their first year of college. Because prior research indicated that approximately 17% of women experience some form of sexual assault during the first year of college (Wilcox, Jordan, & Pritchard, 2007), I assessed a large sample of women prior to college entry, making it

possible to study the interaction of pre-assault personality and assault experience on subsequent behavior. The current study will address this gap in the literature and help us to better understand whether, among women exposed to sexual assault, (a) negative urgency is a risk factor for subsequent substance abuse, but not for subsequent increases in major depression or generalized anxiety disorder symptoms; (b) other Neuroticism traits do not predict subsequent increases in substance use, but do predict increases in the symptoms of major depression and generalized anxiety disorder; thus (c) different traits within the Neuroticism domain predict different types of reactions to sexual trauma exposure.

#### *Does Sexual Assault Exposure Alter Personality?*

With a study design that allows for the measurement of pre-trauma personality, I was able to explore the possibility that a traumatic event alters personality. The *International Classification of Diseases, Tenth Revision (ICD-10)* describes a disorder characterized by such a change as Enduring Personality Change after a Catastrophic Experience (EPCACE; World Health Organization, 1992). Criteria include a hostile or distrustful attitude towards the world, social withdrawal (avoiding contact with people); constant feelings of emptiness or hopelessness, and estrangement; and an enduring feeling of being “on edge” and having increased irritability and vigilance. The ICD-10 suggests these attributes are associated with a tendency to excessive drinking or use of drugs (World Health Organization, 1992). It is important to note that EPCACE requires that the criterion event be of a prolonged nature, which does not precisely lend itself to the current focus on a single sexual assault event. Although there has been little research on personality change occurring after sexual assault, there has been a focus on a similar

set of symptoms often referred to as “complex PTSD” in the trauma field (Beltran et al., 2009; Roth et al., 1997). Complex PTSD is as of yet a disorder that exists primarily in the research field; its closest proxy is Disorders of Extreme Stress Not Otherwise Specified (DESNOS), which is described in the Associated Features Supporting Diagnosis section of the PTSD diagnosis in the *Diagnostic and Statistical Manual of Mental Disorders* (5<sup>th</sup> ed.; DSM-V; American Psychiatric Association, 2013). Though not a standalone diagnosis, it has been a subject of research in the trauma literature for decades. Its commonly agreed-upon criteria include impaired interpersonal functioning, impulsivity, loss of prior-held beliefs, social withdrawal, despair, and many other symptoms (Resick et al., 2012). Thus, there is a new and still limited precedent set in the trauma field for the theoretical possibility that trauma invokes an increase in certain personality traits; in this study, I have hypothesized such a change for both trait negative urgency and trait anxiety and depression.

### *Hypotheses*

I tested five hypotheses. Hypothesis 1 is that negative urgency measured prior to assaults will interact with assault victimization to predict increases in drug use across the first year of college. That effect will be above and beyond the effect of initial drug use on subsequent drug use. Trait anxiety/depression’s interaction with assault victimization will not predict increased externalizing dysfunction. Hypothesis 2 is that negative urgency will interact with sexual assault to predict increased alcohol quantity and frequency across the first year; this will be above and beyond the effect of initial alcohol use. Hypothesis 3 predicts that trait depression and anxiety measured prior to assaults will interact with assault victimization to predict increases in symptoms of diagnosable

depression and anxiety across the first year of college. The interaction of negative urgency and sexual assault will not predict increased internalizing dysfunction. A positive finding would be important, because it would suggest that trauma leads to further increased risk for (a) externalizing dysfunction among women high in negative urgency pre-assault and (b) internalizing dysfunction among women high in trait anxiety and trait depression. Hypotheses 4 and 5 are more exploratory. Hypothesis 4 posits that mean negative urgency increases after sexual assault. Hypothesis 5 predicts that mean trait anxiety and depression scores increase after sexual assault.

Research on the risk process for the development of substance abuse problems and other forms of dysfunction in women after sexual assault has been limited in several ways: 1) The vast majority of current literature assesses the role of personality in psychopathology after an event has occurred, thus precluding inferences concerning the role of pre-assault personality. 2) The lack of research on personality predictors of different forms of post-sexual assault behavioral issues precludes understanding of the different symptom trajectories experienced by different women following victimization. The current study addresses these limitations.

## Section 2: Methods

### *Participants*

Participants in this study were incoming freshman women at the University of Kentucky. Participants were recruited the summer before their freshman year of college to participate in a three-wave longitudinal study. I limited the participant sample to “traditional” incoming freshmen women, defined as entering college within three years of graduating high school. A sample of 1929 women participated at three different time points: the month before the school year began, mid-way through freshman year (November-December), and at the end of the freshman year (April). The retention rate was 66% from Time 1 to Time 2 and 63% from Time 1 to Time 3. This retention rate is comparable to most longitudinal studies of sexual assault (average rate 70%; Campbell et al., 2011). Retained and lost participants did not vary on any study variables; I therefore concluded that data were missing at random. As a result, expectation maximization procedures were used to impute for all data at missing points. The mean age of participants at the initiation of the study was 18.04. Most participants were European American (88.1%), followed by African American (9.2%); the remainder identified as Asian American (2.0%), Native American/American Indian (0.5%), and Pacific Islander (0.3%). Most participants identified as heterosexual/straight (96.7%), while 2.0% identified as bisexual, 0.6% identified as gay/lesbian, and 0.7% identified as other (text responses included pansexual, bicurious, not sure, and queer).

### *Procedure*

*Time 1.* The study was online and accessible through the university’s Qualtrics survey system. The Time 1 assessment took place in July prior to the participants’ first

day of move-in. We sent an e-mail to all incoming female freshmen with instructions on accessing the Qualtrics system. Eligibility was determined by questions regarding gender, nature of enrollment (traditional or otherwise), and English-speaking ability; prospective participants who were not women, who were more than three years post-high school graduation, or who were unable to speak English were not able to complete the online survey. The questionnaire took 1-2 hours to complete. Upon completion, participants were entered in a raffle to win one of 8 \$250 gift cards to Target.

*Time 2.* Between Time 1 and Time 2, the participants were sent a reminder e-mail about the study. The Time 2 assessment took place in November or December of the participants' freshman year, and participants were paid \$10 for participation this wave. The participants completed the same group of measures as they did at Time 1 with modifications to assess exposure to sexual assault, problem drinking, substance use, and clinical anxiety/depression for each month (August, September, October, November).

*Time 3.* The Time 3 assessment took place in late April of the participants' freshman year; participants were paid \$10 for their participation. As in Time 2, the participants completed the same group of measures with modifications to assess exposure to sexual assault, problem drinking, substance use, and clinical anxiety/depression for each month (December, January, February, March, April).

### *Measures*

*Demographic Information.* The participants filled out a demographic questionnaire obtaining information on estimated household income, age, ethnicity, parents' education, and sexual orientation.

*Sexual Experiences Survey (SES; Koss & Oros, 1982)*. The SES is a 14-item measure of different dimensions of sexual assault and rape. The experiences asked about range from unwanted touching to rape with a foreign object, and the questions reflect the participant's age at which the experience occurred and number of times the experience has occurred. For Time 1, the SES asked about any incidents that occurred between the ages of 14 and the current age of the participant. Time 2 asked if any assaults had occurred between Time 1 and the present; it also assessed in which month the assault occurred (August, September, October and/or November). Time 3 asked if any assaults had occurred between Time 2 and the present; it assessed in which specific month the assault occurred (December, January, February, March, and/or April). The SES is consistent with verbal reports of victimization at  $r = .73$  (Koss & Gidycz, 1985). A revised version of the SES was published in 2007 (Koss, Abbey, Campbell, Cook, Norris, et al., 2007), but we used the original version because, to date, it rests on a more extensive body of validity evidence. The wording was adjusted on some items to reduce the level of responsibility placed on the potential victims; for example, the phrase "sex play" was removed in favor of strict behavioral descriptions ("fondling, touching, petting") and questions referring to intoxication were edited to reflect the possibility that the respondent was intoxicated prior to initially encountering an assailant (rather than mandating that the assailant provided alcohol/drugs to the respondent in order to qualify as assault).

