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A Laboratory Examination of Maladaptive Coping
for Sexually Traumatized Women

by

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To my mother and sister:

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A Laboratory Examination of Maladaptive Coping for Sexually Traumatized Women

Dissertation Abstract—Idaho State University (2018)

Sexual violence against women is highly prevalent on college campuses. Survivors of sexual violence often engage in coping strategies to alleviate distress associated with the event. One such coping strategy is risky sexual behavior, which can exacerbate rather than reduce posttraumatic distress. There is currently a dearth in the literature as to the underlying mechanisms that drive the relationship between sexual trauma exposure and risky sexual behavior. The present study used a laboratory-behavioral sexual discounting task to measure sexual risk-taking behavior following experiences of positive or negative affect and an emotion suppression experimental manipulation. Sexually active adult female undergraduates ($N = 175$) completed a self-report measure of sexually traumatic experiences, a self-report measure of affective experiences, an autobiographical recall task, and a delay discounting task for hypothetical sexual outcomes. Half of the participants ($N = 87$) were also asked to suppress their emotional response to the autobiographical recall task. Findings indicated that sexual traumatization had a significant main effect on risky sexual behavior, but affective condition and emotion suppression exhibited no significant relationships with delay discounting for risky sex. These findings suggest other psychosocial factors may underlie the relationship between sexual trauma exposure and risky sexual behavior, but further research is warranted.

Key Words: sexual assault, sexual trauma, sexual discounting, risky sexual behavior, positive affect, negative affect, emotion suppression

A Laboratory Examination of Maladaptive Coping for Sexually Traumatized Women

Sexual violence is defined as, “any sexual act, attempt to obtain a sexual act...or acts to traffic women’s sexuality, using coercion, threats of harm or physical force, by any person regardless of the relationship to the victim” (Jewkes, Garcia-Moren, & Sen, 2002, p. 149). Sexual violence also includes alcohol/drug facilitated or forced penetration, unwanted penetration without physical coercion, deliberate sexual touching, or non-contact sexual acts (Basile & Saltzman, 2002). Sexual assault also can consist of verbally coercive sexual experiences characterized by begging, manipulating, pressuring, or threatening some sort of negative consequence (Basile, 1999). The term sexual violence is often used interchangeably with adult sexual assault, sexual trauma, rape, or child sexual abuse (CSA).

Sexual assault is perpetrated against women primarily, with lifetime prevalence rates between 13% and 25%. By contrast, the prevalence of sexual violence against men is between 0.6% and 7.2% (Kilpatrick, Saunders, Veronen, Best, & Von, 1987; Kilpatrick & Seymour, 1992; Koss & Dinero, 1989; Krebs, Lindquist, Warner, Fisher, & Martin, 2007; Martin, Rosen, Duran, Stretch, & Knudson, 1998; Smith et al., 2017; Sorenson, Stein, Siegel, Golding, & Burnam, 1987; Tjaden & Thoennes, 1998). Sexual violence is highly prevalent on college campuses; one in five women report at least one incident of completed rape in their lifetime, with symptoms of posttraumatic stress disorder (PTSD) occurring in 30% of women up to nine months after the traumatic event (Daigle, Fisher, & Cullen, 2008; Douglas et al., 1997; Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992). However, prevalence rates may be even higher as these women are highly unlikely to report sexual assault or other forms of victimization (Fisher, Daigle, Cullen, & Turner, 2003; Kilpatrick, Resnick, Ruggiero, Conoscenti, & McCauley, 2007; Sloan, Fisher, & Cullen, 1997). Once in college, a woman’s risk of alcohol-

involved or incapacitated sexual assault increases relative to the rate of forcible sexual assault (Lawyer, Resnick, Bakanic, Burkett, & Kilpatrick, 2010; Krebs, Lindquist, Warner, Fisher, & Martin, 2009). What's more, many (14% to 26%) college women that are sexually assaulted on campus report repeated victimization over the course of an academic year (Daigle et al., 2008). Perpetrators of coercive sexual assault are most likely to be acquaintances rather than strangers, as this type of assault often occurs within romantic relationships and dating situations (Cleveland, Koss, & Lyons, 1999). According to the National Crime Victimization Survey, almost 80% of reported sexual assaults on college campuses were perpetrated by acquaintances of the victim (Baum & Klaus, 2005).

A history of CSA is a strong predictor of adult sexual assault (Gidycz, Coble, Latham, & Layman, 1993; Gidycz, Hanson, & Layman, 1995; Koss & Dinero, 1989; Messman & Long, 1996). Women with a history of CSA and adult sexual assault are significantly more likely to be revictimized in the following year than women with only a history of adult sexual assault (Ullman, Najdowski, & Filipas, 2009). Irrespective of underlying mediating mechanisms, there is meta-analytic evidence within the revictimization literature demonstrating an overall effect size of .59 in the significant relationship between CSA and sexual assault as an adult (Roodman & Clum, 2001). It is therefore important to consider lifetime incidents of sexual victimization while conducting research with adult sexual assault survivors as revictimization rates tend to be extraordinarily high.

Sexual Violence Outcomes

Sexual assault victimization is associated with a wide range of negative psychological consequences including post-traumatic stress disorder (PTSD) symptoms (e.g., Brown, Testa, & Messman-Moore, 2009; Najdowski & Ullman, 2009; Ullman, Filipas, Townsend, & Starzynski,

2007), depressive symptoms (e.g., Coker et al., 2002; Golding, 1999) and substance use (e.g., Kaysen, Neighbors, Martell, Fossos & Larimer, 2006; Walsh, Latzman, & Latzman, 2014). Female college sexual assault survivors are also significantly more likely than non-sexually traumatized women to experience poor overall psychopathology and adjustment (Aosved & Long, 2005; Archambeau et al., 2010). PTSD is one of the most common pathological responses to sexual victimization, and is a risk factor for adult revictimization for women with a history of CSA (Frazier et al., 1997; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993; Ullman et al., 2009).

In a large national sample of women (N = 4,008), only 26% of those who had experienced any traumatic event (e.g., work-related accident, natural disaster, serious injury) met criteria for lifetime PTSD (Resnick et al., 1993). In comparison, Frazier et al. (1997) found that almost 60% of women in a representative sample of victims of sexual assault met criteria for lifetime PTSD; these women reported that sexual assault was the worst traumatic event that they had experienced. Further, compared to other types of trauma exposure, prevalence of PTSD according to the DSM-5 is highest among victims of interpersonal violence (Kilpatrick et al., 2013). Potential risk factors for the development of PTSD include previous traumatic experiences, minimal or no social support, peritraumatic responses, adaptive or maladaptive coping strategies, and previous psychopathology such as anxiety and mood disorders (DiGangi et al., 2013).

Interpersonal victimization may have an effect on emotional experiences, cognitive biases, and negative beliefs about the individual, others, and the world in general. These beliefs usually entail pervasive self-blame, helplessness, low self-worth, and the view of the world as a dangerous, hostile place (Janoff-Bulman, 1992; McCann & Pearlman, 1990). College sexual

assault victims tend to report lower amounts of positive affect and lowered ability to experience positive emotions than do nonvictims (Harned, 2001). Further, negative self-perceptions are associated with PTSD severity (Foa & Rauch, 2004; Moser, Hajcak, Simons, & Foa, 2007) as is lack of perceived control. Thus, maladaptive cognitive beliefs, and perhaps even emotional experiences, can increase vulnerability for the development of psychological distress and posttraumatic disorder symptoms.

Sexual Violence Exposure and Coping

When confronted with a stressful situation, individuals tend to use three different types of coping strategies: problem-focused (i.e., the individual attempts to address the situation that is creating distress), avoidant (i.e., the individual engages in behavior to avoid the situation or related stress), or emotion-focused, (i.e., the individual tries to decrease or control the emotional distress associated with the situation) (Zeidner & Endler, 1996). Traumatized individuals sometimes engage in maladaptive coping strategies, such as avoidant coping, in attempts to manage overwhelming distress. Avoidant coping strategies are used to relieve distress without confronting the origin of the distress itself (Ullman, Peter-Hagene, & Relyea, 2014) and are associated with increased risk of developing posttraumatic psychopathology following exposure to traumatic events (e.g., Benotsch et al., 2000; Mellman, David, Bustamante, Fins, & Esposito, 2001). In particular, avoidant coping significantly predicts PTSD symptoms at two different time points among survivors of interpersonal violence--the first within a month of the index trauma and the second at follow-up one year later (Krause, Kaltman, Goodman, & Dutton, 2008). Thus, avoidant coping behavior tends to be maladaptive as it increases vulnerability for developing long-term psychological distress. These behaviors are also described as tension reduction behaviors, in that they soothe, distract, and/or reduce debilitating negative emotionality

associated with the traumatic event (Briere, 1992, 2001). One common maladaptive coping behavior following sexual trauma is risky sexual behavior.

Risky Sexual Behavior & Sexual Victimization. Risky sexual behavior can include increased promiscuity, sexual intercourse without a condom, and early sexual activity (Beadnell et al., 2005; Levy, Sherritt, Gabrielli, Shrier, & Knight, 2009). These behaviors increase risk for negative health outcomes, such as sexually transmitted infections, HIV/AIDS, and unexpected pregnancy (Bryan, Schmiede, & Magnan, 2012). A large body of research draws a connection between sexual victimization in childhood and risky sexual behavior in adulthood. CSA experiences are associated with the likelihood of engaging in sexual activity on the first date or with a stranger (Molitor, Ruiz, Klausner, & McFarland, 2000; Walker et al., 1999). Women with a history of CSA and/or adolescent sexual victimization also have a higher number of consensual sexual partners, reduced use of condoms during intercourse, a higher incidence of sexual intercourse with strangers, increased pregnancies during adolescence, and are more likely to be a younger age at the time of first consensual sexual intercourse (e.g., Fergusson, Horwood, & Lynskey, 1997; Gidycz et al., 1995; Miller, Monson, & Norton, 1995; Noll, Trickett, & Putnam, 2003; Rodriguez-Srednicki, 2001; Siegel & Williams, 2003) than women without CSA histories.

Adult sexual trauma is also related to risky sexual behavior, with multiple assaults associated with higher levels of risk behaviors than single assaults, and risky behavior is significantly higher in sexual and physical assault groups than non-victim groups with sexual traumatization as the only significant predictor of risky sexual behavior (Davis, Combs-Lane, & Jackson, 2002). Green et al. (2005) found that female college students exposed to a single sexual assault incident tend to report significantly more risky sexual behavior than those that who have experienced no trauma, a physical trauma, or a non-interpersonal trauma (i.e., traumatic loss).

Thus, even one incident of sexual victimization is associated with an increased likelihood of risky sexual behavior in comparison to non-traumatized control groups and other forms of trauma including physical assault.

Risky Sexual Behavior as Avoidant Coping. Polusny and Follette (1995) theorize that risky sexual behavior may be a form of avoidant coping in which behavioral strategies are used to avoid and/or reduce negative internal emotional experiences following trauma, including re-experiencing and numbing symptoms. Emotional avoidance is a process that entails disproportionately high negative evaluations of unpleasant internal experiences (e.g., intrusive thoughts, dissociative flashbacks), an unwillingness to endure these experiences, and efforts to reduce, control, numb, or escape from them (Polusny & Follette).

Risky sexual behavior also can be understood as avoidant coping perpetuated by the temporary alleviation or suppression of aversive posttraumatic distress and subsequent relief (Polusny & Follette, 1995). Briere et al. (1993, 2001) assert that risky sexual behavior is likewise a form of tension reduction used to regulate distressing internal experiences associated with sexual victimization when internal regulation capacities are overwhelmed. Thus, risky sexual behavior may be a behavioral avoidant coping strategy that is negatively reinforced by the short-term reduction of distress despite long-term posttraumatic difficulties and increased risk of revictimization (e.g., Livingston, Testa, & VanZile-Tamsen, 2007) and/or other negative health outcomes, such as unwanted pregnancy or sexually transmitted infections (Bryan et al., 2012; Centers for Disease Control and Prevention, 2008)

Sexual Violence Exposure and Emotion Regulation

One potential psychological mechanism that may underlie the relationship between sexual trauma and maladaptive coping strategies is emotion regulation. In order to navigate the

arousing emotions associated with every day events, people often employ strategies to maintain normal psychosocial functioning. Adaptive emotion regulation strategies typically result in positive effects such as diminished influence of negative emotions, increased resilience during periods of intense stress, and the support of personal growth (Bonanno, 2004). Maladaptive emotion regulation strategies, conversely, can serve as etiological and maintenance factors for psychopathology such as depression and anxiety disorders (Gross & Muñoz, 1995; Helbig-Lang, Rusch, & Lincoln, 2015; Moore, Zoellner, & Mollenholt, 2008). Emotion regulation difficulties include maladaptive emotional patterns such as a lack of emotional awareness and clarity, resistance to accept one's emotions, emotion suppression, and issues with managing one's behavior when experiencing high amounts of emotional distress (Gatz & Roemer, 2004).

Sexual victimization is associated with a range of emotion regulation problems, including increased difficulty identifying and labeling emotions (Zeitlin, McNally, & Cassiday, 1993), nonacceptance of emotions, and lack of emotional awareness or clarity (Walsh, DiLillo, & Scalora, 2011). These emotion dysregulation tendencies may perpetuate risk for future revictimization, as engaging in substance abuse or sexual promiscuity to alleviate negative affect may increase the risk of potential victimization by men seeking vulnerable victims (Grayson & Nolen-Hoeksema, 2005; Orcutt, Cooper, & Garcia, 2005).

Emotion Regulation and Impulsivity. Emotional regulation also appears to be tied to impulsivity. Ceschi, Billieux, Hearn, Furst, and Van der Linden (2014) found traumatized participants with a strong propensity for impulsivity tend to use more maladaptive emotional regulation strategies than other participants. Emotion regulation also mediated the relationship between different facets of impulsivity in this study. Poor emotion regulation strategies and impulse control problems also partially mediate the relationship between lifetime sexual

victimization and poor risk perception using a college sexual assault vignette (Walsh, DiLillo, & Messman-Moore, 2012). Filipas and Ullman (2006) found that emotion dysregulation was related to both risky sexual behavior and substance use, perhaps increasing the risk for revictimization. In fact, Messman-Moore, Walsh, and DiLillo (2010) showed that emotion dysregulation mediates the relationship between CSA and revictimization as an adult, and predicts risky sexual behavior, which then predicts revictimization in sample of college women. Thus, there appears to be a strong relationship between impulsive behaviors—including risky sexual behavior—and emotion regulation in the context of sexual assault victimization.