Sexual assault was defined as an affirmative answer to any question on the SES; when dichotomizing the sexual assault variable, a 1 was assigned to any instance of unwanted touching, coerced/forced attempted intercourse and coerced/forced intercourse

and a 0 was assigned to those who reported no instances of any behavior assessed on the SES. Dichotomizing responses to the measure of sexual assault exposure avoided the problem of zero inflation (more than half of the respondents reported no unwanted incidents) and positive skew. All participants received information about various ways to receive help from community or university clinics; those who disclosed a history of sexual assault received additional reminders about community resources.

*Drinking Styles Questionnaire (DSQ; Smith, McCarthy, & Goldman, 1995).* We used a subset of questions from the DSQ to address drinking quantity and drinking frequency (QF). At Time 1, participants were asked about their current alcohol use. At Times 2 and 3, we used a modified timeline follow-back method (Sobell & Sobell, 1992) to assess alcohol use during each month throughout the school year. Coefficient alpha in this sample ranged from .87 to .92 for each month reported.

*Risky Behaviors Scale, Drug Use Items (RBS: Fischer & Smith, 2004).* The RBS is an 83-item Likert-type scale designed to assess frequency of engagement in risky behaviors. Seven items from the RBS were used that assess the target behavior of illegal drug use: used marijuana, cocaine, LSD, heroin, ecstasy, misused prescriptions, or other illegal drugs. To create a drug use score, responses of yes or no to having used each drug were summed. Again, at Time 1, participants were asked about current use, and at Times 2 and 3, a modified timeline follow-back method was used to assess drug use during each month of the school year. Because this scale represents a summation of separate behaviors, internal consistency is not relevant and not reported.

*Beck Depression Inventory-II (BDI-II, Beck, Steer, & Brown, 1996).* The BDI-II is a self-report measure that consists of 21 items used to assess depressive symptoms. The

reliability and stability of the BDI have been reviewed extensively (Beck, Steer, & Garbin, 1988; Beck, Steer, & Brown, 1996). Again, a modified timeline follow-back method was used to assess BDI scores during each month of the school year. In this sample, reliability of the scale ranged from .93 to .98.

*Beck Anxiety Inventory (BAI; Beck & Steer, 1990).* The BAI is a 21-item measure of different symptoms of anxiety. Each item describes a somatic, panic-related, or subjective symptom. We again used a modified timeline follow-back method to assess anxiety symptoms each month during the school year. In this sample, reliability of the scale ranged from .94 to .97.

*UPPS-P Impulsivity Scale (Lynam, Smith, Cyders, & Whiteside, 2007).* The UPPS-P is a 44 item Likert type scale designed to assess five distinct personality traits that are related to impulsive behavior: negative urgency, positive urgency, lack of perseverance, lack of planning, and sensation seeking. In this study, we used the negative urgency scale only, which has been shown to have good internal consistency (in this study,  $\alpha = .89$  at Wave 1 and  $.91$  at Wave 3). Negative urgency can be understood as the tendency to perform rash acts while in a negative mood. Example items include “When I feel bad, I will often do things I later regret in order to make myself feel better now,” and “I often make matters worse because I act without thinking when I am upset.”

*Revised NEO Personality Inventory, Neuroticism domain (NEO-PI-R; Costa & McCrae, 1992).* The NEO-PI-R is a 240-item measure assessing the personality traits in the FFM. The NEO-PI-R has demonstrated good internal and external validity (Costa & McCrae, 1992). In the present study, we used the Depression and Anxiety facets of the Neuroticism domain ( $\alpha = .83$  and  $.75$  respectively at Wave 1 and when combined,  $\alpha = .86$ ;

$\alpha = .87$  and  $.80$  respectively at Wave 1 and when combined,  $\alpha = .90$ ). Because they were so highly correlated, I combined them for analyses.

## Section 3: Results

### *Data Analysis*

To test hypotheses 1-3, I used linear regression models. The predictor variables were personality (negative urgency and trait anxiety/depression measured at Time 1), sexual assault across the first year of college (based on reports of sexual assault occurring between August and March of freshman year<sup>1</sup>), and interaction terms for sexual assault X negative urgency and sexual assault X trait anxiety/depression. We also included control variables: report of sexual assault before attending college (Time 1 sexual assault reported between the ages of 14 and the age at which the participant took the survey in July before school started), and report of each outcome variable in the month before college began (drinking quantity/frequency in July, drug use in July, and clinical anxiety/depression in July). Our three outcome variables were measures of illegal drug use, drinking quantity and frequency, and clinical anxiety/depression as assessed in April.

Drug use was zero-inflated and had a mean below 6 (mean of .17) suggesting that an ordinary least squares regression model would not be indicated; because the mean and the variance (.30) were not statistically different and there was no overdispersion, we used a standard Poisson regression to model the hypothesis predicting drug use as suggested by Atkins and Gallop (2007). Drinking quantity/frequency was normally distributed, which was to be expected in a college freshman population; we tested the hypothesis predicting alcohol use with a normal linear regression. The combination clinical anxiety/depression score had mild skewness/kurtosis and a mean of above 6 (mean of 7.56); due to these properties and the count nature of the data, the best way to

address the data's non-normality was to apply a square root transformation. We then used a linear regression to test the hypothesis predicting clinical anxiety/depression.

I tested Hypotheses 4 and 5 by using linear regression to test the interaction between wave 1 personality and sexual assault in the prediction that personality would change after assault. I then used repeated measures ANOVA to probe the interaction further.

### *Descriptive Statistics*

Complete descriptive statistics for sexual assault before beginning school can be found in Table 3.1; statistics across freshman year are displayed in Table 3.2. At Time 1, 29.3% of incoming freshman women reported having experienced some form of sexual assault from the age of 14 to "now." Of these women, 11.9% reported experiencing unwanted touching, 5.3% reported experiencing attempted unwanted sex, 4.7 % reported experiencing pressured or coerced sex, and 7.4% reported experiencing forced rape. During the school year (August through March), 15.6% of freshman women reported experiencing an unwanted sexual event. Of those women, 7.1% reported unwanted touching, 2.4% reported attempted unwanted sex, 2.8% reported pressured or coerced sex, and 7.4% reported forced rape. Breakdowns of the demographic profile relative to the experience of sexual assault can be found in Table 2.1.

Means, variance and range of drug use, drinking quantity/frequency, and BDI/BAI scores can be found in Table 3.3. In general, the mean for drug use dropped significantly from reports in July (mean = .49) to reports in April (mean = .17;  $t=17.64$ ,  $p<.01$ ), as did the mean for BDI/BAI from July (mean = 12.08) to April (mean = 7.57;

$t=12.89, p<.01$ ). The mean for drinking quantity and frequency significantly increased from July (mean = 3.05) to April (mean = 4.02;  $t=19.26, p<.01$ ).

Correlations among key study variables can be found in Table 3.4. Of note, assault between the ages of 14 and the beginning of freshman year is significantly correlated with assault across the first year of school, which documents re-victimization. Also, both sexual assault from the age of 14 to freshman year and sexual assault during freshman year were significantly correlated with all study variables (both personality variables, measures of depression/anxiety and measures of drug and alcohol use).

### *Hypothesis 1<sup>2</sup>*

The first hypothesis was that in the prediction of drug use, the interaction between negative urgency and sexual assault during the first year of college would predict greater drug use, controlling for other variables, particularly drug use at the initiation of college. When we used a Poisson distribution to test the zero-heavy data, the significance of the Omnibus test was  $p<.001$  with a chi-square of 222.97. Sexual assault across freshman year of college significantly predicted end-of-year drug use ( $B = 1.31, p<.001$ ), as did drug use in the beginning of college ( $B=.40, p<.001$ ); these predictions were above and beyond the impact of pre-college sexual assault. Our hypothesis was not supported for the interaction between negative urgency and sexual assault across the freshman year of college; however, the interaction between trait anxiety/depression and sexual assault during college was a significant predictor in the opposite direction for drug use ( $B= -.71, p<.01$ ). As modeled in Figure 3.1, high levels of trait anxiety/depression appeared to protect against increased drug use following sexual assault.

Because drug use is not normative in a college population to the same extent as drinking or clinical anxiety/depression, we next examined whether our hypothesis indicated an *onset* of drug use rather than an *increase* in drug use. We did so by studying those women who did not report any drug use at Time 1. This group had an  $n$  of 1123, and the data analysis was performed the same way (without the inclusion of July drug use as a predictor as it was constant). This Omnibus test was also significant at  $p < .001$  (chi-square = 58.16). For this test, sexual assault freshman year predicted drug use initiation ( $B = 1.08, p < .001$ ) and the interaction between trait anxiety/depression and sexual assault freshman year predicted in the same, protective direction as described above ( $B = -1.01, p < .01$ ). However, the interaction between negative urgency and sexual assault freshman year did predict drug use initiation ( $B = .86, p < .05$ ). As depicted in Figure 3.2, the nature of the interaction was that higher levels of pre-assault negative urgency were associated with more drug use initiation following sexual assault. Again, these predictions were above and beyond the impact of pre-college sexual assault. Not only did participants high on the traits show an increase in drug use, they also showed increased variability in drug use. For all women, in the beginning of the year (pre-assault), marijuana was by far the most heavily used drug, with 42% of participants high on negative urgency reporting use. For all other drugs (cocaine, heroin, LSD, ecstasy, other), the percentage of participants reporting use was less than 3%. Post-assault data shows that the same high negative urgency participants report lower levels of marijuana use, but up to 7% of the participants reported use of other drugs. In contrast, only up to 0.8% of participants who did not experience assault as well as those who did experience assault but were low on negative

urgency reported use of other types of drugs besides marijuana. Each interaction is depicted in Figure 2.

### *Hypothesis 2*

As drinking quantity/frequency was normally distributed, as described above, we used a normal OLS regression with untransformed data. Drinking quantity and frequency before college (July) significantly predicted drinking quantity and frequency in April ( $\beta = .44, p < .001$ ), as did sexual assault across freshman year ( $\beta = .09, p < .001$ ), the interaction between negative urgency and sexual assault across freshman year ( $\beta = .07, p < .01$ ), and the interaction between trait anxiety/depression and sexual assault across freshman year (in the opposite direction;  $\beta = -.09, p < .001$ ); these predictions were above and beyond the impact of pre-college sexual assault. These interactions are modeled in Figure 3.3. As the figure shows, high pre-assault levels of negative urgency were associated with a greater increase in drinking behavior following sexual assault. As was true with drug use, high pre-assault trait anxiety/depression appeared to protect against increased drinking following sexual assault. We briefly examined item-level responses to some drinking questions for those who were high on negative urgency and who were assaulted over the course of the year. While the most heavily endorsed drinking frequency item at the beginning of the year was “I drink alcohol about once a month,” at the end of the year, the most heavily endorsed item was “I drink alcohol about once or twice a week.” Though the relative size of the groups endorsing the item for quantity stayed consistent (at both the beginning and the end of the year the greatest number of participants endorsed that they “usually drink quite a bit of alcohol (between 4-8 beers or drinks)” at one time), the percentage of people endorsing the highest category (“I usually drink a lot

of alcohol (more than 9 beers or drinks)”) more than doubled, from 2.9% to 7.2%. In contrast, those who were high on negative urgency and not assaulted or those who were low on negative urgency (regardless of assault status) retained their initial distribution across both frequency and quantity items.

### *Hypothesis 3*

In order to predict clinical anxiety/depression, as described above, I performed a square root transformation and ran an OLS regression. Clinical anxiety and depression in April were predicted by clinical anxiety/depression in July ( $\beta = .28, p < .001$ ), trait anxiety/depression ( $\beta = .15, p < .001$ ), sexual assault across the first year of college ( $\beta = .08, p < .001$ ), and the interaction between trait anxiety/depression and sexual assault across the first year ( $\beta = .08, p < .01$ ); these predictions were above and beyond the impact of pre-college sexual assault and the prediction was not significant for the interaction between sexual assault and negative urgency. The nature of the interaction (see Figure 3.4) is that high levels of trait anxiety/depression were associated with a greater increase in clinical anxiety and clinical depression following sexual assault. Clinical anxiety/depression symptoms were also more varied for those high on trait anxiety/depression who were assaulted. Symptoms that were endorsed more frequently by those high in trait anxiety/depression post-assault include feeling like a total failure as a person, feeling guilty all of the time, extreme suicidal ideation, feeling utterly worthless, not having enough energy to do anything, feeling faint/lightheaded and hot/cold sweats. In contrast, those who were not assaulted reported almost all symptoms decreasing by the end of the year.

#### *Hypothesis 4*

In order to predict an increase in negative urgency after assault, I used a linear regression to predict wave 3 negative urgency from pre-college sexual assault, wave 1 negative urgency, sexual assault across freshman year, and the interaction of the latter two. When all four terms were entered, the interaction term predicted wave 3 negative urgency above and beyond wave 1 negative urgency ( $t=2.92, p<.01$ ). I probed these findings using a repeated measures ANOVA, and I found that women who were not assaulted across freshman year of college showed a significant decrease in mean negative urgency ( $F=8.66, p<.01$ ). Women who did report an assault across freshman year showed a significant increase in mean negative urgency ( $F=7.75, p<.01$ ). The results are visualized in Figure 3.5. When I probed the findings further for those who were assaulted by selecting for levels of negative urgency, I found that there was a significant increase to Wave 3 negative urgency for those low on Wave 1 negative urgency ( $F=27.57, p<.01$ ); however, those high on Wave 1 negative urgency showed a significant decrease to Wave 3 negative urgency ( $F=27.04, p<.01$ ).

#### *Hypothesis 5*

I used the same technique described above to assess change in trait anxiety and depression. When all four terms (pre-college sexual assault, wave 1 trait anxiety/depression, sexual assault across freshman year, and the interaction term between the two) were entered, all except the interaction term were significant in the prediction of higher levels of mean clinical anxiety/depression at Wave 3. When I probed this interaction using a repeated measures ANOVA, I found that women who were not assaulted across freshman year of college showed a significant increase in mean trait

anxiety and depression ( $F=11.98, p<.01$ ). Women who reported an assault during freshman year also had a significant increase in mean trait anxiety ( $F=6.96, p<.01$ ). The results are visualized in Figure 3.6. I probed the interaction further for only those who were assaulted, and I found that this increase held true for low levels of Wave 1 trait anxiety and depression ( $F=23.13, p<.01$ ). However, those with high Wave 1 trait anxiety and depression actually showed a significant decrease to Wave 3 after sexual assault ( $F=12.75, p<.01$ ).

Table 3.1 Descriptive statistics of sexual assault and demographic data prior to beginning school.

<i>Sexual assault reports prior to beginning school (age 14 to summer before first year)</i>					
	Yes (565; 29.3%)				No (1364; 70.7%)
	UT (229; 11.9%)	AS (103; 5.3%)	PS (90; 4.7%)	Rape (143; 7.4%)	
<i>Race/Ethnicity</i>					
AI/AN (n=9)	5 (55.6%)	0 (0.0%)	0 (0.0%)	1 (11.1%)	3 (33.3%)
Asian (n=38)	4 (10.5%)	2 (5.3%)	2 (5.3%)	1 (2.6%)	29(76.3%)
NH/PI (n=6)	1 (16.7%)	1 (16.7%)	0 (0.0%)	1 (16.7%)	3 (50.0%)
Black/AA (n=177)	18 (10.2%)	9 (5.1%)	12 (6.8%)	13 (7.3%)	125(70.6%)
White/EA (n=1699)	201(11.8%)	91 (5.4%)	76 (4.5%)	127(7.5%)	1204(70.9%)
<i>Sexual Orientation</i>					
H/S (n=1866)	215(11.5%)	97(5.2%)	84(4.5%)	132(7.1%)	1338(71.7%)
G/L (n=12)	2 (16.7%)	1 (8.3%)	1 (8.3%)	1 (8.3%)	7 (58.3%)
Bisexual (n=38)	8 (21.1%)	5 (13.2%)	4 (10.5%)	8 (21.1%)	13 (34.2%)
Other (n=13)	4 (30.8%)	0 (0.0%)	1 (7.7%)	2 (15.4%)	6 (46.2%)

Note. UT = unwanted touching, AS = attempted sex, PS = pressured sex, AI/AN = American Indian/Alaska Native, NH/PI = Native Hawaiian/Pacific Islander, AA = African American, EA = European American, H/S = heterosexual/straight, G/L = gay/lesbian. Sexual orientation counts change because demographic data was collected at two different points in time; top half of table was collected July before freshman year and bottom half of table was collected April of freshman year.