One aspect of emotion regulation that has received relatively little experimental study is how the experience of emotion influences health-related decisions specifically for sexual trauma survivors. There is meta-analytic evidence that positive and negative affect mediate the relationship between self-compassion and health-promoting behaviors (i.e., healthy diet, physical activity, adequate sleep, stress management) with a small effect size across eight non-clinical samples (Sirois, Kitner, & Hirsch, 2015). However, there is a dearth in the experimental literature in terms of how sexual trauma survivors' experiences of positive and negative emotion impact sexual decision-making processes. Given the relationship between impulsive behavior and emotion regulation outlined above, measures of impulsive choice may be a potential avenue of exploration to determine how emotional experiences influence risky sexual behavior for this clinical population. Numerous studies point to a significant relationship between different aspects of impulsivity and sexual risk taking, such as unsafe sexual activity, sexual infidelity, and infrequent condom use (Daugherty & Brase, 2010; Chesson et al., 2006; Johnson & Bruner, 2012; Lawyer & Mahoney, 2017; Lawyer & Schoepflin, 2013; Reimers, Maylor, Stewart, &

Chater 2009; Zapolski, Cyders, & Smith, 2007). Therefore, laboratory measures of impulsive choice may be essential in elucidating this relationship.

Delay Discounting

Delay discounting refers to devaluing an outcome or reward based on its delay (Ainslie, 1975; Green & Myerson, 2004). In general, the value of a reward diminishes as a function of how long one must wait to receive it. Individual patterns of delay discounting are often measured by establishing the subjective value of a large amount of money across a series of delays (e.g., the immediate subjective value of \$100 in a day, a week, a month etc.; Rachlin, Raineri, & Cross, 1991), but can also be determined for other non-monetary outcomes as well such as food, substance use, and sexual activity (e.g., Bickel, Odum, & Madden, 1999; Johnson & Bruner, 2012; Lawyer, et al. 2010; Lawyer & Schoepflin, 2013; Odum & Rainaud, 2003). Typically, these delay discounting procedures adjust the smaller, immediate outcome until it converges upon an indifference point for each delay. This is the point at which the participant perceives the smaller, immediate outcome and larger, delayed reward as equivalent, establishing the subjective value of the larger reward. The procedure continues until indifference points are established across a series of delays presented in ascending order, determining the subjective value of the larger outcome for each delay. Lower subjective values of delayed outcomes are indicated by a steeper ‘rate’ of delay discounting, suggesting a pattern of preference for smaller-sooner outcomes over larger-delayed outcomes, indicative of difficulty with delaying gratification.

Each participant’s rate of discounting can be calculated by applying the hyperboloid function (Green, Fry, & Myerson, 1994) ($Y = A/(1+bX)^s$) to individual indifference points using nonlinear regression. In this model, Y is the subjective value of the delayed outcome, A is the actual value of the delayed outcome, X is the delay before receiving the large outcome, b is a

free parameter representing the rate of discounting, and s represents the nonlinear scaling of time which tends to produce significantly better fits to rates of discounting than one parameter functions. In delay discounting, higher b values indicate a preference for smaller-sooner or more impulsive outcomes, and thus a steeper rate of discounting. Several behavior problems are associated with steep delay discounting, including alcohol and drug problems (e.g., Bickel & Marsch, 2001; Coffey, Gudleski, Saladin, & Brady, 2003; Dom, D'Haene, Hulstijn, & Sabbe, 2006; Mitchell, Fields, D'Esposito, & Boettiger, 2005; Petry, 2001; Vuchinich & Simpson, 1998), cigarette smoking (e.g., Bickel et al., 1999), obesity (e.g., Lawyer, Boomhower, & Rasmussen, 2015; Rasmussen, Lawyer, & Reilly, 2010), sexual risk-taking (e.g., Chesson et al., 2006; Johnson & Bruner, 2012), and gambling (e.g., Alessi & Petry, 2003).

Delay Discounting for Sexual Activity. Sexual decision-making and risk-taking can be measured with behavioral measures of impulsive choice. Using a discounting task with hypothetical erotica viewing time as the commodity, Lawyer (2008) found that the hyperbolic decay function (Mazur, 1987) fit erotica discounting well overall and that erotica users exhibited similar decision-making patterns as for financial outcomes. Lawyer, Williams, Prihodova, Rollins, and Lester (2010) extended the discounting procedure to hypothetical sexual activity and found that the hyperbolic decay function and the two-parameter hyperboloid function (Green, Fry, & Myerson, 1994) fit median indifference point data well for both money and sexual activity (Lawyer et al., 2010).

Steep rates of discounting for sexual activity would indicate that an individual prefers small amounts of sexual activity over longer—and perhaps more pleasurable—sexual activity at a later date. Delay discounting can be influenced by the nature of the commodity (i.e., domain specificity), with evidence that individuals exhibit higher rates of discounting for sexual activity

than money (e.g., Jarmolowicz, Bickel, & Gatchalian, 2013). Thus, it's crucial to use the appropriate commodity for measuring impulsive choice for that outcome, rather than attempting to apply discounting rates for money to sexual activity. For instance, higher rates of sexual discounting, but not monetary discounting, are associated with HIV sexual risk behavior and sexual promiscuity (Jarmolowicz, Lemley, Asmussen, & Reed, 2015; Johnson & Bruner, 2012). Lawyer and Schoepflin (2013) showed varying effects of domain specificity, with sexual activity discounting predicting sexual excitability, but not non-sexual outcomes or sexual inhibition. Examining impulsive choice patterns that are contingent upon the commodity (i.e., sexual activity) is therefore important to accurately reflect individuals' engagement in impulsive behavior within the context of sexual health.

However, these sexual discounting tasks do not necessarily measure risky sexual behavior as there is no implication of risk of STI, unwanted pregnancy, or other negative health-related outcomes. Johnson and Bruner (2012) developed and established a discounting procedure with clinical implications for risky sexual behavior, asking cocaine-dependent participants to indicate their likelihood of having immediate unprotected sex (i.e., without a condom right now) or delayed protected sex (i.e., with a condom in 3 hours) with specific photographed individuals judged to be sexually desirable when no condom was available right away. The authors found that participants demonstrated significantly greater discounting (i.e., preference for unprotected sex right now) for partners considered to be the most sexually desirable or least likely to have an STI versus those found least sexually attractive or most likely to have an STI (Johnson & Bruner, 2012). Risk of STI and/or unwanted pregnancy may be more indicative of risky healthy behaviors within the context of sexual activity.

Delay Discounting, Affect, & Emotion Regulation. Affective or emotional experiences can influence decision-making processes. For example, a storytelling paradigm can prime the experience of fear, which leads to decreased likelihood of engaging in risky behaviors (Lindquist & Barrett, 2008). Conversely, individuals with higher levels of depressive symptoms demonstrate lowered inhibitory control, which is associated with impulsive decisions (Moriya & Tanno, 2008). Oreg and Bayazit (2009) posit that emotion regulation biases influence decisions in that individuals experiencing positive affect attempt to maximize pleasure from their environment while individuals experiencing negative affect attempt to minimize or reduce emotional or psychological pain. Decisions made during experiences of negative affect appear to be an attempt to return to baseline or neutral affect, whereas positive affect is associated with maintaining or even maximizing pleasurable feelings.

Positive urgency--the tendency to act impulsively when experiencing positive affect—is thus likely related to maximization of pleasure (Cyders & Smith, 2007). For example, an individual who is experiencing positive emotions is likely to make impulsive decisions to maximize and perpetuate his or her positive affect, potentially engaging in risky sexual behavior despite negative long-term consequences. Indeed, the experience of positive affect predicts higher rates of delay discounting in extraverted individuals (Hirsh, Guindon, Morisano, & Peterson, 2010). Augustine, Hemenover, Larsen, and Shulman (2010) argue that negative affect, however, indicates a salient disparity from one's ideal affective state, providing a cue to engage in emotion regulation behavior, supporting the idea of negative urgency, the tendency to engage in potentially risky or impulsive behaviors while experiencing negative affect (Cyders & Smith, 2007), to alleviate distress. For example, for individuals high in neuroticism, higher negative affective reactions to negative primes (i.e., mood induction) show larger rates of discounting for

money (Augustine & Larsen, 2011). In the same study, as evidence of positive urgency, individuals low in neuroticism with higher positive affective reactions to positive primes showed higher rates of discounting for money.

However, no research to date has examined how the experiences of positive and negative affect through mood induction procedures, and subsequent emotion regulation processes, influence health-related decisions in sexual assault survivors. Although narrative paradigms are used to measure psychophysiological responses to idiosyncratic trauma cues in victims of CSA (Orr et al., 1998; Pitman et al., 1987), no study has measured positive and negative affect from these procedures within the context of impulsive sexual behavior.

With regard to emotion dysregulation, emotion suppression is an emotion regulation strategy that involves behavioral or physiological suppression of experiences of positive and negative emotions (Dan-Glauser & Gross, 2011). Gross and John (2003) found that suppression can lead to a reduction of positive emotion and higher levels of negative emotion. Moreover, Nickerson et al. (2016) found that torture survivors who engage in more state emotional suppression during exposure to trauma cues experienced higher levels of distress, especially for those with higher levels of PTSD symptoms. Interestingly, among trauma survivors without a history of torture that exhibited high levels of PTSD, higher use of emotional suppression resulted in lower levels of negative affect when exposed to these same cues. Therefore, emotional suppression can have varying effects on experiences of negative affect and distress for trauma survivors, with limited literature for the comparison of sexual assault survivors to non-sexually traumatized individuals.

Present Study

The underlying mechanisms that drive the relationship between lifetime sexual trauma exposure and risky sexual behavior remain unclear. Emotion regulation, however, may be a key mechanism through which lifetime sexual trauma exposure affects risky sexual behavior, highlighting a potential etiological factor for risk of revictimization and/or negative health outcomes (i.e., STIs, unwanted pregnancy). Further, as literature is limited on behavioral measures of risky sexual behavior, it is important to build on this model and elucidate how moment-to-moment affective experiences and associated emotion regulation processes affect the use of maladaptive coping in a controlled, laboratory setting.

The present study will address questions about emotion regulation, affect, and impulsive sexual decision-making among sexual trauma survivors. The primary goal of the study will be to examine whether the experience (or suppression) of emotion among female sexual trauma survivors in a laboratory context increases the likelihood of risky sexual decisions in comparison to non-sexually traumatized women using a laboratory analog measure. No study to date has utilized a behavioral measure of impulsive sexual decision-making to investigate risky decision-making in sexual trauma survivors while simultaneously inducing emotion dysregulation strategies. This is important as self-report measures of sexual risk-taking (e.g., the Sexual Risk Survey; Turchik & Garske, 2009) measure past sexual behavior and thus do not allow for experimental investigation regarding how contextual and mood factors as well as emotion regulation strategies influence risk behavior.

It is hypothesized that the data will support (a) a significant interaction effect of emotion suppression, affective condition, and sexual traumatization in that suppression of negative affect will significantly increase preference for risky sexual decisions among sexually traumatized

women by comparison to sexually non-traumatized women, (b) a significant main effect of affective condition in that negative affect will lead to significantly higher rates of risky sexual behavior, (c) a significant main effect of emotion suppression in that suppressing affect will lead to more sexual risk-taking, and (d) non-sexually traumatized women will demonstrate significantly less risky sexual behavior than sexually traumatized women.

Method

Participants

Participants consisted of sexually active adult female undergraduate students who identified as heterosexual ($N = 175$) from Idaho State University (ISU) ages 18 to 59 (M age = 22.47; 73.1% Caucasian, 64% in a committed relationship or married). They were either recruited through psychology courses and compensated with extra credit through the online SONA system ($N = 104$), or recruited through campus flyers and classroom visits and compensated with entry into a raffle for one of twenty \$50 gift cards ($N = 71$) with funding from an American Psychological Foundation/Council of Graduate Departments of Psychology dissertation grant. Two samples were recruited for the present study, women with a history of sexual assault ($N = 88$), and women without any history of sexual traumatization ($N = 87$).

Self-Report Measures

Demographics Questionnaire. The demographics questionnaire is an 8-item survey inquiring about age, sexual activity, ethnicity, sexuality, relationship status, religious preferences, level of education, and household income. This questionnaire was given to gather descriptive statistics on the composition of both participant groups.

Sexual Experiences Survey-Short Form Victimization (SES-SFV; Koss et al., 2007).

The SES-SFV is a 10-item self-report measure used to assess various experiences of sexual

coercion and aggression. The measure asks participants if they are the victims of acts of sexual violence. Items consist of sexual assault incidents varying in severity (e.g., “A man put his penis into my vagina, or someone inserted fingers or objects without my consent by [taking advantage of me when I was too drunk or out of it to stop what was happening] [using force, for example holding me down with their body weight, pinning my arms, or having a weapon]”) and context (e.g., “Someone had oral sex with me or made me have oral sex with them without my consent by telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn’t want to”). The SES also prompts participants to indicate the frequency of sexual traumatization as well as chronicity (i.e., before or after age 14) to examine trauma history.

The SES-SFV has good psychometric properties, with excellent construct validity found through fit statistics and evaluation of the item hierarchy (Karabatsos, 1996; Koss et al., 2007). For the purposes of this study, participants were categorized as “sexually traumatized women” if they endorsed any instance of non-consensual penetration (i.e., oral, anal, vaginal).

Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988).

The PANAS is a 20-item self-report measure used to assess the intensity of positive and negative affect. The measure contains a 10-item Likert-type scales for both positive and negative affect, and can be used to measure current and past reports of subjective affect (Hirsh et al., 2010). High internal consistency estimates have been found for this measure for both positive ($\alpha = .86-.90$) and negative affect ($\alpha = .84-.87$), with low correlations between the two subscales ($r = -.12$ to $-.23$), and good test-retest reliability (Watson et al., 1988). For the purposes of the present study, the PANAS was used to measure participant’s level of current positive and negative affect both before and after the mood induction procedure to determine if the procedure

was effective, and to determine the efficacy of the experimental manipulation of emotion suppression.

Behavioral Measure

The Sexual Discounting Task (SDT; Johnson & Bruner, 2012). The Sexual Discounting Task assesses delay discounting for sexual rewards with the use of photographs of specific hypothetical sexual partners. Based on physical appearance, participants first chose from an array of 30 male photographs of all the individuals with whom they would be willing to have casual sexual intercourse using the following verbal script (Johnson & Bruner, 2012):

“For this task, we will ask you hypothetical or pretend questions about your willingness to have sex in various situations. For the purpose of this task, please pretend that you are single and available, and that you are not cheating on anybody if you indicate you would have sex with somebody in this task. As you can see, I have laid out a lot of pictures of people. For each person, I would like you to think about how attractive that person is. Based on physical appearance alone, please think about whether each person is someone that you would consider having sex with in the right environment and if you liked the person’s personality. Please pick up the pictures of the people you would have sex with.”