Table 3.2 Descriptive statistics of sexual assault and demographic data across freshman year.

<i>Sexual assault reports during freshman year (August through March)</i>					
	Yes (300; 15.6%)				No (1629; 84.4%)
	UT (136; 7.1%)	AS (47; 2.4%)	PS (54; 2.8%)	Rape (63; 3.3%)	
<i>Race/Ethnicity</i>					
AI/AN (n=9)	2 (22.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (77.8)
Asian (n=38)	2 (5.3%)	0 (0.0%)	0 (0.0%)	1 (2.6%)	35 (92.1%)
NH/PI (n=6)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (100.0%)
Black/AA (n=177)	10 (5.6%)	3 (1.7%)	6 (3.4%)	5 (2.8)	153 (86.4%)
White/EA (n=1699)	122 (7.2%)	44 (2.6%)	48 (2.8%)	57 (3.4%)	1428(84.0%)
<i>Sexual Orientation</i>					
H/S (n=1881)	129 (6.9%)	45 (2.4%)	53 (2.8%)	59 (3.1%)	1595 (84.8%)
G/L (n=13)	1 (7.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	12 (92.3%)
Bisexual (n=27)	5 (18.5%)	1 (3.7%)	1 (3.7%)	4 (14.8%)	16 (59.3%)
Other (n=8)	1 (12.5%)	1 (12.5%)	0 (0.0%)	0 (0.0%)	6 (75.0%)

Note. UT = unwanted touching, AS = attempted sex, PS = pressured sex, AI/AN = American Indian/Alaska Native, NH/PI = Native Hawaiian/Pacific Islander, AA = African American, EA = European American, H/S = heterosexual/straight, G/L = gay/lesbian. Sexual orientation counts change because demographic data was collected at two different points in time; top half of table was collected July before freshman year and bottom half of table was collected April of freshman year.

Table 3.3 Descriptive statistics of outcome variables (drinking quantity and frequency, drug use, and clinical anxiety/depression symptom count).

	Drinking Quantity/Frequency		Drug Use		Clinical Anx/Dep	
	July	April	July	April	July	April
Mean	3.05	4.02	0.49	0.17	12.08	7.57
Variance	4.41	4.58	0.49	0.30	229.07	172.24
Range	0-8	0-9	0-7	0-7	0-101	0-116

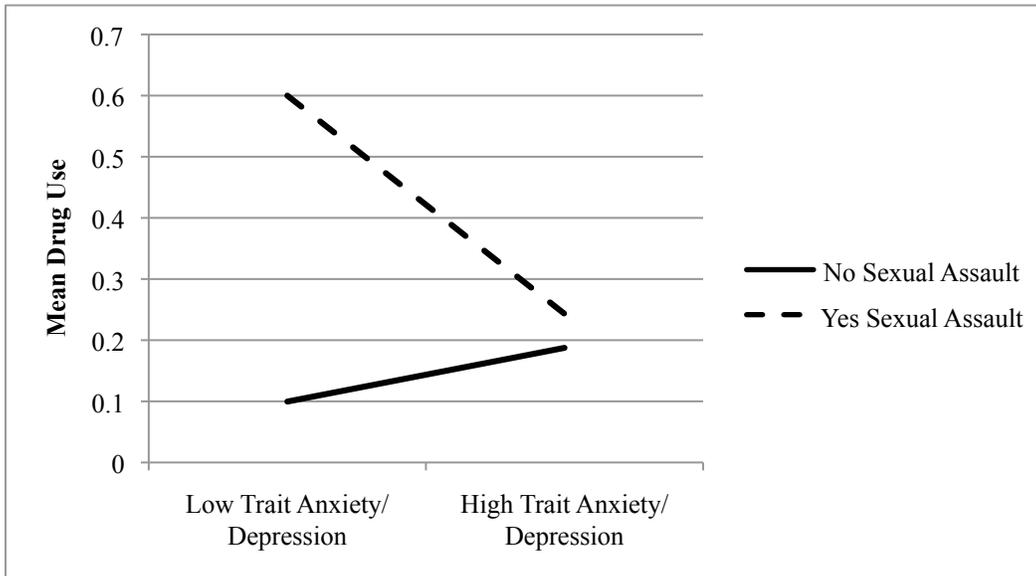
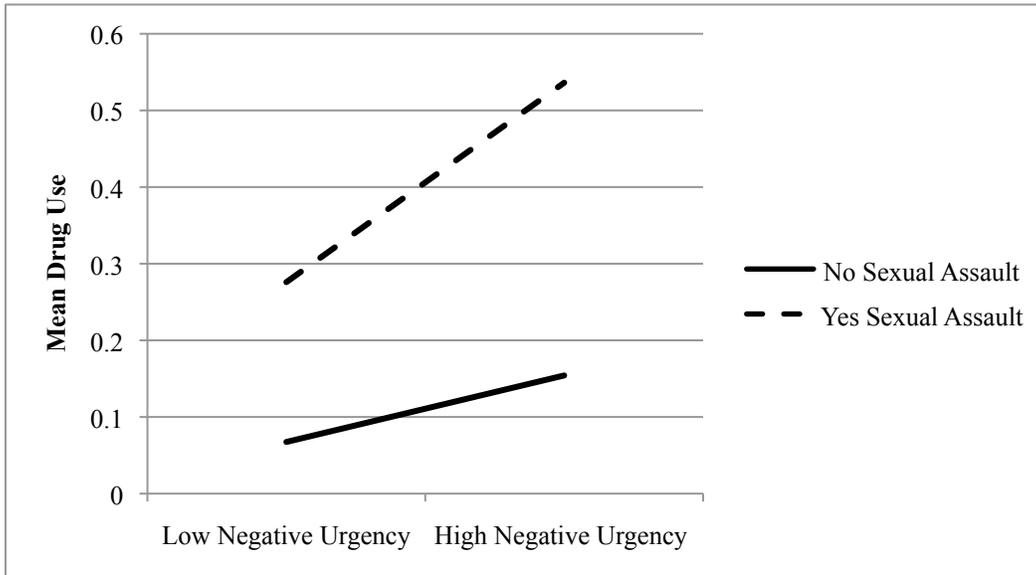
Note. N=1929. Anx/Dep= Total clinical anxiety and depression symptom count. The range for drinking frequency and quantity represents a sum total of participant responses to questions about their drinking habits. A 9 represents the highest level of drinking seen in this population; this person would report drinking a lot of alcohol almost daily. The range for drug use represents a sum total of the types of drugs a participant reports having used. A 7 represents the highest number of drugs used; this person would report that they had tried marijuana, cocaine, LSD, heroin, ecstasy, another type of illegal drug, and misused prescription drugs. The range for clinical anxiety/depression represents the sum total of responses on measure of anxiety and depression. A person who received a 116 likely rated all anxiety and depression symptoms as being severe.

Table 3.4 Correlation matrix for key study variables.