Then, the participant identified the photo of the person that she would most want to have sex with based on physical appearance alone. After reading a vignette of a casual and consensual sexual encounter with the target photograph, participants completed a paper-and-pencil questionnaire with eight visual analog scale (VAS) lines, 100-mm each, with the photograph in sight. The VAS lines range from “I will definitely have sex with this person now *without* a condom” to “I will definitely wait [delay] to have sex with this person *with* a condom,” with the initial line as a 0-delay trial to determine the likelihood (0-100%) of using sexual protection if it

was immediately available. For the remaining seven VAS delay trials, the participant rated her likelihood of waiting for protected sexual intercourse after a definitive period of time when no condom was initially accessible. The delays increased in ascending order and included 0 hours, 2 minutes, 5 minutes, 15 minutes, 30 minutes, 1 hour, 3 hours, and 6 hours. The SDT has been validated in a sample of cocaine-dependent individuals and fits the hyperboloid discounting equation well (Johnson & Bruner, 2012). Sexual discounting data from this task also appears to be mainly orderly and systematic, with strong test-retest reliability over a one-week period (Johnson & Bruner, 2013).

Procedure

After completing online screening measures, all participants were assigned randomly to one of eight groups prior to participation in the study: Group 1 (sexual trauma/positive affect/suppression), Group 2 (sexual trauma/negative affect/suppression), Group 3 (sexual trauma/positive affect/no suppression), Group 4 (sexual trauma/negative affect/no suppression), Group 5 (no sexual trauma/positive affect/suppression), Group 6 (no sexual trauma/negative affect/suppression), Group 7 (no sexual trauma/positive affect/no suppression), and Group 8 (no sexual trauma/negative affect/no suppression). The procedure for the experiment applied procedures previously validated in the literature for both the mood induction and emotional suppression experimental manipulations (Augustine & Larsen, 2011; Krauth-Gruber & Ric, 2000; Westermann, Spies, Stahl, & Hesse, 1996; Zhang, Yu, & Barrett, 2014). It should be noted that autobiographical recall has demonstrated significantly greater efficiency in inducing positive (e.g., happiness, serenity) and negative (e.g., sadness, anger) affect in terms of valence and arousal than music with guided imagery (Jallais & Gilet, 2010). After providing written and verbal informed consent for their participation, participants completed the paper-and-pencil

behavioral and self-report measures in a semiprivate, screened-off section of the laboratory. They first completed the PANAS to establish baseline affect. After completion of this measure, they engaged in the mood induction procedure to evoke either positive or negative affect.

Experimental Manipulation. For the mood induction procedure, an autobiographical recall procedure was used. Autobiographical narrative sheets were provided for participants to write a sad (i.e., negative affect) or happy (i.e., positive affect) event for a period of 7 minutes. Participants in both suppression and non-suppression conditions were read the following script by a research assistant:

“For this task, we will ask you to recall one of the [happiest/saddest] moments of your life. For the purpose of this task, please think of one of the [happiest/saddest] memories from your life, and write out the event with as much detail as possible. After you finish, please take 5 minutes to re-read the memory to yourself and try to relive the experience as vividly as possible using all of your senses including visual imagery, sounds, smells, tastes, and physical sensations.”

For participants in the suppression conditions, the research assistant also read the following, derived from previous mood suppression research (Evers, Stok & de Ridder, 2010; Gross, 1998; Jenks, 2016):

“...If you have any feelings while engaging in this task, please try your best not to let those feelings show. In other words, as you remember, write, and read about one of the happiest (saddest) moments of your life, try to behave in such a way that a person watching you would not know that you were feeling anything. It’s very important to control your facial expressions and body language to make it appear as though you’re not experiencing any emotions.”

Regardless of suppression condition, participants completed the PANAS again to establish if the mood induction procedure had produced the intended changes in affect. After completion of the second PANAS, they were read instructions and practice items on the SDT before completing it as well. After participants completed this behavioral measure, the research assistant provided a debriefing statement regarding the general nature of the study along with community mental health resources.

Results

Demographic Data

Chi-square analyses and independent t-tests were conducted to determine differences between groups. No significant differences were found between sexually traumatized women and non-sexually traumatized women on measures of age, ethnicity, religion, relationship status, education, and income. In addition, no significant differences were found between the eight experimental conditions with regard to age, ethnicity, religion, relationship status, education, and income (see Table 1, and Table 2 in Appendix L).

Mood Induction

To determine if the mood induction task was effective in evoking positive and negative affect at both time points and to examine the interaction of time and sexual traumatization and time and emotion suppression, repeated measures ANOVAs were conducted for all participants. All statistical assumptions were met for these analyses. First, the data were examined for significant mean differences with regard to inducing positive affect using a 3-way repeated measures ANOVA. The within-groups factor was time, the between-groups factors were sexual traumatization and emotion suppression, and the outcome variable was positive affect score. Significant mean group differences in positive affect over time were found for all women in the

present study (Wilks' Lambda = .96, $F(1, 1710) = 6.62$, $p < .05$, $\eta_p^2 = .04$; see Figure 1), suggesting that all participants experienced significant changes in positive affect over time. The interaction effect between time, sexual trauma group, and emotion suppression was not statistically significant (Wilks' Lambda = .99, $F(1, 171) = .45$, $p = .51$, $\eta_p^2 = .003$), indicating there were no significant differences between the eight experimental conditions in changes in positive affect. Also, no significant interaction effects were found for time and sexual trauma group (Wilks' Lambda = .99, $F(1, 171) = 2.53$, $p = .60$, $\eta_p^2 = .002$), or for time and emotion suppression (Wilks' Lambda = .99, $F(1, 171) = 1.08$, $p = .30$, $\eta_p^2 = .006$). Thus, there were also no significant differences between sexually traumatized women and non-sexually traumatized women on positive affect scores, nor were there significant differences between emotion suppression and no suppression groups for positive affect changes. No post hoc comparisons were conducted for changes in positive affect due to no significant interaction effects and only two levels for the main effect of time.

Second, the data were examined for significant mean differences with regard to inducing negative affect. A 3-way repeated measures ANOVA was conducted with all statistical assumptions met; the within-groups factor was time, the between-groups factors were sexual traumatization and emotion suppression, and the outcome variable was positive affect score. Significant mean group differences in negative affect were found for all women in the present study (Wilks' Lambda = .87, $F(1, 170) = 26.57$, $p < .001$, partial eta squared = .14; see Figure 2), indicating that all participants experienced significant changes in negative affect over time. The interaction effect between time, sexual trauma group, and emotion suppression was not statistically significant for negative affect scores (Wilks' Lambda = .99, $F(1, 170) = 1.32$, $p = .25$, $\eta_p^2 = .008$), indicating there were no significant differences between the eight experimental

conditions in terms of changes in negative affect. Also, no significant interaction effects were found for time and sexual trauma group (Wilks' Lambda = .99, $F(1, 170) = 2.53$, $p = .11$, $\eta_p^2 = .02$), or for time and emotion suppression (Wilks' Lambda = .99, $F(1, 171) = .65$, $p = .42$, $\eta_p^2 = .004$). There were thus no significant differences between sexually traumatized and non-sexually traumatized women on mean negative affect change, nor were there significant differences between emotion suppression and no suppression groups for changes in negative affect. Thus, the positive and negative mood induction procedures were effective for all eight experimental conditions regardless of history of sexual trauma and emotional suppression. No post hoc comparisons were conducted for changes in negative affect due to no significant interaction effects and only two levels for the main effect of time.

Characterizing Discounting Patterns

For the present study, indifference points were defined as the proportion of the VAS line marked for the Sexual Discounting Task. Sexual discounting, the outcome variable, was quantified using area under the curve (AUC; Myerson, Green, & Warusawitharana, 2001), which provides an atheoretical index of the extent of an individual's discounting and subsequent impulsivity. AUC estimates range from 0 to 1, tend to be normally distributed, and lower AUC values indicate more impulsive choice in delay discounting. That is, for this task, a relative preference for immediate, unprotected sex.

Figures 3 and 4 show SDT group median likelihood data for the eight conditions (separated by positive and negative affect) with 2-parameter hyperboloid functions (Green et al., 1994; Johnson & Bruner, 2012; Rachlin, 1989) fit to the median data. Individual sexual discounting functions were described generally well by the hyperboloid discounting equation. The model was applied to individual and group-median indifference point data using nonlinear

regression in GraphPad Prism. Resulting R^2 values were used as indicators of how well the model fit the data (see Table 1, Figure 3, and Figure 4), with R^2 values that ranged from .77 to .95.

Orderliness of the Data. Individual patterns of responding were characterized as systematic or nonsystematic using Johnson and Bickel's (2008) algorithms. Specifically, individual datasets were characterized as nonsystematic if any indifference point was at least 0.2 higher than the previous indifference point starting with the second shortest delay, or if the first indifference point was not greater than the last indifference point by at least 0.1 (Johnson & Bickel, 2008). High rates of nonsystematic responding can reflect issues with the validity of the discounting task as an accurate measure of impulsive choice (Smith, Lawyer, & Swift, 2018).

Overall, 15 (8.6%) sexual discounting functions were nonsystematic. Of these functions, most were participants in which only a single indifference point of the eight delays was nonsystematic; one third ($n = 5$) of nonsystematic responders were sexually traumatized women that were asked to suppress positive affect (no significant differences were found between groups however). In comparison to meta-analytic data surrounding delay discounting that shows approximately 18% of participants across studies exhibit nonsystematic responding, with university samples even higher at 20.9% (Smith et al., 2018), 8.6% of the data is relatively low and indicates the majority of the participants in the present study discounted delayed condom use as expected. Based on Johnson and Bickel's (2008) recommendations, the frequency of nonsystematic responding was used only descriptively here; all participants were included in all analyses without data imputation.

Sexual Discounting Task Comparisons

First Hypothesis. A 2 X 2 X 2 factorial ANOVA was conducted to examine the effects of sexual trauma group, emotion suppression, and affective condition on SDT performance. The between-groups factors were sexual trauma group (i.e., sexual trauma or no sexual trauma), emotion suppression (i.e., suppression or no suppression), and affective condition (i.e., positive affect or negative affect), and the outcome variable was performance on the SDT (i.e., risky sexual behavior). The interaction effect between sexual trauma group, emotion suppression, and affective condition was not statistically significant, $F(1, 167) = .33, p = .56, \eta_p^2 = .002$, in that the suppression of negative affect did not have a significant effect on SDT performance among sexually traumatized women in comparison to non-sexually traumatized women (see Figure 5). No significant interaction effects were found for sexual trauma group and emotion suppression ($F(1, 167) = .07, p = .80, \eta_p^2 = .00$), sexual trauma group and affective condition ($F(1, 167) = .04, p = .84, \eta_p^2 = .000$), and emotion suppression and affective condition, $F(1, 167) = 3.47, p = .06, \eta_p^2 = .02$ (although this relationship did approach significance). Thus, the first hypothesis was not confirmed.

Second Hypothesis. No significant main effect of affective condition was found in the three-way factorial ANOVA either ($F(1, 167) = .77, p = .38$), providing no evidence for the second hypothesis (see Figure 5). Negative affect did not lead to significantly higher sexual discounting rates for any of the participants.

Third Hypothesis. There was no significant main effect of emotion suppression found in the three-way factorial ANOVA ($F(1, 167) = .84, p = .36$), disproving the third hypothesis (see Figure 5). Suppressing affect did not have a significant effect on performance on the SDT. .

Fourth Hypothesis. There was a significant main effect of sexual traumatization, however, found in three-way factorial ANOVA, $F(1, 167) = 23.27, p < .001$, with a medium effect (partial eta squared = .12), confirming our last hypothesis. Sexually traumatized women ($M = .27, SD = .32$) were significantly more likely to exhibit higher rates of sexual discounting than non-sexually traumatized women ($M = .50, SD = .31$) using AUC as the indicator of risky sexual decision-making (see Figure 6).

SDT Control Variables. There were also significant differences found between conditions for condom use when delay was not involved (i.e., the 0-delay trial; see Figure 7). A three-way MANOVA was conducted to examine mean experimental group differences in the 0-delay trial, sexual desire, and sexual interest; the between-groups factors were sexual trauma group (i.e., sexual trauma or no history of sexual trauma), emotion suppression (i.e., suppression or no suppression), and affective condition (i.e., positive affect or negative affect), and the outcome variables were likelihood of using a condom if it was immediately accessible, level of sexual desire, and level of sexual interest. All statistical assumptions were met for this analysis. A significant interaction effect of sexual trauma group, suppression, and affective condition was found on all outcome variables, Wilks' Lambda = .93, $F(3, 165) = 3.94, p < .01, \eta_p^2 = .07$. Upon further inspection, the interaction effect of sexual trauma group, suppression, and affective condition only remained significant for group mean differences on the 0-delay trial, ($F(1, 167) = 4.39, p < .05, \eta_p^2 = .03$), but was not significant for level of sexual desire ($F(1, 167) = 3.85, p = .06, \eta_p^2 = .02$) or level of sexual interest ($F(1, 167) = .06, p = .80, \eta_p^2 = .00$). Post-hoc comparisons using Tukey's HSD test were conducted for group mean differences on the 0-delay trial, which indicated that the mean score for the sexual trauma/negative affect/no suppression condition ($M = .64, SD = .28$) was significantly different from the no sexual trauma/negative

affect/suppression condition ($M = .90$, $SD = .14$). Thus, sexually traumatized women were significantly less likely to use a condom if one was readily available in the negative affect/no suppression condition (i.e., Group 4) than non-sexually traumatized women in the negative affect/suppression condition (i.e., Group 6). No other significant differences were found between groups (see Table 3 in Appendix M for comparisons of SDT control variables)

Discussion

The present study examined responding on an analog measure of risky sexual behavior following induction of positive and negative affect and emotion suppression among sexually traumatized and non-sexually traumatized women. In terms of the mood induction procedures, all women in the present study exhibited significant changes in positive and negative affect over time across all eight experimental conditions, supporting previous findings surrounding the efficacy of autobiographical recall as a form of mood induction (e.g., Augustine & Larsen, 2011; Westermann et al., 1996). No significant differences were found between these experimental conditions, between sexually traumatized and non-sexually traumatized women, or between suppression and no suppression groups in terms of affective changes from Time 1 to Time 2. Moreover, the data support that sexually traumatized women were significantly more likely to indicate a preference for risky sexual behavior than non-sexually traumatized women. These findings are consistent with several previous studies indicating that CSA and adolescent sexual victimization (e.g., Fergusson et al., 1997; Gidycz et al., 1995; Miller et al., 1995; Molitor et al., 2000; Noll et al., 2003; Quina, Harlow, Morokoff, Burkholder, & Deiter, 2000; Rodriguez-Srednicki, 2001; Siegel & Williams, 2003; Walker et al., 1999) and adult sexual assault (e.g., Davis et al., 2002; Green et al., 2005; Quina, Morokoff, Harlow, & Zurbriggen 2004; Smith, Davis, & Fricker-Elhai, 2004) are associated with risky sexual behavior. Our findings using a

behavioral measure of sexual risk-taking corroborate findings from these studies that used self-report measures of SRB.

Polusny and Follette (1995) theorize that risky sexual behavior is a form of avoidant coping that may be a strategy to avoid and/or reduce posttraumatic negative internal emotional experiences. Briere and Runtz (1993) and Briere (2001) build upon this theory, positing that risky sexual behavior is a tension reduction strategy used to regulate negative internal experiences stemming from sexual victimization experiences, particularly when internal emotion regulation strategies are overwhelmed. However, the present study did not find a significant relationship between negative affect and risky sexual behavior, nor with emotion suppression and risky sexual behavior. Contrary to our hypotheses regarding the experience and suppression of emotion and their effects on responding to the SDT, we found that neither the experience nor the suppression of emotion affected SDT performance for either group. Thus, despite the theorized impact of emotion dysregulation of negative affect, neither sexually traumatized women nor non-sexually traumatized women exhibited increased risky sexual decision-making as a maladaptive coping response.

Further, there was no significant effect of positive or negative affect, disconfirming the second hypothesis and contradicting previous studies. Lindquist and Barrett (2008) used a priming stimulus to evoke fear (i.e., describing a picture of a man appearing fearful) before prompting participants to engage in an affect induction procedure (i.e., continuous music technique; Eich, Macaulay, & Ryan, 1994) within either neutral or negative affect conditions. This procedure resulted in significantly higher rates of risk aversion on a self-report measure of hypothetical risk behaviors (e.g., frequent binge drinking, regularly riding a bike without a helmet; Lindquist & Barrett, 2008). A similar effect of emotion on risk behavior was not found

in the present study despite the mood induction procedure evoking significant changes in positive affect and negative affect for respective conditions. Perhaps the lack of a priming stimulus before the mood induction procedure restricted the effects of affective condition on the Sexual Discounting Task. It is also possible that positive and negative affect simply do not predict risky sexual behavior.

We hypothesized that induction of either positive or negative affect would result in higher rates of sexual risk-taking given previous literature surrounding positive and negative urgency (Cyders & Smith, 2007). For example, Zapolski et al. (2009) found that positive urgency significantly predicts illicit drug use and risky sexual behavior (e.g., sex without a condom, sex without birth control, number of sexual partners). Oreg and Bayazit (2009) argue that individuals often make decisions based on attempts to maximize pleasure from the environment when experiencing positive affect, and attempts are made to minimize or diminish psychological distress when experiencing negative affect. It may be that despite significant increases in positive and negative affect, these levels of affect were not sufficient to significantly influence rates of sexual risk-taking. Alternatively, it could be that the subjective value of the reinforcing effects of sexual activity was low for the majority of participants in the present study. That is, if sexual activity is not adequately reinforcing, it would not be perceived as a method for maximizing pleasure or reducing pain, potentially producing no significant relationship between affective condition and risky sexual behavior. Future research would benefit from inclusion of qualitative methods (e.g., the development of a semi-structured interview) and/or a quantitative measure such as the Sexual Desire Inventory (SDI; Spector, Carey, & Steinberg, 1996) to determine the reinforcing value of sexual activity.

Contrary to our expectations, affective suppression had no effect on risky sexual decision-making. The third hypothesis posited that emotion suppression would influence rates of delay discounting for sexual activity for sexually traumatized women within the present study. Previous studies have found that the suppression of negative emotions is ineffective in decreasing negative emotionality whereas suppressing positive emotions is effective in reducing positive affect (Gross & Levenson, 1997; Stepper & Strack, 1993; Strack, Martin, & Stepper, 1988). Gross and John (2003) found that emotion suppression can even increase negative emotions, including upsetting feelings of inauthenticity, and escalate rumination about past negative events while simultaneously decreasing positive emotion experiences and expression. Thus, it is conceivable that suppressing negative and positive affect would result in higher levels of distress, prompting coping behavior to address overwhelming negative emotions.

However, trauma exposure may complicate this relationship. Nickerson and colleagues (2016) found that torture trauma survivors who engaged in more emotion suppression during exposure to non-idiosyncratic images of interpersonal violence experienced higher levels of distress; however, non-torture trauma survivors exhibited lower levels of negative affect following emotion suppression. In addition, some researchers report that emotion dysregulation is significantly related to risky sexual behavior (e.g., Becker, Rankin, & Rickel, 1998; Filipas & Ullman, 2006). Thus, it would stand to reason that suppression would have some effect on risky sexual behavior, especially for sexually traumatized women. Although there were no significant differences in changes in negative affect across negative affect conditions, sexually traumatized women were more likely to express smaller changes in negative emotionality in the suppression condition (i.e., Group 2) than in the non-suppression condition (i.e., Group 4), and in comparison to non-sexually traumatized women in both negative affect suppression and no suppression

conditions (i.e., Group 6, Group 8). It is therefore possible that suppression reduced negative emotionality for sexually traumatized women, negating the need to engage in avoidant coping behavior in the form of sexual risk-taking.

As for the positive affect groups, emotion suppression did not result in a significant difference in the experience of positive emotions for both sexually traumatized and non-sexually traumatized women. It appears that reduced changes in suppressed positive affect in comparison to positive affect/non-suppression groups does not necessitate impulsive and unprotected sexual intercourse. The women in the present study must have either engaged in another form of coping and/or emotion regulation, or they are able to tolerate levels of negative and positive affect without the need to engage in attempts to minimize pain or maximize pleasure. It's also possible that the women in the present study simply were not actively engaged in the suppression task, and either did not attempt to suppress or ceased to maintain suppression of positive or negative affect. Without ongoing reminders throughout the study to engage in suppression or any type of perceivable negative consequences if they did not suppress, it is possible that the singular experimental prompt was not sufficient in producing functional involvement in this emotion dysregulation strategy.

The lack of a significant relationship between negative affect, emotion suppression, and risky sexual behavior may be attributed to various factors. First, it is possible that the self-report measure in the present study did not accurately represent participants' emotional experiences, particularly for sexually traumatized women. Previous studies have shown that sexual assault survivors experience difficulty in identifying and labeling emotions, acceptance of emotions, and emotional awareness (e.g., Walsh et al., 2011; Zeitlin et al., 1993). These women could have been experiencing elevated levels of negative emotion without full cognizance of their

experience (i.e., desynchronous emotional response), resulting in higher likelihood of engaging in risky sexual behavior without being reflected in the affective condition data. Desynchronous emotional responding occurs when changes in any component of the fear response that include subjective distress, physiological arousal, and behavioral avoidance (Lang, 1968) do not occur in concordance with each other (Hodgson & Rachman, 1974). In other words, it is possible for one of these components to be unusually high while the other two remain attenuated dependent on the strength and intensity of the initial fear (Allen, Allen, Austin, Waldron, & Ollendick, 2015; Hodgson & Rachman, 1974). For example, a synchronous emotional response would consist of heightened physiological arousal, high levels of subjective distress, and avoidance of feared stimuli. However, the women in the present study may have experienced desynchronous emotional responding whereby they could have heightened physiological arousal and be engaging in avoidant coping with minimal emotional awareness, manifested as low levels of subjective distress.

Gratz and Roemer (2004)'s integrative conceptualization of emotion regulation posits that it has four key components including emotional awareness and understanding, negative emotionality acceptance, the ability to engage proficiently in goal-directed behavior while restricting impulsive behaviors during experiences of negative emotions, and the ability to flexibly engage in context-specific emotion regulation strategies. Thus, emotion regulation focuses on addressing all three aspects of the emotional response according to this theory, as it appears this process requires awareness of both subjective distress and physiological arousal while simultaneously refraining from avoidant coping behavior. Due to this all-encompassing focus of emotion regulation, psychophysiological measures may be highly beneficial in future research to decipher the extent of the emotional response and corroborate synchronous or

desynchronous changes in behavioral responses to the mood induction in conjunction with emotion regulation processes.

A second potential explanation is that trauma-related factors other than affective experience and suppression might explain the trauma-SRB relationship. The self-trauma model (Briere, 1996) suggests that CSA can lead to risky sexual behavior in adulthood through a variety of avenues, including chaotic and conflictual relationships, substance use, PTSD symptoms, and cognitive distortions of oneself, other individuals, and the future. None of these factors were measured in this study, but warrant attention in future related research.

Lastly, it is possible that sexually traumatic experiences may increase generalized impulsivity, resulting in a higher likelihood to engage in risky sexual behavior. Mahoney and Lawyer (2017) found that delay and probability discounting predict risky sexual behavior, which has been previously supported by other studies (e.g., Chesson et al., 2006; Johnson & Bruner, 2012). Further, Moore et al. (2017) found that impulsivity was significantly related to risky sexual behavior with sexual potentially traumatic events significantly mediating this relationship. Trauma-related intrusions (e.g., memories, flashbacks) and alcohol problems also mediate the relationship between childhood sexual and physical abuse and risky sexual behavior (e.g., sex with casual partners, unprotected sex) as an adult (Walsh et al., 2014). Thus, both generalized impulsivity and sexual trauma are related to risky sexual behavior, and generalized impulsivity may be operating through sexual trauma. Rather than positive or negative urgency (i.e., state impulsivity) driving engagement in risky sexual behavior, the underlying factor may be trait impulsivity that is exacerbated by experiences of sexual trauma.

Future studies should explicitly examine the role of other mechanisms in this process. For instance, specific facets of emotion regulation such as emotional clarity, emotional awareness,

impulse control, or the ability to participate in goal-directed behavior when feeling distressed may all be relevant as there could be a spectrum of emotion regulation dispositions that impact sexual decision-making. Further, the use of different coping strategies could be important, as some sexual trauma survivors may be more likely to engage in avoidant coping in comparison to others; there could be nuances within risky sexual behavior as well as interactions with other forms of avoidant coping such as substance use. Incapacitated, forcible, and drug-facilitated rape are associated with past-year binge drinking, marijuana use, and other illicit drug use (McCauley, Ruggiero, Resnick, & Kilpatrick, 2010). Thus, experimental studies that administer controlled doses of alcohol or other illicit substances before prompting sexual trauma survivors and a comparison group to complete a sexual discounting task may highlight the influence of coping behaviors in tandem; it's unlikely that trauma survivors only use one coping strategy within their recovery. Peritraumatic factors may also be important as perceived life threat, the use of a weapon, the identity of the perpetrator, and/or the severity of assault may differentially predict the use of risky sexual behavior as a coping response. Lastly, prospective studies that compare trait impulsivity before and after sexual trauma exposure may illuminate the temporal sequence of trauma and impulsivity and their effect on risky sexual decision-making. Future research is thus warranted to understand risky sexual behavior as a potential coping mechanism for sexually traumatized women, especially considering potential variability in generalized impulsivity among female sexual assault survivors.

It is also important to note that sexually traumatized women were significantly less likely to use a condom if it was readily available if they experienced negative affect without being prompted to suppress their emotional experience in comparison to non-sexually traumatized women that suppressed their negative affective experience. Overall, women across all

experimental conditions were more likely to indicate that they would choose protected sex now (i.e., with a condom) than unprotected sex now (i.e., without a condom), suggesting that immediate protected sex is more reinforcing (or less punishing) than immediate risky sexual behavior in the present study. However, as the delay increases, all women discounted condom use at increasing rates with each successive delay, with sexually traumatized women significantly more likely to choose immediate unprotected sex than non-sexually traumatized women. This suggests that the perceived reinforcement of protected sex is devalued as the delay to its receipt increases, and the risky sexual option becomes more reinforcing, consistent with previous studies (e.g., Johnson & Bruner, 2012; Johnson & Bruner, 2013). It's also possible that participants' insensitivity to delayed adverse sexual consequences (e.g., unwanted pregnancy, STI) increases as the delay to protected sex increases (Bancroft et al., 2009; Lawyer et al., 2010), resulting in a tendency to choose immediate reinforcement.

Some limitations of this study should be noted. First, the mood induction procedure may have limited the data in that it asked participants to write about "one of the happiest/saddest memories" of their lives. Autobiographical recall is more efficient for inducing positive and negative affect with regard to valence and arousal than music with guided imagery (Jallais & Gilet, 2010). However, asking sexually traumatized participants to write about "the worst or most traumatic experience" of their lives instead of one of the saddest may have elicited negative emotionality associated with their sexual trauma history. This difference could perhaps increase the saliency of the negative affective condition and produce robust results in terms of risky sexual behavior. Second, it is worth noting that participants were only prompted once to suppress their emotional reactions. Gross (1998) suggests that expressive inhibition (i.e., suppression) is a form of manipulating one's emotional response that involves constantly inhibiting emotional

expression. Replicating this study with ongoing reminders to suppress emotional reactions may produce different findings in terms of both affective experiences and risky sexual behavior.

Third, the suppression prompt asked participants to suppress any overt, external signs of emotion including their body language and facial expressions. This prompt likely could be strengthened with the addition of instructions to suppress covert, internal experiences of emotional arousal in an attempt to prompt effective suppression of emotional expression. Adding a self-report measure of participants' active engagement in the suppression task also could be beneficial as a manipulation check of these experimental conditions. Lastly, future studies could benefit from including a self-report measure of positive and negative urgency to support findings surrounding the experimental effect of affective condition on risky sexual behavior.

Although the present study has presented substantive evidence to support the relationship between sexual traumatization and risky sexual behavior, future studies should further examine this phenomenon given the lack of significant effects of affective condition and emotion suppression. Considering the potential for negative health sequelae of risky sexual behavior (i.e., STIs, unwanted pregnancy; Zietsch, Verweij, Bailey, Wright, and Martin, 2010) for the general population, and the increased risk of revictimization for sexually traumatized women (e.g., Messman-Moore et al., 2010), it is imperative to elucidate underlying factors that drive this relationship. For example, self-reported sexual risk behavior, substance use, PTSD symptoms, emotion dysregulation difficulties, and social factors (e.g., negative social reactions to sexual assault disclosure) may differentially impact risky sexual behavior for sexually traumatized women. Targeting these factors and others through the development of evidence-based therapeutic interventions and public health initiatives may substantially prevent the likelihood of this behavior and hopefully improve long-term health outcomes of sexual trauma survivors.