	NU	TAD	SAHx	SAC	DUJ	DUA	CADJ	CADA	QFJ	QFA
NU	--									
TAD	.52*	--								
SAHx	.26*	.18*	--							
SAC	.09*	.09*	.21*	--						
DUJ	.19*	.09*	.13*	.06*	--					
DUA	.08*	.03	.12*	.24*	.21*	--				
CADJ	.43*	.58*	.29*	.13*	.07*	.08*	--			
CADA	.20*	.33*	.15*	.17*	-.01	.20*	.42*	--		
QFJ	.13*	-.04	.10*	.14*	.23*	.25*	-.03	-.02	--	
QFA	.23*	.00	.26*	.13*	.36*	.19*	.06*	.01	.47*	--

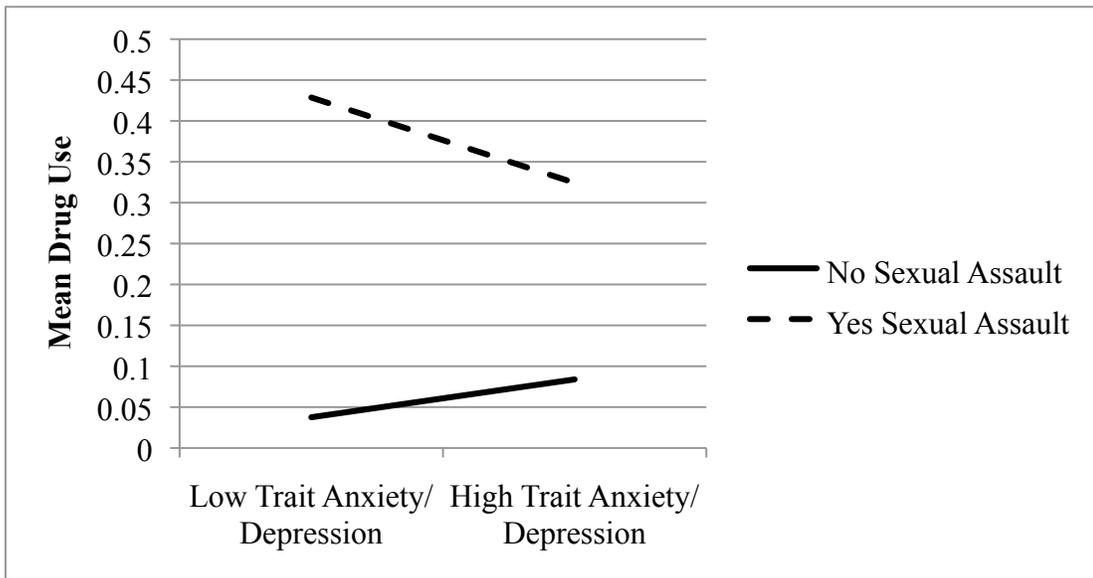
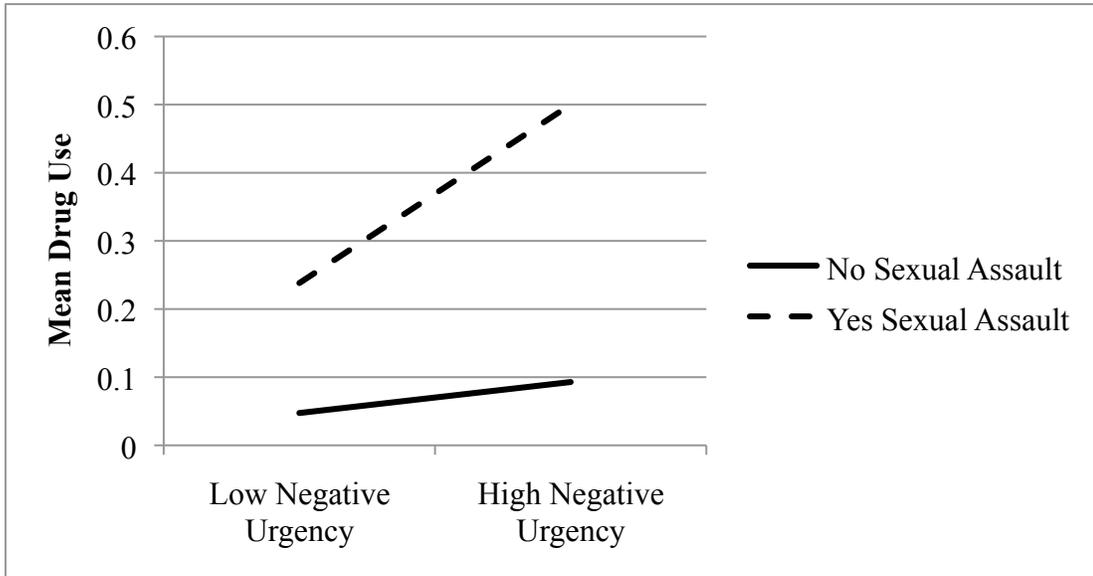
Note. \* Significant at  $p < .005$ . NU= Negative urgency measured at Time 1. TAD= Trait anxiety/depression measured at Time 1. SAHx= Sexual assault history prior to start of college (back to age 14). SAC= Sexual assault incidence over first year of college (August through March). DUJ= Drug use reported in July. DUA= Drug use reported in April. CADJ= Clinical anxiety/depression reported in July. CADA= Clinical anxiety/depression reported in April. QFJ= Drinking quantity/frequency reported in July. QFA= Drinking quantity/frequency reported in April.

Figure 3.1 Interactions between negative urgency at Time 1 and sexual assault across freshman year and trait anxiety/depression at Time 1 and sexual assault across freshman year in the prediction of drug use at Time 3.



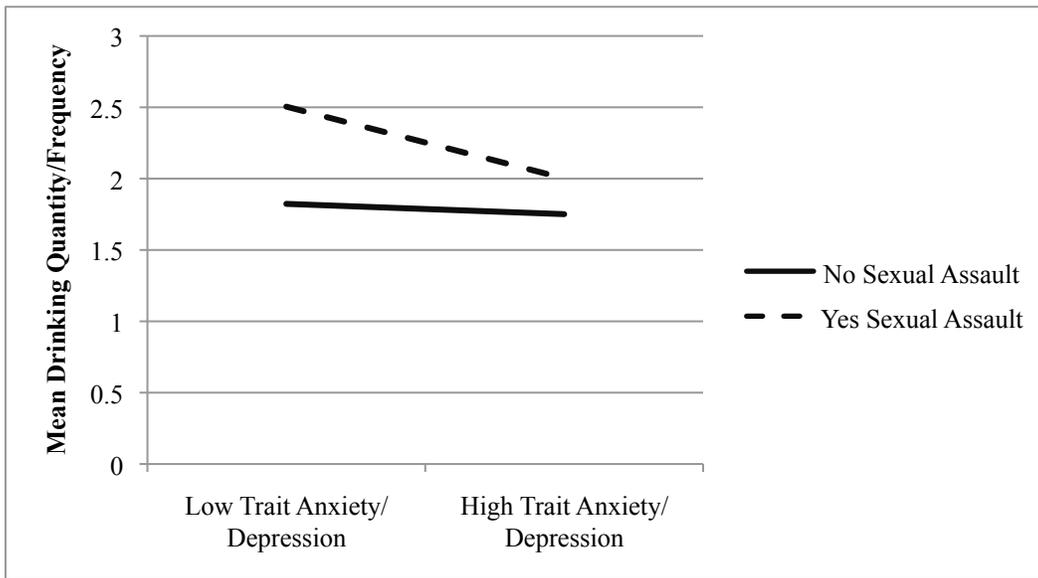
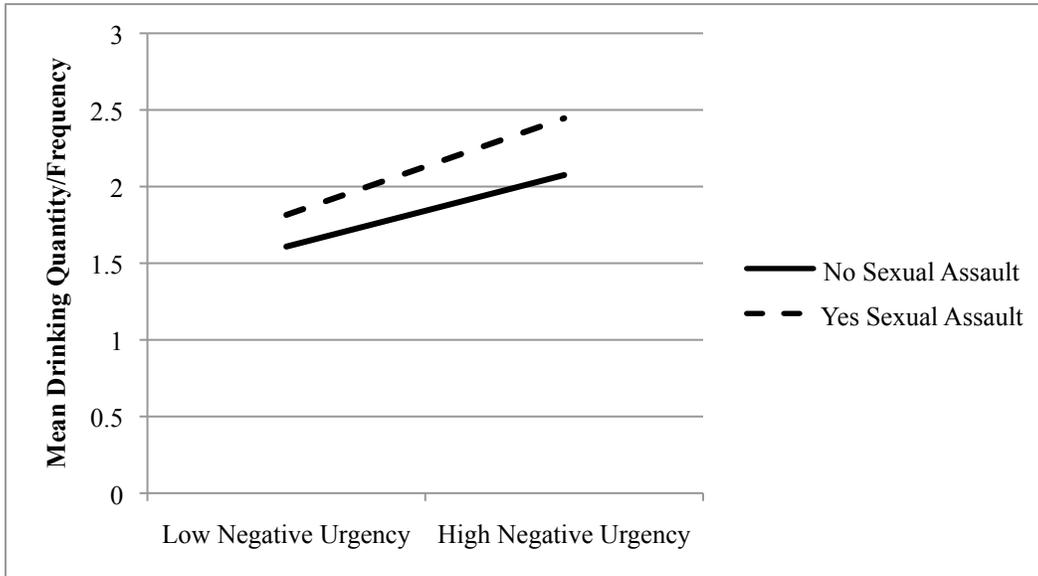
Note: Drug use in this sample ranged from 0 to 7, with each point representing one type of illegal drug. If someone reported using two different types of drugs, their score would be a 2.