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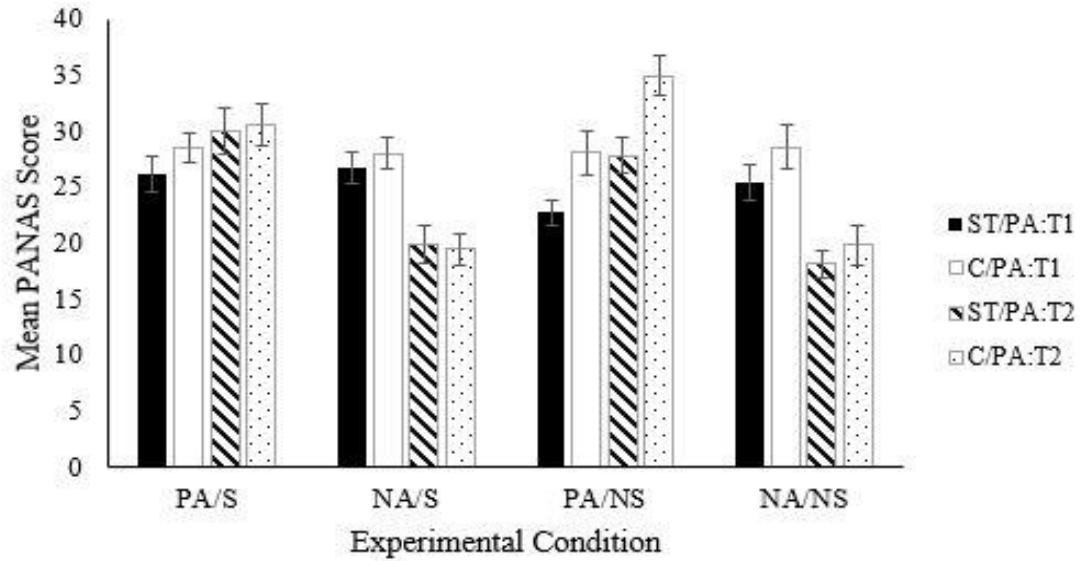
Table 1

Descriptives for demographic variables and SDT

	Sexually Traumatized Women				Non-Sexually Traumatized Women			
	<u>PA/S</u>	<u>NA/S</u>	<u>PA/NS</u>	<u>NA/NS</u>	<u>PA/S</u>	<u>NA/S</u>	<u>PA/NS</u>	<u>NA/NS</u>
Age: <i>M (SD)</i>	21.38 (3.76)	23.18 (9.69)	22.91 (7.53)	23.82 (7.56)	20.18 (2.44)	25 (8.17)	22.23 (5.39)	21 (3.60)
Ethnicity:								
<i>N (%)</i> Caucasian	14 (66.7%)	18 (81.8%)	17 (77.3%)	14 (63.6%)	17 (77.3%)	14 (63.6%)	16 (72.7%)	18 (81.8%)
Relationship Status:								
<i>N (%)</i>								
Single	3 (14.3%)	8 (36.4%)	9 (40.9%)	10 (45.5%)	8 (36.4%)	6 (27.3%)	7 (31.8%)	5 (22.7%)
Committed	16 (76.1%)	14 (63.6%)	13 (59.1%)	12 (54.5%)	14 (63.7%)	14 (63.7%)	14 (63.7%)	15 (68.1%)
Years of Education: <i>M (SD)</i>	13.76 (2.05)	13.55 (1.87)	13.18 (1.40)	13.45 (1.57)	13.27 (1.12)	12.73 (1.03)	13.36 (1.29)	12.91 (1.23)
SDT Hyperboloid R^2 <i>M (SE)</i>	.87 (.07)	.77 (.06)	.83 (.06)	.82 (.07)	.95 (.05)	.95 (.04)	.93 (.06)	.93 (.04)

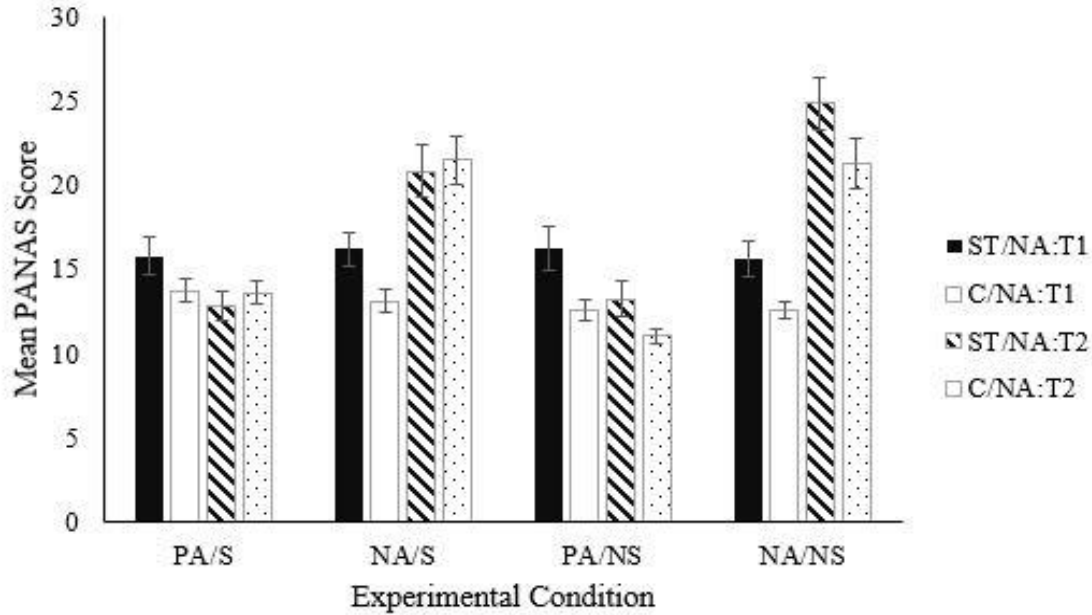
Note: SDT = Sexual Discounting Task; PA/S = Positive Affect/Suppression; NA/S = Negative Affect/Suppression; PA/NS = Positive Affect/No Suppression; NA/NS = Negative Affect/No Suppression. See Appendix L for the complete demographic table.

Figure 1. *Mean PANAS positive affect score comparisons for all experimental conditions.*



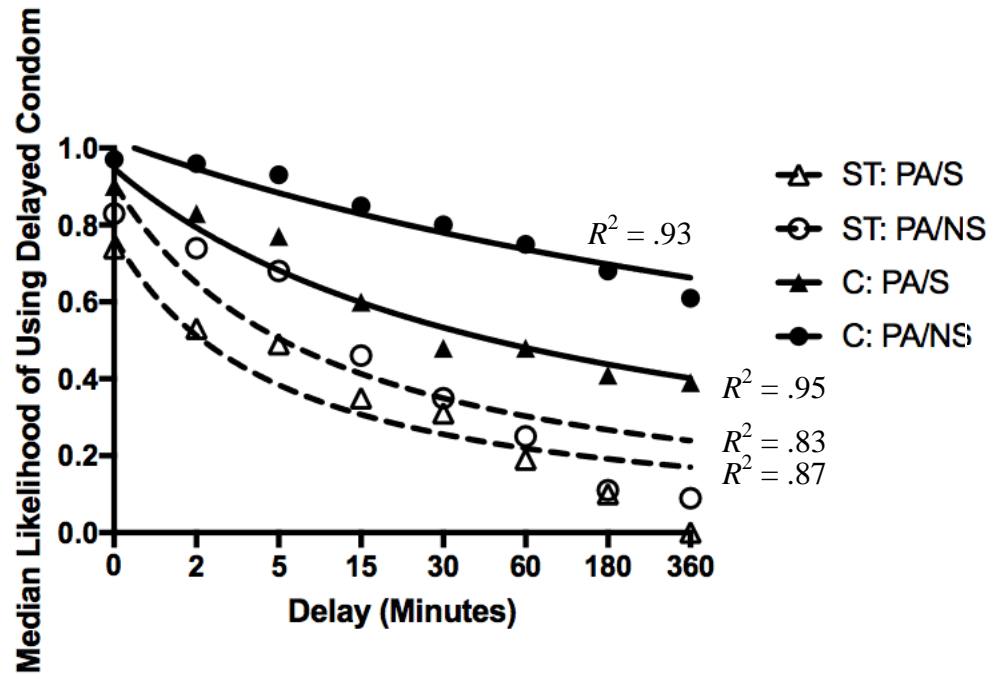
Note: PA/S = Positive Affect/Suppression; NA/S = Negative Affect/Suppression; PA/NS = Positive Affect/No Suppression; NA/NS = Negative Affect/No Suppression; ST/PA:T1 = Sexually Traumatized/Positive Affect at Time 1; C/PA:T1 = Control/Positive Affect at Time 1; ST/PA:T2 = Sexually Traumatized/Positive Affect at Time 2; C/PA:T2 = Control/Positive Affect at Time 2.

Figure 2. *Mean PANAS negative affect score comparisons for all experimental conditions.*



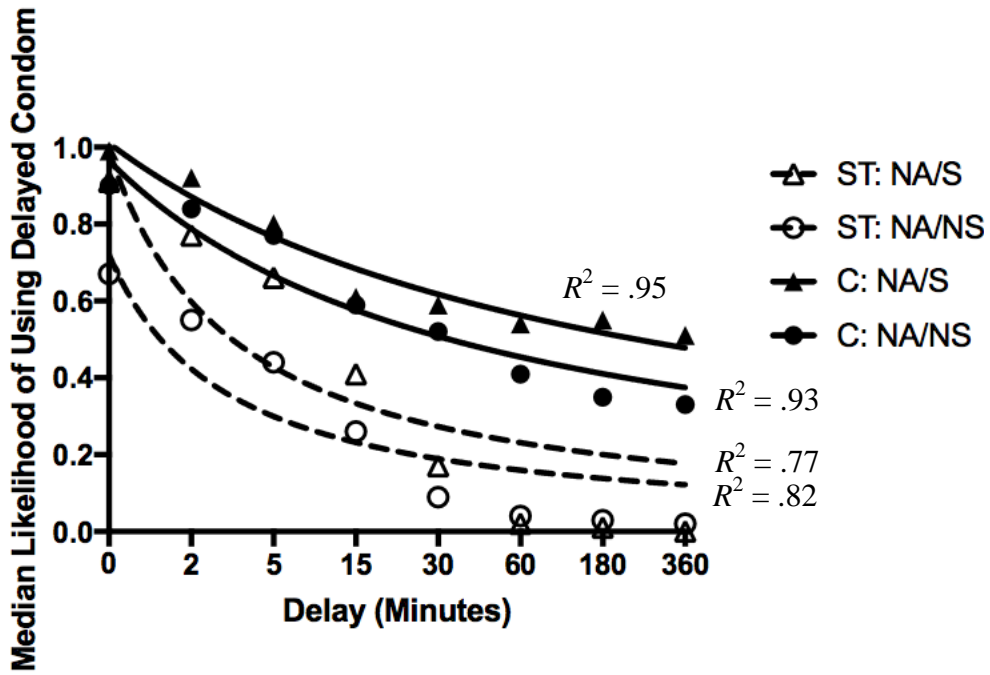
Note: PA/S = Positive Affect/Suppression; NA/S = Negative Affect/Suppression; PA/NS = Positive Affect/No Suppression; NA/NS = Negative Affect/No Suppression; ST/NA:T1 = Sexually Traumatized/Negative Affect at Time 1; C/NA:T1 = Control/Negative Affect at Time 1; ST/NA:T2 = Sexually Traumatized/Negative Affect at Time 2; C/NA:T2 = Control/Negative Affect at Time 2.

Figure 3. Discounting curves for all positive affect groups.



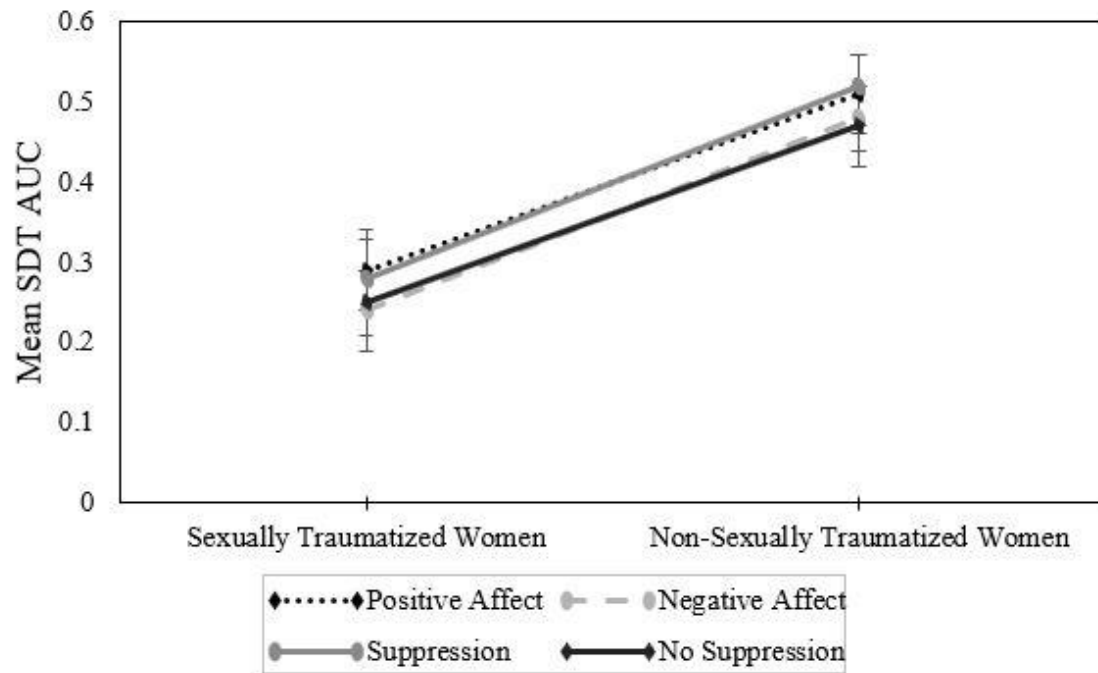
Note. ST: PA/S = Sexual Trauma: Positive Affect/Suppression; ST: PA/NS = Sexual Trauma: Positive Affect/No Suppression; C: PA/S = Control: Positive Affect/Suppression; C: PA/NS = Control: Positive Affect/No Suppression.

Figure 4. *Discounting curves for all negative affect groups.*



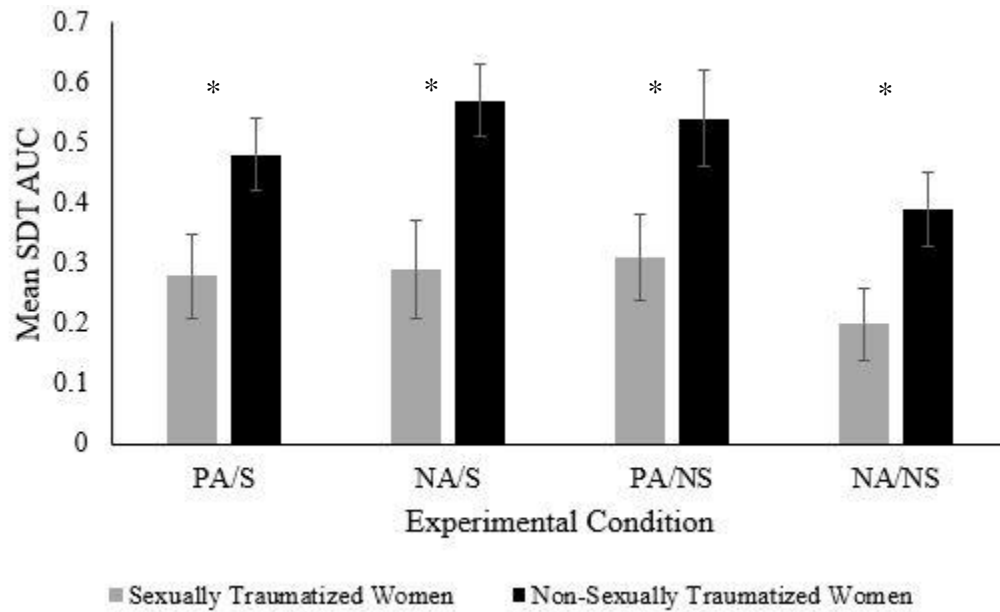
Note. ST: NA/S = Sexual Trauma: Negative Affect/Suppression; ST: NA/NS = Sexual Trauma: Negative Affect/No Suppression; C: NA/S = Control: Negative Affect/Suppression; C: NA/NS = Control: Negative Affect/No Suppression.

Figure 5. *Interaction of all study variables on mean AUC sexual discounting values.*



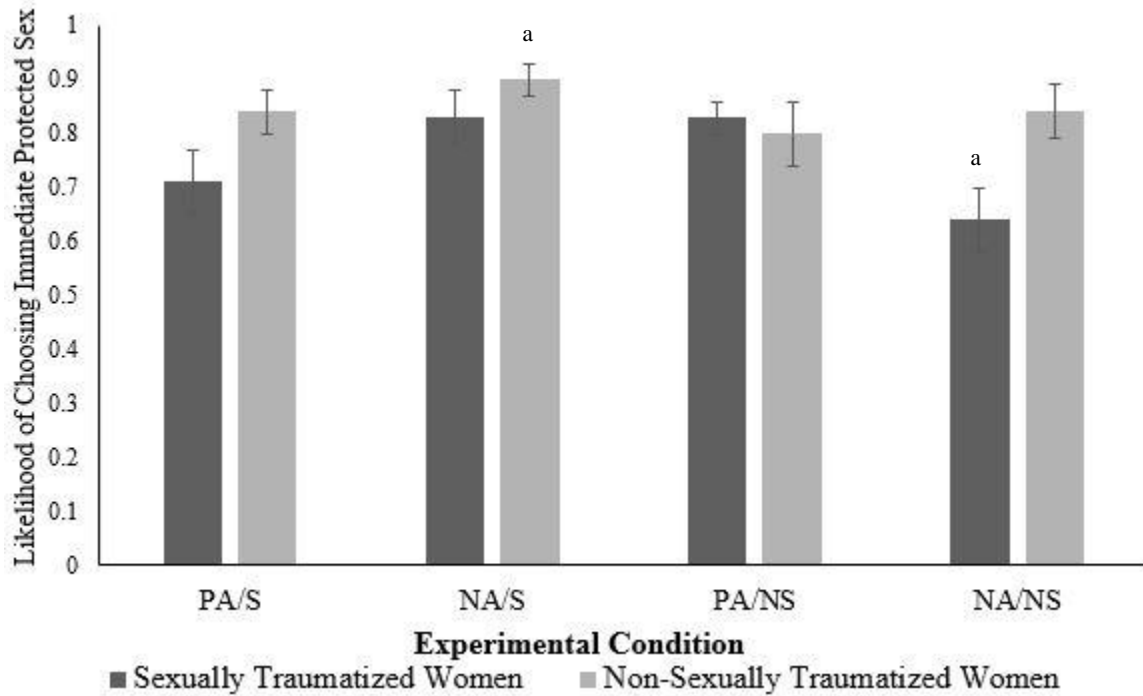
Note. The interaction effect of emotion suppression, affect, and sexual traumatization was not significant.

Figure 6. *Mean AUC sexual discounting values for all experimental groups.*



Note. SDT AUC = Sexual Discounting Task AUC; PA/S = Positive Affect/Suppression; NA/S = Negative Affect/Suppression; PA/NS = Positive Affect/ No Suppression; NA/NS = Negative Affect/No Suppression. Error bars represent SEM. * = $p < .05$.

Figure 7. Comparisons of 0-delay SDT trial for all experimental groups.



Note. SDT = Sexual Discounting Task; PA/S = Positive Affect/Suppression; NA/S = Negative Affect/Suppression; PA/NS = Positive Affect/ No Suppression; NA/NS = Negative Affect/No Suppression. ^a = Significant difference ($p < .05$) for these two groups. Error bars represent SEM for each group.

APPENDICES

APPENDIX A

Demographics Questionnaire

AGE: _____ years

SEXUALLY ACTIVE: YES _____ NO _____
(Sexual intercourse or activity in the last 3 months)

What is your **ETHNICITY**? Please circle all that apply:

Black or African American
Asian
White or Caucasian
Hispanic/Latino/Spanish
American Indian or Alaska Native
Native Hawaiian or other Pacific Islander
Other _____

What are your **RELIGIOUS PREFERENCES**? Please circle all that apply:

Christian
Jewish
Muslim
Buddhist
Agnostic
Atheist
Other _____

What is your current **RELATIONSHIP STATUS**? Please circle your response below:

Never Married Domestic Partnership Married Divorced Widowed Separated
Single Committed Relationship

What is your **SEXUAL ORIENTATION**? Please circle your response below:

Heterosexual Bisexual Gay/Lesbian/Homosexual Asexual
Not Sure Other _____

HIGHEST LEVEL OF EDUCATION in years (e.g., 8th Grade = 8;
High School Diploma = 12; B.A. =16):

_____ Years

What is your **CURRENT HOUSEHOLD INCOME**? Please circle your response below:

≤ \$9,000 \$9,000 – \$19,000 \$20,000 – \$39,000 \$40,000 – \$75,000 > \$75,000

APPENDIX B

THQ

The following is a series of questions about serious or traumatic life events. These types of events actually occur with some regularity, although we would like to believe they are rare, and they affect how people feel about, react to, and/or think about things subsequently. Knowing about the occurrence of such events, and reactions to them, will help us to develop programs for prevention, education, and other services. The questionnaire is divided into questions covering crime experiences, general disaster and trauma questions, and questions about physical and sexual experiences.

For each event, please indicate (circle) whether it happened and, if it did, the number of times and your approximate age when it happened (give your best guess if you are not sure). Also note the nature of your relationship to the person involved and the specific nature of the event, if appropriate.

Crime-Related Events		Circle one		<i>If you circled yes, please indicate</i>	
				Number of times	Approximate age(s)
1	Has anyone ever tried to take something directly from you by using force or the threat of force, such as a stick-up or mugging?	No	Yes		
2	Has anyone ever attempted to rob you or actually robbed you (i.e., stolen your personal belongings)?	No	Yes		
3	Has anyone ever attempted to or succeeded in breaking into your home when you were <u>not</u> there?	No	Yes		
4	Has anyone ever attempted to or succeed in breaking into your home while you <u>were</u> there?	No	Yes		
General Disaster and Trauma		Circle one		<i>If you circled yes, please indicate</i>	
				Number of times	Approximate age(s)
5	Have you ever had a serious accident at work, in a car, or somewhere else? (If yes , please specify below) _____	No	Yes		
6	Have you ever experienced a natural disaster such as a tornado, hurricane, flood or major earthquake, etc., where you felt you or your loved ones were in danger of death or injury? (If yes , please specify below) _____	No	Yes		

7	Have you ever experienced a “man-made” disaster such as a train crash, building collapse, bank robbery, fire, etc., where you felt you or your loved ones were in danger of death or injury? (<u>If yes</u> , please specify below) _____	No	Yes		
8	Have you ever been exposed to dangerous chemicals or radioactivity that might threaten your health?	No	Yes		
9	Have you ever been in any other situation in which you were seriously injured? (<u>If yes</u> , please specify below) _____	No	Yes		
10	Have you ever been in any other situation in which you feared you <u>might</u> be killed or seriously injured? (<u>If yes</u> , please specify below) _____	No	Yes		
11	Have you ever seen someone seriously injured or killed? (<u>If yes</u> , please specify who below) _____	No	Yes		
12	Have you ever seen dead bodies (other than at a funeral) or had to handle dead bodies for any reason? (<u>If yes</u> , please specify below) _____	No	Yes		
13	Have you ever had a close friend or family member murdered, or killed by a drunk driver? (<u>If yes</u> , please specify relationship [e.g., mother, grandson, etc.] below) _____	No	Yes		
14	Have you ever had a spouse, romantic partner, or child die? (<u>If yes</u> , please specify relationship below) _____	No	Yes		
15	Have you ever had a serious or life-threatening illness? (<u>If yes</u> , please specify below) _____	No	Yes		
16	Have you ever received news of a serious injury, life-threatening illness, or unexpected death of someone close to you? (<u>If yes</u> , please indicate below) _____	No	Yes		

17	Have you ever had to engage in combat while in military service in an official or unofficial war zone? (If yes , please indicate where below) _____	No	Yes		
Physical and Sexual Experiences		Circle one	<i>If you circled yes, please indicate</i>		
			Repeated?	Approximate age(s) and frequency	
18	Has anyone ever made you have intercourse or oral or anal sex against your will? (If yes , please indicate nature of relationship with person [e.g., stranger, friend, relative, parent, sibling] below) _____	No	Yes		
19	Has anyone ever touched private parts of your body, or made you touch theirs, under force or threat? (If yes , please indicate nature of relationship with person [e.g., stranger, friend, relative, parent, sibling] below) _____	No	Yes		
20	Other than incidents mentioned in Questions 18 and 19, have there been any other situations in which another person tried to force you to have an unwanted sexual contact?	No	Yes		
21	Has anyone, including family members or friends, ever attacked you with a gun, knife, or some other weapon?	No	Yes		
22	Has anyone, including family members or friends, ever attacked you <u>without</u> a weapon and seriously injured you?	No	Yes		
23	Has anyone in your family ever beaten, spanked, or pushed you hard enough to cause injury?	No	Yes		
24	Have you experienced any other extraordinarily stressful situation or event that is not covered above? (If yes , please specify below) _____	No	Yes		

APPENDIX C

CSE-T

Using the scale below, please rate how much you **CURRENTLY** feel capable of handling the following situations after having experienced traumatic events, including violence from partners, friends, or caregivers.

	1 Not at all Capable	2	3	4	5	6	7 Totally Capable
1. Deal with my emotions (anger, sadness, depression, anxiety) since I experienced my trauma.							
2. Get my life back to normal.							
3. Not “lose it” emotionally.							
4. Manage distressing dreams or images about the traumatic experience.							
5. Not be critical of myself about what happened.							
6. Be optimistic since the traumatic experience.							
7. Be supportive to other people since the traumatic experience.							
8. Control thoughts of the traumatic experience happening to me again.							
9. Get help from others about what happened.							

APPENDIX D

DERS

1	2	3	4	5
Almost never	Sometimes	About half the time	Most of the time	Almost always
(0-10%)	(11-35%)	(36-65%)	(66-90%)	(91-100%)

Please indicate how often the following 36 statements apply to you by writing the appropriate number from the scale above (1-5) in the box alongside each item.

1. I am clear about my feelings
2. I pay attention to how I feel
3. I experience my emotions as overwhelming and out of control
4. I have no idea how I'm feeling
5. I have difficulty making sense out of my feelings
6. I am attentive to my feelings
7. I know exactly how I am feeling
8. I care about what I'm feeling
9. I am confused about how I feel
10. When I'm upset, I acknowledge my emotions
11. When I'm upset, I become angry with myself for feeling that way
12. When I'm upset, I become embarrassed for feeling that way
13. When I'm upset, I have difficulty getting work done
14. When I'm upset, I become out of control
15. When I'm upset, I believe that I will remain that way for a long time
16. When I'm upset, I believe that I'll end up feeling very depressed
17. When I'm upset, I believe that my feelings are valid and important
18. When I'm upset, I have difficulty focusing on other things

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

APPENDIX E

DES

This questionnaire consists of twenty-eight questions about experiences that you may have in your daily life. We are interested in how often you have these experiences. It is important, however, that your answers show how often these experiences happen to you when you are not under the influence of alcohol or drugs. To answer the questions, please determine to what degree the experience described in the question applies to you and select the number to show what percentage of the time you have the experience. 100% means 'always', 0% means 'never' with 10% increments in between. This assessment is not intended to be a diagnosis. If you are concerned about your results in any way, please speak with a qualified health professional.

Never 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% Always

1. Some people have the experience of driving a car and suddenly realizing that they don't remember what has happened during all or part of the trip. Select a number to show what percentage of the time this happens to you.
2. Some people find that sometimes they are listening to someone talk and they suddenly realize that they did not hear all or part of what was said. Select a number to show what percentage of the time this happens to you.
3. Some people have the experience of finding themselves in a place and having no idea how they got there. Select a number to show what percentage of the time this happens to you.
4. Some people have the experience of finding themselves dressed in clothes that they don't remember putting on. Select a number to show what percentage of the time this happens to you.
5. Some people have the experience of finding new things among their belongings that they do not remember buying. Select a number to show what percentage of the time this happens to you.
6. Some people sometimes find that they are approached by people that they do not know who call them by another name or insist that they have met them before. Select a number to show what percentage of the time this happens to you.
7. Some people sometimes have the experience of feeling as though they are standing next to themselves or watching themselves do something as if they were looking at another person. Select a number to show what percentage of the time this happens to you.
8. Some people are told that they sometimes do not recognize friends or family members. Select a number to show what percentage of the time this happens to you.
9. Some people find that they have no memory for some important events in their lives (for example, a wedding or graduation). Select a number to show what percentage of the time this happens to you.
10. Some people have the experience of being accused of lying when they do not think that they

have lied. Select a number to show what percentage of the time this happens to you.

11. Some people have the experience of looking in a mirror and not recognizing themselves. Select a number to show what percentage of the time this happens to you.

12. Some people sometimes have the experience of feeling that other people, objects, and the world around them are not real. Select a number to show what percentage of the time this happens to you.

13. Some people sometimes have the experience of feeling that their body does not belong to them. Select a number to show what percentage of the time this happens to you.

14. Some people have the experience of sometimes remembering a past event so vividly that they feel as if they were reliving that event. Select a number to show what percentage of the time this happens to you.

15. Some people have the experience of not being sure whether things that they remember happening really did happen or whether they just dreamed them. Select a number to show what percentage of the time this happens to you.

16. Some people have the experience of being in a familiar place but finding it strange and unfamiliar. Select a number to show what percentage of the time this happens to you.

17. Some people find that when they are watching television or a movie they become so absorbed in the story that they are unaware of other events happening around them. Select a number to show what percentage of the time this happens to you.

18. Some people sometimes find that they become so involved in a fantasy or daydream that it feels as though it were really happening to them. Select a number to show what percentage of the time this happens to you.