Figure 3.2 Interactions between negative urgency at Time 1 and sexual assault across freshman year and trait anxiety/depression at Time 1 and sexual assault across freshman year in prediction of initiation of drug use at Time 3.



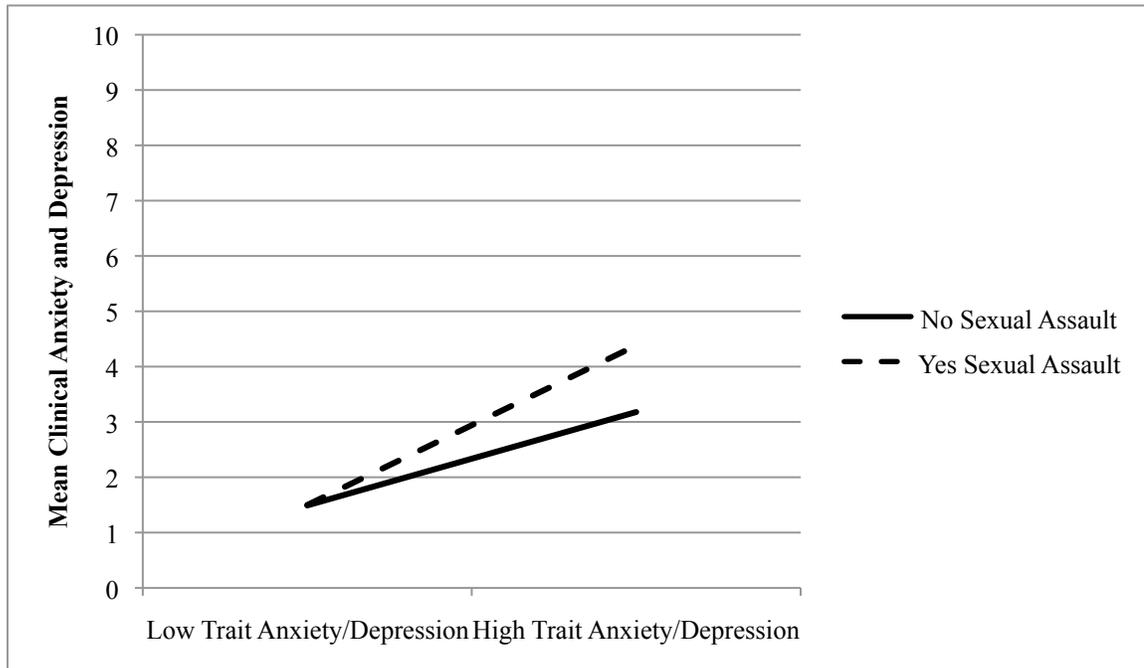
Note: Drug use in this sample ranged from 0 to 7, with each point representing one type of illegal drug. If someone reported using two different types of drugs, their score would be a 2.

Figure 3.3 Interactions between negative urgency at Time 1 and sexual assault across the first year of college and trait anxiety/depression at Time 1 and sexual assault across the first year of college in the prediction of drinking at Time 3.



Note: Drinking frequency/quantity in this sample ranged from 0 to 5.

Figure 3.4 Interaction between trait anxiety/depression at Time 1 and sexual assault in the prediction of clinical anxiety/depression at Time 3.



Note. Symptom counts of clinical anxiety/depression in this sample ranged from 0 to 144 and were zero heavy, so a square root transformation was used to better understand the data. The transformed variable had a range of 0 to 10.77.

Figure 3.5 Change in mean negative urgency after a sexual assault.

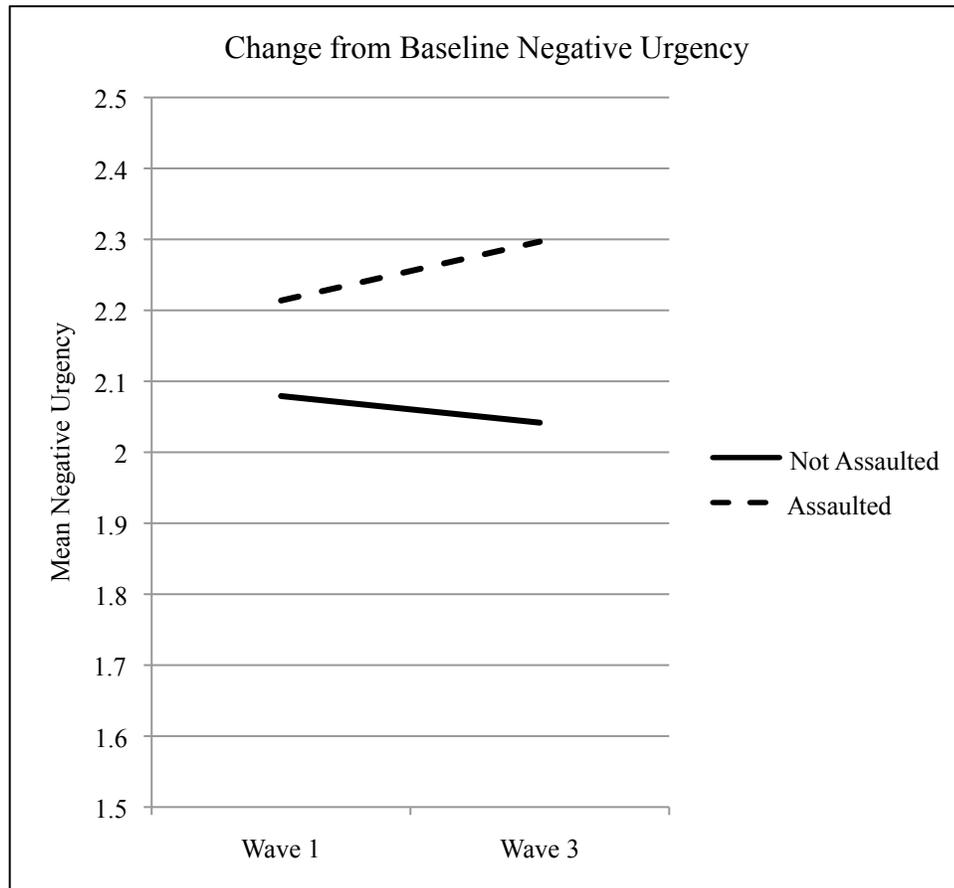
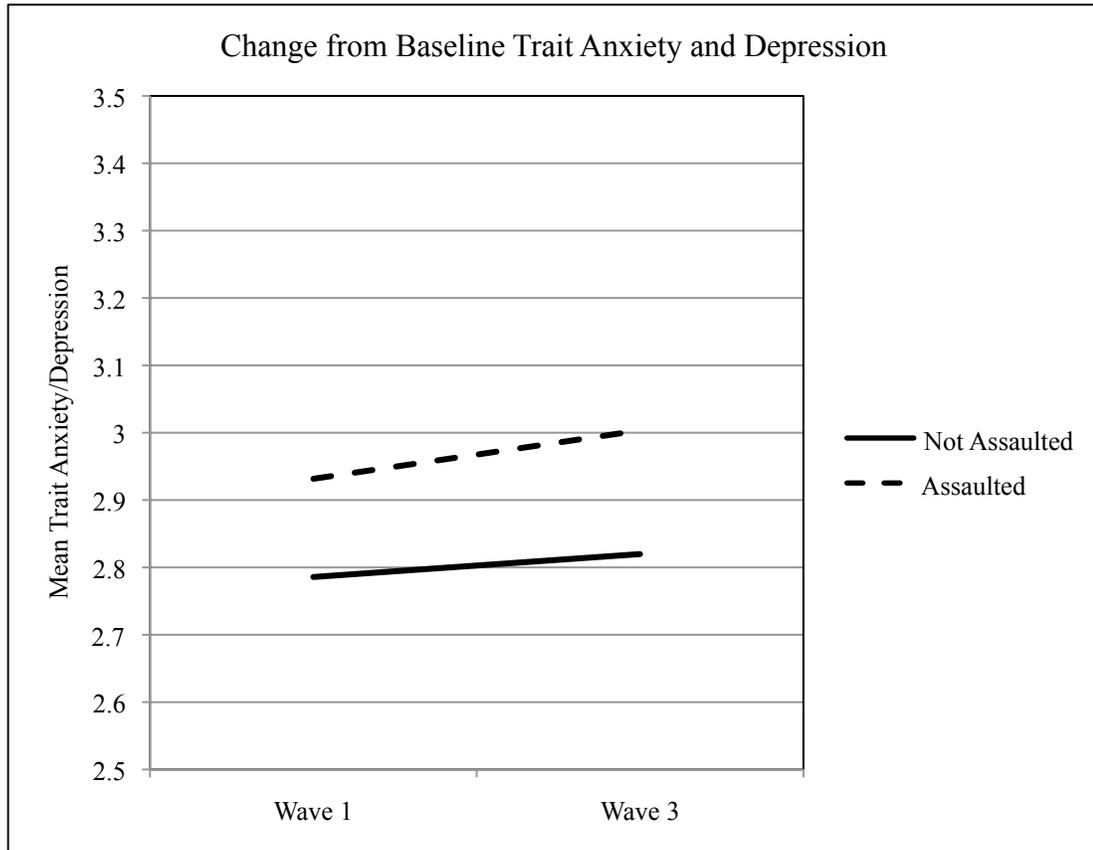


Figure 3.6 Change in mean trait anxiety and depression after a sexual assault.



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#### Section 4: Discussion

Sexual assault can have long-lasting emotional, social and physical effects on the victim; in many cases, outcomes from sexual assault can also lead to re-victimization (Messman-Moore & Long, 2002). For these reasons, it is important to better understand the differential pathways that lead to different outcomes after assault. This longitudinal study supports the idea that there is value in understanding the predictive nature of transactional relationships between personality and sexual assault for their impact on post-assault behavioral outcomes.

As predicted, women who were high on negative urgency and who were assaulted significantly increased their drinking behavior post-assault more than did other assaulted women. Women who were high on negative urgency and were assaulted were also more likely to initiate drug use across the course of freshman year, though we did not see a significant *increase* in mean drug use after assault. Negative urgency did not interact with sexual assault to predict increases in clinical anxiety/depression. The possibility that negative urgency contributes more specifically to post-assault externalizing behavior in particular is important. That finding suggests that women high on negative urgency are at greater risk for externalizing post-assault maladaptive behaviors but not internalizing post-assault behaviors. This finding may prove useful to intervention professionals.

Trait anxiety and depression interacted with sexual assault to predict clinical anxiety and depression scores, again consistent with prior hypotheses. High pre-assault levels of the traits were associated with increases in clinical anxiety and depression across the first year of college. This finding is particularly striking when one considers that, on average, rates of clinical anxiety/depression declined across the freshman year.

Against this mean decline, assaulted women high in trait anxiety/depression experienced increased internalizing symptomatology.

An unanticipated finding of interest was also observed with respect to trait anxiety/depression. High levels of the trait appeared to serve as a protective factor for increased post-assault engagement in externalizing behaviors. In particular, women who were higher on trait anxiety and depression and who were assaulted were likely to have lower scores on both drinking and drug use initiation. I cannot know the reasons why this occurred, but perhaps these women are withdrawing from social occasions (consistent with reporting higher levels of clinical depression and anxiety), and are thus less likely to be in situations where they might be drinking or using drugs.

The hypotheses predicting an increase in mean levels of personality traits of interest after assault were somewhat supported by the data; negative urgency significantly interacted with assault to increase at Wave 3 while trait anxiety/depression did not. An unanticipated finding was that when this relationship was probed, the mean increases in negative urgency only occurred for those who were low on the traits to begin with. Those who were high on the traits to begin with reported significantly lower mean levels after an assault (though mean levels still remained higher than those initially low on the traits). The finding that traumatic events serve to increase the endorsing of certain personality traits only for those low on the traits at baseline is consistent with the abovementioned description of a change in personality after a traumatic event; all current definitions of EPCACE and/or complex PTSD mandate that criteria is only met if the person did not experience the reported personality traits before the trauma. The possibility that assault leads to higher levels of personality traits that then lead to significantly higher incidence

of distress symptoms (e.g., drinking, drug use) adds an additional layer of concern to the pervasive problem of assault. This is an area of needed future research.

The acquired preparedness model (Combs & Smith, 2009; Corbin, Iwamoto, & Fromme, 2011; Settles et al., 2010; Smith & Anderson, 2001) is a person-transaction theory that suggests that personality traits lead individuals to be likely to react in specific ways to learning events, which then leads them to develop learning specific dysfunctions. In longitudinal studies, we see this being modeled as such: people who are high on negative urgency and certain expectancies (about alcohol, eating or smoking) tend to develop dysfunctions relative to those expectancies (binge drinking, binge eating and purging, or use of tobacco; Combs, Smith, Flory, Simmons & Hill, 2010b; Combs et al., 2012; Pearson et al., 2012; Settles et al., 2010). It is generally presumed that these expectancies have gradually developed over time and through experience. Perhaps a child who is high on negative urgency watches his parent drink after a bad day at work, or he sees friends at a party drink and then do things that make people laugh, or he tries a drink once or twice and likes the way it calms his nerves. This collection of experiences over time can lead to higher scores on measures of alcohol expectancies. In a similar pattern to the acquired preparedness model, we have seen cross-sectionally (Combs, Jordan & Smith, 2013) and now longitudinally that personality interacts with sexual assault to predict different behaviors. The difference is that sexual assault is not a behaviorally-specific set of expectancies, and rather than developing over time, it is a discrete and observable event. However, it is possible that it acts as an acute and severe traumatic learning experience, predisposing women to develop symptomatology related to their personality traits (internalizing or externalizing). Perhaps sexual assault acts as a spark to

the already present tinder of a personality disposition to either externalizing or internalizing behavior.

As described before, the two highest predictors of victimization are prior victimization and substance use (Gidycz, Coble, Latham, & Layman, 1993; Ullman, Nadjowski and Fillipas, 2009; White & Humphrey, 1997). This data shows us that, for some women, victimization leads to increased and more varied drug and alcohol use, which could potentially lead to re-victimization, particularly during the transition from adolescence into college (Parks, Romosz, Bradizza, & Hsieh, 2008). Personality could thus be an important component of post-assault treatment, especially in an attempt to prevent re-victimization and also in light of the evidence that for those low on certain personality traits, assault increases the level of those traits.

This study may help clarify which women are likely to respond to sexual assault victimization with increased externalizing behaviors, in particular substance abuse, and which are likely to respond with symptoms of internalizing dysfunction. There are empirically supported interventions that reduce individuals' risk for engaging in distress-driven rash action (Linehan, 1993; Zapolski et al., 2010) and their risk for engaging in substance abuse (Marlatt, Baer, Kivlahan, Dimeff, Larimer, Quigley, et al., 1998). There are other interventions most effective for internalizing expressions of distress (Chambless & Ollendick, 2001, Hayes, Strosahl, & Wilson, 1999). A clearer understanding of the differences between the two types of responses to trauma can facilitate choice of effective treatment, and developing an empirically supported combination of personality-driven treatments and standard exposure-type trauma treatments could be very beneficial and

could potentially reduce the rate of re-victimization (Angelo, Miller, Zoellner, & Feeny, 2008).