19. Some people find that they are sometimes able to ignore pain. Select a number to show what percentage of the time this happens to you.

20. Some people find that they sometimes sit staring off into space, thinking of nothing, and are not aware of the passage of time. Select a number to show what percentage of the time this happens to you.

21. Some people sometimes find that when they are alone they talk out loud to themselves. Select a number to show what percentage of the time this happens to you.

22. Some people find that in one situation they may act so differently compared with another situation that they feel almost as if they were different people. Select a number to show what percentage of the time this happens to you.

23. Some people sometimes find that in certain situations they are able to do things with amazing ease and spontaneity that would usually be difficult for them (for example, sports, work, social situations, etc.). Select a number to show what percentage of the time this happens to you.

24. Some people sometimes find that they cannot remember whether they have done something or have just thought about doing that thing (for example, not 24 knowing whether they have just mailed a letter or have just thought about mailing it). Select a number to show what percentage of the time this happens to you.

25. Some people find evidence that they have done things that they do not remember doing. Select a number to show what percentage of the time this happens to you.

26. Some people sometimes find writings, drawings, or notes among their belongings 26 that they must have done but cannot remember doing. Select a number to show what percentage of the time this happens to you.

27. Some people find that they sometimes hear voices inside their head that tell them to do things or comment on things that they are doing. Select a number to show what percentage of the time this happens to you.

28. Some people sometimes feel as if they are looking at the world through a fog so that people or objects appear far away or unclear. Select a number to show what percentage of the time this happens to you.

APPENDIX F

SHBQ: A lot of people do things which are dangerous and might get them hurt. There are many reasons why people take these risks. Often people take risks without thinking about the fact that they might get hurt. Sometimes, however, people hurt themselves on purpose. We are interested in learning more about the ways in which you may have intentionally or unintentionally hurt yourself. It is important for you to understand that if you tell us about things that suggest you are not safe now, we will have to report this in order to keep you safe. Please circle **YES** or **NO** in response to each question and answer the follow-up questions. For questions where you are asked who you told something do not give specific names. We only want to know if it was someone like a parent, teacher, doctor, etc.

Things you may have done to yourself on purpose.

Have you hurt yourself on purpose? (e.g., scratched yourself with finger nails or a sharp object)

YES **NO**

If yes, what did you do?

- a. Approximately how many times did you do this? _____
- b. Approximately when did you first do this to yourself? (*write your age*) _____
- c. When was the last time you did this to yourself? (*write your age*) _____
- d. Have you ever told anyone that you had done these things? **YES** **NO**

If yes, who did you tell? _____

- e. Have you ever needed to see a doctor after doing these things? **YES** **NO**

Scoring:

1. Have you hurt yourself on purpose? yes = 2 no = 0

a. Frequency: blank = 0 once = 1 twice = 2 3 times = 3 4 times or more = 4

b. Duration (age of last time – age of first time): blank = 0 0-1 year = 1 2-3 years = 2
4-5 years = 3 6 or more years = 4

c. Current Risk (current age – age of last time): blank = 0 1 year or less = 1
1-2 years = 2 >2 years = 3

d. Disclosure: yes = 2 no/blank = 0

e. Medical Attention: yes = 2 no/blank = 0

APPENDIX G

AUDIT

<p>PATIENT: Because alcohol use can affect your health and can interfere with certain medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential so please be honest.</p> <p>Place an X in one box that best describes your answer to each question.</p>						
Questions	0	1	2	3	4	
1. How often do you have a drink containing alcohol?	Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week	
2. How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2	3 or 4	5 or 6	7 to 9	10 or more	
3. How often do you have six or more drinks on one occasion?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
4. How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
5. How often during the last year have you failed to do what was normally expected of you because of drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
7. How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
8. How often during the last year have you been unable to remember what happened the night before because of your drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
9. Have you or someone else been injured because of your drinking?	No		Yes, but not in the last year		Yes, during the last year	
10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	No		Yes, but not in the last year		Yes, during the last year	
					Total	

APPENDIX H

DUDIT

<input checked="" type="checkbox"/> Man <input type="checkbox"/> Woman		Age <input type="text"/>			
1. How often do you use drugs other than alcohol? (See list of drugs on back side.)	Never <input type="checkbox"/>	Once a month or less often <input type="checkbox"/>	2-4 times a month <input type="checkbox"/>	2-3 times a week <input type="checkbox"/>	4 times a week or more often <input type="checkbox"/>
2. Do you use more than one type of drug on the same occasion?	Never <input type="checkbox"/>	Once a month or less often <input type="checkbox"/>	2-4 times a month <input type="checkbox"/>	2-3 times a week <input type="checkbox"/>	4 times a week or more often <input type="checkbox"/>
3. How many times do you take drugs on a typical day when you use drugs?	0 <input type="checkbox"/>	1-2 <input type="checkbox"/>	3-4 <input type="checkbox"/>	5-6 <input type="checkbox"/>	7 or more <input type="checkbox"/>
4. How often are you influenced heavily by drugs?	Never <input type="checkbox"/>	Less often than once a month <input type="checkbox"/>	Every month <input type="checkbox"/>	Every week <input type="checkbox"/>	Daily or almost every day <input type="checkbox"/>
5. Over the past year, have you felt that your longing for drugs was so strong that you could not resist it?	Never <input type="checkbox"/>	Less often than once a month <input type="checkbox"/>	Every month <input type="checkbox"/>	Every week <input type="checkbox"/>	Daily or almost every day <input type="checkbox"/>
6. Has it happened, over the past year, that you have not been able to stop taking drugs once you started?	Never <input type="checkbox"/>	Less often than once a month <input type="checkbox"/>	Every month <input type="checkbox"/>	Every week <input type="checkbox"/>	Daily or almost every day <input type="checkbox"/>
7. How often over the past year have you taken drugs and then neglected to do something you should have done?	Never <input type="checkbox"/>	Less often than once a month <input type="checkbox"/>	Every month <input type="checkbox"/>	Every week <input type="checkbox"/>	Daily or almost every day <input type="checkbox"/>
8. How often over the past year have you needed to take a drug the morning after heavy drug use the day before?	Never <input type="checkbox"/>	Less often than once a month <input type="checkbox"/>	Every month <input type="checkbox"/>	Every week <input type="checkbox"/>	Daily or almost every day <input type="checkbox"/>
9. How often over the past year have you had guilt feelings or a bad conscience because you used drugs?	Never <input type="checkbox"/>	Less often than once a month <input type="checkbox"/>	Every month <input type="checkbox"/>	Every week <input type="checkbox"/>	Daily or almost every day <input type="checkbox"/>
10. Have you or anyone else been hurt (mentally or physically) because you used drugs?	No <input type="checkbox"/>	Yes, but not over the past year <input type="checkbox"/>		Yes, over the past year <input type="checkbox"/>	
11. Has a relative or a friend, a doctor or a nurse, or anyone else, been worried about your drug use or said to you that you should stop using drugs?	No <input type="checkbox"/>	Yes, but not over the past year <input type="checkbox"/>		Yes, over the past year <input type="checkbox"/>	

APPENDIX I

SRS

Directions: Please read the following statements and record the number that is true for you over the past six months for each question on the blank. If you do not know for sure how many times a behavior took place, try to estimate the number as close as you can. Thinking about the average number of times the behavior happened a week or a month might make it easier to estimate an accurate number, especially if the behavior happened fairly regularly. If you've had multiple partners, try to think about how long you were with each partner, amount of sexual encounters you had with each and try to get an accurate estimate of the total number of each behavior. If the question does not apply to you or you have never engaged in the behavior in the question, put a "0" on the blank. Please do not leave items blank. Remember that in the following questions "sex" includes oral, anal and vaginal sex and that "sexual behavior" includes passionate kissing, making out, fondling, petting, oral-to-anal stimulation and hand-to-genital stimulation. Refer to the Glossary for any words you are not sure about. Please consider only the last six months when answering and please be honest.

In the **PAST SIX MONTHS:**

1. _____ How many partners have you engaged in sexual behavior with but not had sex with?
2. _____ How many times have you left a social event with someone you just met?
3. _____ How many times have you "hooked up" and engaged in sexual behavior with someone you didn't know or didn't know well but did not have sex?
4. _____ How many times have you gone out to bars/parties/social events with the intent of engaging in sexual behavior with someone?
5. _____ How many times have you gone out to bars/parties/social events with the intent of "hooking up" and having sex with someone?
6. _____ How many times have you gotten so drunk or high that you couldn't control your sexual behaviors?
7. _____ How many times have you had an unexpected and unanticipated sexual experience?
8. _____ How many times have you had a sexual encounter you engaged in willingly but later regretted?

For the next set of questions, follow the same direction as before. However, for questions 9-24, if you have never had sex (oral, anal or vaginal), please put a "0" on each blank.

In the **PAST SIX MONTHS/2 weeks:**

9. _____ How many partners have you had sex with?
10. _____ How many times have you had vaginal intercourse without a latex or polyurethane condom? Note: Include times when you have used a lambskin or membrane condom.
11. _____ How many times have you had vaginal intercourse without protection against pregnancy?
12. _____ How many times have you given or received fellatio (oral sex on a man) without a condom?
13. _____ How many times have you given or received cunnilingus (oral sex on a woman) without a dental dam or "adequate protection" (please see definition of dental dam for what is considered adequate protection)?
14. _____ How many times have you had anal sex without a condom?
15. _____ How many times have you or your partner engaged in anal penetration by a hand ("fisting") or other object without a latex glove or condom followed by unprotected anal sex?
16. _____ How many times have you given or received analingus (oral stimulation of the anal region, "rimming") without a dental dam or "adequate protection" (please see definition of dental dam for what is considered adequate protection)?
17. _____ How many people have you had sex that you know but are not involved in any sort of relationship with (i.e. "friends with benefits", "fuck buddies")?
18. _____ How many times have you had sex with someone you don't know well or just met?
19. _____ How many times have you or your partner used alcohol or drugs before or during sex?
20. _____ How many times have you had sex with a new partner before discussing sexual history, IV drug use, disease status and other current sexual partners?
21. _____ How many times (that you know of) have you had sex with someone who has had many sexual partners?
22. _____ How many partners (that you know of) have you had sex with who had been sexually active before you were with them but had not been tested for STIs/HIV?
23. _____ How many partners have you had sex with that you didn't trust?
24. _____ How many times (that you know of) have you had sex with someone who was also engaging in sex with others during the same time period?

APPENDIX J

PCL-5

Instructions: Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each problem carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

In the past month, how much were you bothered by:	Not at all	A little bit	Moderately	Quite a bit	Extremely
1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
2. Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?	0	1	2	3	4
4. Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?	0	1	2	3	4
6. Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?	0	1	2	3	4
8. Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?	0	1	2	3	4
10. Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12. Loss of interest in activities that you used to enjoy?	0	1	2	3	4
13. Feeling distant or cut off from other people?	0	1	2	3	4
14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?	0	1	2	3	4
15. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4
16. Taking too many risks or doing things that could cause you harm?	0	1	2	3	4
17. Being "superalert" or watchful or on guard?	0	1	2	3	4
18. Feeling jumpy or easily startled?	0	1	2	3	4
19. Having difficulty concentrating?	0	1	2	3	4
20. Trouble falling or staying asleep?	0	1	2	3	4

APPENDIX K

PANAS

PANAS Questionnaire

This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. **Indicate to what extent you feel this way right now, that is, at the present moment *OR* indicate the extent you have felt this way over the past week (circle the instructions you followed when taking this measure)**

1	2	3	4	5
Very Slightly or Not at All	A Little	Moderately	Quite a Bit	Extremely

_____ 1. Interested	_____ 11. Irritable
_____ 2. Distressed	_____ 12. Alert
_____ 3. Excited	_____ 13. Ashamed
_____ 4. Upset	_____ 14. Inspired
_____ 5. Strong	_____ 15. Nervous
_____ 6. Guilty	_____ 16. Determined
_____ 7. Scared	_____ 17. Attentive
_____ 8. Hostile	_____ 18. Jittery
_____ 9. Enthusiastic	_____ 19. Active
_____ 10. Proud	_____ 20. Afraid

APPENDIX L

Table 2

Descriptives for demographic and study variables

Variable	Experimental				Control			
	PA/S	NA/S	PA/NS	NA/NS	PA/S	NA/S	PA/NS	NA/NS
Age: <i>M (SD)</i>	21.38 (3.76)	23.18 (9.69)	22.91 (7.53)	23.82 (7.56)	20.18 (2.44)	25 (8.17)	22.23 (5.39)	21 (3.60)
Ethnicity: <i>N (%)</i>								
African American				1 (4.5%)				
Asian							1 (4.5%)	
Caucasian	14 (66.7%)	18 (81.8%)	17 (77.3%)	14 (63.6%)	17 (77.3%)	14 (63.6%)	16 (72.7%)	18 (81.8%)
AI/AN					1 (4.5%)	1 (4.5%)		
Latino/Hispanic	4 (19%)	1 (4.5%)	3 (13.6%)	3 (13.6%)	4 (18.2%)	4 (18.2%)	2 (9.1%)	2 (9.1%)
NH/PI							1 (4.5%)	

Mixed Race	2 (9.5%)	3 (13.6%)	2 (9.1%)	4 (18.2%)		3 (13.6%)	2 (9.1%)	2 (9.1%)
Other	1 (4.8%)							
Religion: <i>N</i> (%)								
Christian	8 (38.1%)	12 (54.5%)	12 (54.5%)	13 (59.1%)	9 (40.9%)	16 (72.7%)	12 (54.5%)	18 (81.8%)
Jewish								
Muslim	1 (4.8%)							
Buddhist			1 (4.5%)	1 (4.5%)				
Hindi								
Agnostic	5 (23.8%)	3 (13.6%)	3 (13.6%)		2 (9.1%)	3 (13.6%)	5 (22.7%)	
Atheist		2 (9.1%)		3 (13.6%)	2 (9.1%)			1 (4.5%)
Other	7 (33.3%)	5 (22.7%)	6 (27.3%)	5 (22.7%)	9 (40.9%)	3 (13.6%)	5 (22.7%)	3 (13.6%)
Relationship Status: <i>N</i> (%)								
Single	3 (14.3%)	8 (36.4%)	9 (40.9%)	10 (45.5%)	8 (36.4%)	6 (27.3%)	7 (31.8%)	5 (22.7%)
CR	12 (57.1%)	9 (40.9%)	8 (36.4%)	9 (40.9%)	10 (45.5%)	8 (36.4%)	8 (36.4%)	14 (63.6%)
DP								

Married	4 (19%)	5 (22.7%)	5 (22.7%)	3 (13.6%)	4 (18.2%)	6 (27.3%)	6 (27.3%)	1 (4.5%)
Divorced	2 (9.5%)							1 (4.5%)
Separated						2 (9.1%)	1 (4.5%)	1 (4.5%)
Widowed								
Years of Education (<i>M, SD</i>)	13.76 (2.05)	13.55 (1.87)	13.18 (1.40)	13.45 (1.57)	13.27 (1.12)	12.73 (1.03)	13.36 (1.29)	12.91 (1.23)
Income <i>N</i> (%)								
Less than \$9,000	8 (38.1%)	10 (45.5%)	5 (22.7%)	8 (36.4%)	8 (36.4%)	7 (31.8%)	6 (27.3%)	7 (31.8%)
\$9,000 to \$19,000	6 (28.6%)	5 (22.7%)	3 (13.6%)	5 (22.7%)	6 (27.3%)	3 (13.6%)	6 (27.3%)	
\$20,000 to \$39,000	4 (19%)	3 (13.6%)	8 (36.4%)	4 (18.2%)	6 (27.3%)	2 (9.1%)	3 (13.6%)	5 (22.7%)
\$40,000 to \$75,000	2 (9.5%)	2 (9.1%)	4 (18.2%)	3 (13.6%)		8 (36.4%)	5 (22.7%)	7 (31.8%)
\$75,000 or above	1 (4.8%)	2 (9.1%)	2 (9.1%)	2 (9.1%)	2 (9.1%)	2 (9.1%)	2 (9.1%)	3 (13.6%)

Note. AI/AN = American Indian/Alaska Native; NH/PI = Native Hawaiian/Pacific Islander; CR = Committed Relationship; DP = Domestic Partnership.