This study was not without limitations. A major limitation is the rate of retention, though missing participants did not vary from retained participants on study variables and retention rates for longitudinal sexual assault studies tend to be lower than others (Campbell et al., 2011). It is possible that the sensitive nature of the study caused certain individuals to prefer not to continue. It is also true that we changed the incentive (from a raffle for a large prize to a guaranteed smaller prize); perhaps this affected the willingness of students to participate. Second, the longitudinal period of one academic year may not have been long enough to see more maladaptive outcomes develop. In particular, it may not have been long enough to see the impact of personality, assault and behavior on re-victimization. Third, all data were collected by self-report questionnaire using a web-based format; there was thus no opportunity to clarify questions or responses. However, confidential self-report is likely the most effective method for obtaining data of this sensitive nature because women may be more likely to under-report sexual assaults in person (Ongena & Wil Dijkstra, 2007), and questionnaire data is very reliable and often more so than interview data (Testa, Livingston, & VanZile-Tamsen, 2005). Finally, the sample is made up of predominantly white college women, which limits the generalizability of the findings.

Sexual assault is an issue that looms large in our society and is of particular concern for young women leaving home and starting college, many of whom are on their own for the first time. This study followed a population of women from the month before they began college through to the end of their freshman year; this is a time when drinking

is considered normative, experimentation with drug use occurs, and symptoms of anxiety and depression are often ignored. For some women, these problems become important only after an assault occurs, and by moving towards a better understanding of the different mechanisms of post-assault risk for different women, we can move toward preventing maladaptive outcomes.

#### Footnotes

1. Though we had data on sexual assault in April, we chose not to include this month in our measure of occurrence of sexual assault across the first year of college as we intended to predict our outcome behaviors during the month of April.
2. We repeated all analyses with just those women who had never been assaulted prior to beginning their freshman year of college. The results were unchanged for the prediction of clinical anxiety and depression and of drug use. In the prediction of drinking frequency and quantity, the interaction term was no longer significant.

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- Zapolski, T.C.B., Stairs, A.M., Settles, R.F., Combs, J.L., & Smith, G.T. (2010). The measurement of dispositions to rash action in children. *Assessment*, 17, 116-125. Doi: 10.1177/1073191109351372

## JESSICA L. COMBS, M.S.

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### EDUCATION

- 2009      **M.S., Clinical Psychology**  
University of Kentucky, Lexington, KY  
*Thesis Title:* Describing psychopathology in terms of general and specific dimensions of functioning.  
*Thesis Chair/Advisor:* Gregory T. Smith, Ph.D.
- 2007      **B.A., Psychology (Summa Cum Laude)**  
Emory University  
Atlanta, GA  
*Thesis Title:* The assortative mating theory and psychopathy: Do birds of a psychopathic feather flock together?  
*Thesis Chair/Advisor:* Scott O. Lilienfeld, Ph.D.

### RESEARCH GRANTS RECEIVED

- 2012      Principal Investigator  
Pre-doctoral Ruth L. Kirchstein National Research Service Award (NRSA), National Institutes of Alcohol and Alcoholism, (F31AA020767-01A1). 2012-2014. Trauma, Personality and Behavior. Direct costs: \$66,032.
- Principal Investigator  
UK Center for Research on Violence Against Women  
Cralle-Day Young Scholars Program. 2012-2013. Trauma, Personality and Behavior. Direct costs: \$25,000.

### HONORS AND AWARDS

- 2014      University of Kentucky Nietzel Award to Outstanding Graduating Student
- 2012      University of Kentucky Dissertation Year Fellowship  
Center for Research on Violence Against Women Mary Byron Fellowship

Invited interviewee for “Interview with the Dean” online video series on important academic research: First graduate student chosen for publicized interview with Dean of College of Arts and Sciences about grant-funded project on trauma

- 2011 University of Kentucky Scientist-Practitioner Award  
University of Kentucky Excellence in Clinical Experience Award
- 2010 University of Kentucky Presidential Fellowship
- 2007 University of Kentucky Daniel R Reedy Quality Achievement Fellowship  
-2010
- 2007 University of Kentucky Graduate Fellowship

#### PEER-REVIEWED PUBLICATIONS

1. **Combs, J.L.**, Jordan, C., & Smith, G.T. (in press). The integration of personality and sexual assault to predict maladaptive internalizing and externalizing outcomes. *Psychological Trauma: Theory, Research, Practice and Policy*.
2. Jordan, C., **Combs, J.L.**, & Smith, G.T. (in press). Academic performance and victimization. *Trauma, Violence, and Abuse: A Review Journal*.
3. Spillane, N.S., **Combs, J.L.**, Kahler, C., Smith, G.T. (in press). Emotion-based impulsivity, smoking expectancies, and vulnerability to nicotine dependence in college students. *Addiction Research and Theory*.
4. **Combs, J.L.**, Pearson, C.M., Zapolski, T.C.B. & Smith, G.T. (2013). Pre-adolescent disordered eating predicts subsequent dysfunction. *Journal of Pediatric Psychology, 38*, 41-49.
5. Pearson, C.M., **Combs, J.L.**, Zapolski, T.C.B., & Smith, G.T. (2012). A longitudinal examination of the acquired preparedness model for binge eating in children. *Journal of Abnormal Psychology, 121*, 707-718.

6. **Combs, J.L.**, Spillane, N.S., Caudill, L., Stark, B., & Smith, G.T. (2012). The Acquired preparedness risk model applied to smoking in 5<sup>th</sup> grade children. *Addictive Behaviors, 37*, 331-334.
7. Settles, R. E., Fischer, S., Cyders, M. A., **Combs, J. L.**, Gunn, R. L., & Smith, G. T. (2012). Negative urgency: A personality predictor of externalizing behavior characterized by neuroticism, low conscientiousness, and disagreeableness. *Journal of Abnormal Psychology, 121*, 160-172.
8. Stairs, A. M., Smith, G. T., Zapolski, T. C. B., **Combs, J. L.**, & Settles, R. E. (2012). Clarifying the construct of perfectionism. *Assessment, 19*, 246-66.
9. **Combs, J. L.**, Smith, G. T., & Simmons, J. R. (2011). Distinctions between two expectancies in the prediction of maladaptive eating behavior. *Personality and Individual Differences, 50*, 25-30.
10. **Combs, J. L.**, Pearson, C. M., & Smith, G. T. (2011). A risk model for pre-adolescent disordered eating. *The International Journal of Eating Disorders, 44*, 596-604.
11. Pearson, C. M., **Combs, J. L.**, & Smith, G. T. (2010). A risk model for disordered eating in late elementary school boys. *Psychology of Addictive Behaviors, 24*, 696-704.
12. Cyders, M. A., Zapolski, T. C. B., **Combs, J. L.**, Fried, R. E., Fillmore. M. S., & Smith, G. T. (2010). Experimental effect of positive urgency on negative outcomes from risk taking and on increased alcohol consumption. *Psychology of Addictive Behaviors, 24*, 367-375.
13. **Combs, J.**, Smith, G. T., Flory, K., Simmons, J. R., & Hill, K. K. (2010). The acquired preparedness model of risk for bulimic symptom development. *Psychology of Addictive Behaviors, 24*, 475-486.
14. Zapolski, T. C. B., Stairs, A. M., Settles, R. F., **Combs, J. L.**, & Smith, G. T. (2010). The measurement of dispositions to rash action in children. *Assessment, 17*, 116-125.

## BOOK CHAPTERS

1. **Combs, J. L., & Smith, G. T.** (in press). Comorbidity of impulsivity-related disorders as an artifact of common personality structure. In M. A. Cyders (Ed.), *The Psychology of Impulsivity*. New York: Nova Science Publishers.
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