APPENDIX M

Table 3

Comparisons of SDT control variables

SDT Variable	Experimental				Control			
	PA/S	NA/S	PA/NS	NA/NS	PA/S	NA/S	PA/NS	NA/NS
0-Delay								
Trial	.71 (.27)	.83 (.23)	.83 (.15)	.64 (.28)	.84 (.20)	.90 (.14)	.80 (.28)	.84 (.21)
Sexual								
Desire	.68 (.28)	.66 (.26)	.66 (.25)	.76 (.15)	.64 (.18)	.52 (.25)	.63 (.19)	.66 (.23)
Sexual								
Interest	.71 (.27)	.70 (.29)	.56 (.27)	.75 (.22)	.55 (.28)	.56 (.23)	.71 (.24)	.60 (.24)

ORIGINAL PROSPECTUS DOCUMENT

Maladaptive Coping Following Sexual Trauma Exposure: Emotion Regulation, Coping Self-Efficacy, and Sexual Risk-Taking

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Abstract

Sexual violence against women is highly prevalent on college campuses, and includes alcohol/drug or forced facilitated penetration, unwanted penetration without physical coercion, unwanted penetration with verbal coercion, deliberate sexual touching, or non-contact sexual acts. Following exposure to sexual trauma, individuals often engage in coping strategies to alleviate distress associated with the event. These coping strategies can often be maladaptive, including dissociation, self-harm, substance use, and risky sexual behavior, and can exacerbate posttraumatic distress. What is less clear is the underlying mechanisms that drive the relationship between sexual trauma exposure and maladaptive coping. The present study aims to examine the relationship between sexual trauma exposure and maladaptive coping behavior, including potential mediating factors in coping self-efficacy and emotion regulation. The present study also aims to investigate how the suppression of positive and negative affect affects risky sexual behavior using a laboratory-behavioral measure of sexual decision-making. It is hypothesized that lifetime sexual trauma exposure will be significantly related to maladaptive coping behavior and PTSD symptom severity, and coping self-efficacy and emotion regulation with both significantly mediate this relationship. It is also hypothesized that suppression of negative affect will significantly increase engage in risky sexual behavior. Proposed methodology and analysis are discussed.

Maladaptive Coping Following Sexual Trauma: Emotion Regulation, Coping Self-Efficacy, and Sexual Risk-Taking

Sexual violence has been defined as, “any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic women’s sexuality, using coercion, threats of harm or physical force, by any person regardless of the relationship to the victim, in any setting, including but not limited to home and work” (Jewkes, Garcia-Moreno, & Sen, 2002, p. 149). Sexual violence includes alcohol/drug or forced facilitated penetration, unwanted penetration without physical coercion, deliberate sexual touching, or non-contact sexual acts (Basile & Saltzman, 2002). Sexual assault can also consist of verbally coercive sexual experiences characterized by begging, manipulating, pressuring, or threatening some sort of negative outcome (Basile, 1999). The term sexual violence is often used interchangeably with adult sexual assault, sexual trauma, rape, or child sexual abuse (CSA); for the purposes of this study, all of these terms will be subsumed under “sexual violence.” Sexual assault is perpetrated against women primarily, with lifetime prevalence rates between 13% and 25%. By contrast, the prevalence of sexual violence against men is between 0.6% and 7.2% (Kilpatrick, Saunders, Veronen, Best, & Von, 1987; Kilpatrick & Seymour, 1992; Koss & Dinero, 1989; Krebs, Lindquist, Warner, Fisher, & Martin, 2007; Martin, Rosen, Duran, Stretch, & Knudson, 1998; Sorenson, Stein, Siegel, Golding, & Burnam, 1987; Tjaden & Thoennes, 1998).

Sexual violence is highly prevalent on college campuses; one in five women report that they have been raped in their lifetime, with symptoms of PTSD occurring in 30% of women up to nine months after the incident (Daigle, Fisher, & Cullen, 2008; Douglas et al., 1997; Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992). However, prevalence rates may be even higher as these women are highly unlikely to report sexual assault or other forms of

victimization—some evidence suggests that only 4.5% of rape incidents are reported to the police (Fisher, Daigle, Cullen, & Turner, 2003; Sloan, Fisher, & Cullen, 1997). A recent national survey on sexual victimization in college populations showed that 10% of female victims of a substance-facilitated or incapacitated rape reported the incident(s) to the police, while 18% of college women that were victims of forcible rape reported these experiences to the police (Kilpatrick, Resnick, Ruggiero, Conoscenti, & McCauley, 2007). Once in college, a woman's risk of alcohol-involved or incapacitated sexual assault increases relative to the rate of forcible sexual assault (Lawyer, Resnick, Bakanic, Burkett, & Kilpatrick, 2010; Krebs, Lindquist, Warner, Fisher, & Martin, 2009). What's more, many (14% to 26%) college women who are sexually assaulted on campus report repeated victimization over the course of an academic year (Daigle et al., 2008). Acquaintances are more likely to be perpetrators of coercive sexual assault, and this type of assault often occurs within romantic relationships and dating situations (Cleveland, Koss, & Lyons, 1999). In fact, using data from the National Crime Victimization Survey, almost 80% of reported sexual assaults on college campuses were perpetrated by acquaintances of the victim (Baum & Klaus, 2005). Unfortunately, only a small percentage of these assaults are actually reported to the police, likely due to potential stigma associated with victimization and negative social consequences, especially if the perpetrator is a close friend or acquaintance.

Theories of Sexual Violence

Perpetrator Characteristics. Different theories have been proposed hypothesizing why sexual assault is such a prevalent problem for women. Through extensive analyses of rape throughout history, Brownmiller (1975) purports that sexual violence is not due to gratifying sexual urges but rather a pervasive desire for men to exude dominance, authority, and

intimidation while simultaneously humiliating someone to maintain the victim's lower position of power. Sanday (1997) also suggests that violent sexuality is an overt expression of cultural ideology surrounding male dominance. Burt (1980) built upon Brownmiller's initial theory, developing specific measures to discover that rape myth acceptance (e.g., "in the majority of rapes, the woman is promiscuous or has a bad reputation," "any healthy woman can successfully resist a rapist if she really wants to") is perpetuated by interpersonal violence acceptance, sex role stereotyping, and distrust of the opposite sex, leading to an unsafe and counterintuitive cultural climate for sexual trauma survivors, likely detrimental to their recovery. Masculinity also appears to have a significant role in the likelihood of sexual assault perpetration, as hostile masculinity (i.e., sexist, misogynistic beliefs) and hypermasculinity are strongly associated with risk of sexual violence (Malamuth, Sockloskie, Koss, & Tanaka, 1991; McDermott, Kilmartin, McKelvey, & Kridel, 2015; Mosher & Surkin, 1984; Murnen, Wright, & Kaluzny, 2002). Thus, men's conceptualization of their own gender roles, derived from social reinforcement, combined with culturally supported ideals of rape myth acceptance contributes greatly to high rates of sexual assaults on college campuses.

Victim Characteristics. For sexual assault survivors, there are also certain characteristics that increase susceptibility for initial victimization. The presence and use of alcohol can increase risk of sexual victimization in several ways including the interpretation by aggressive men that alcohol is a cue that she is open to engaging in sexual activity (Koss & Dinero, 1989). If a woman is drinking alcohol, her friendliness can also be misinterpreted as sexual interest by men (Abbey, Ross, McDuffie, & McAuslan, 1996). The use of alcohol also can impair threat detection; Testa and Livingston (1999) found that over half of the adult sexual assault survivors in their sample reported that their alcohol use disrupted their ability to perceive

threat cues as well as decline unwanted sexual advances. Using a date-rape vignette, there is also experimental evidence that women who consume alcohol take significantly longer than women who received a placebo to detect risk of potential sexual assault (Louiselle & Fuqua, 2007). Although alcohol use can precipitate sexual assault for women, it is important to note that male perpetrators often engage in alcohol abuse before the assault, use it to rationalize sexually aggressive behavior, and misperceive it as an indicator of sexual openness (Abbey, Zawacki, Buck, Clinton, & McAuslan, 2001; Carr & VanDeusen, 2004; Laramer, Lydum, Anderson, & Turner, 1999; Koss & Dinero, 1989).

A history of CSA has also been consistently identified as a strong predictor of adult sexual assault (Gidycz, Coble, Latham, & Layman, 1993; Gidycz, Hanson, & Layman, 1995; Koss & Dinero, 1989; Messman & Long, 1996). Child sexual abuse is contact (e.g., penetration) and noncontact (e.g., voyeurism) sexual activities between an adult and a child between the ages of 0 and 13 (Finkelhor, 1994). Women with a history of CSA and adult sexual assault are significantly more likely to be revictimized in the following year than women with only a history of adult sexual assault (Ullman, Najdowski, & Filipas, 2009). However, post-traumatic stress disorder (PTSD) numbing symptoms were found to mediate the relationship between CSA and adult revictimization. In the same study, re-experiencing, avoidance, and arousal PTSD symptoms mediated the relationship between a history of CSA and problem drinking, with problem drinking predicting adult revictimization. Thus, it is likely the psychological impact (i.e., PTSD symptoms) of sexual trauma during childhood and subsequent coping as an adult, rather than the traumatic event(s) itself, that creates susceptibility for adult sexual victimization.

Other factors are also important to consider in this relationship, as use of physical force and age of initial sexual abuse (specifically ages 6-10) have been shown to be strong predictors

of adult sexual assault as well (Simmel, Postmus, & Lee, 2012). Irrespective of underlying mediating mechanisms, there is meta-analytic evidence within the revictimization literature demonstrating an overall effect size of .59 in the significant relationship between CSA and sexual assault as an adult (Roodman & Clum, 2001). It is therefore important to consider lifetime incidents of sexual victimization, and resulting posttraumatic distress, while conducting research with adult sexual assault survivors as revictimization rates tend to be extraordinarily high.

Sexual Violence Outcomes

Sexual assault victimization is associated with a wide range of negative psychological consequences including post-traumatic stress disorder (PTSD) symptoms (e.g., Brown, Testa, & Messman-Moore, 2009; Najdowski & Ullman, 2009; Ullman, Filipas, Townsend, & Starzynski, 2007), depressive symptoms (e.g., Coker et al., 2002; Golding, 1999) and substance use (e.g., Kaysen, Neighbors, Martell, Fossos & Larimer, 2006; Walsh et al., 2014). Female college sexual assault survivors are also significantly more likely than non-sexually traumatized women to experience poor overall psychopathology and adjustment (Aosved & Long, 2005; Archambeau et al., 2010). PTSD is one of the most common pathological responses to sexual victimization, and is a risk factor for adult revictimization for women with a history of CSA (Frazier et al., 1997; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993; Ullman et al., 2009). Thus, as PTSD is highly distressing and functionally impairing, it is important to understand the nature of the disorder along with associated etiological and maintenance factors.

Sexual Victimization and PTSD. According to the Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (DSM-5), posttraumatic stress disorder (PTSD) is characterized by the formation of pathological symptoms following exposure to a traumatic event, including sexual or physical interpersonal violence, natural disasters, motor vehicle accidents, kidnapping,

terrorist attacks, or military combat (APA, 2013). Exposure can range from directly experiencing the event to witnessing the event, to learning that it occurred to a close friend or family member, to recurrently hearing or seeing disturbing details of the event (e.g., paramedics, firefighters, police officers) (APA, 2013). In order to meet diagnostic criteria for PTSD, an individual must experience symptoms from each of four different symptom clusters. Thus, experiencing a traumatic event does not necessarily result in posttraumatic distress.

In terms of symptoms of PTSD, the first symptom cluster consists of re-experiencing symptoms, including intrusive traumatic memories, recurrent traumatic nightmares, dissociative flashbacks, and intense distress or physiological reactivity in response to traumatic cues (APA, 2013). The next symptom cluster is composed of avoidance behavior, such as efforts to avoid traumatic memories, thoughts, or feelings, and efforts to avoid external traumatic reminders such as people, activities, places, or situations associated with the event. The third symptom cluster involves negative changes in thoughts and feelings, including memory impairment, affective constriction, distorted thoughts about the cause of the event, anhedonia, feelings of social detachment, and negative beliefs about oneself (APA, 2013). The fourth symptom cluster concerns hyperarousal and physiological reactivity, such as irritability, angry outbursts, reckless behavior, exaggerated startle response, concentration issues, sleep problems, and hypervigilance.

In a large national sample of women (N = 4,008), only 26% of those who had experienced a traumatic event met criteria for lifetime PTSD (Resnick et al., 1993). In comparison, Frazier et al. (1997) found that almost 60% of women in a representative sample of victims of sexual assault met criteria for lifetime PTSD; these women reported that sexual assault was the worst traumatic event that they had experienced. Further, compared to other types of trauma exposure, prevalence of PTSD according to the DSM-5 is highest among victims of

interpersonal violence (Kilpatrick et al., 2013). Potential risk factors for the development of PTSD include previous traumatic experiences, minimal or no social support, peritraumatic responses, adaptive or maladaptive coping strategies, and previous psychopathology such as anxiety and mood disorders (DiGangi et al., 2013).

Etiology of PTSD

Several factors contribute to the likelihood or severity of PTSD symptoms following a sexually traumatic event, including historical, peritraumatic, and maintenance factors.

Historical factors. Ullman et al. (2007) found that the number of lifetime traumatic experiences (i.e., trauma history) and child sexual abuse significantly predicted PTSD symptom severity in a sample of 1,084 sexual assault survivors who were mostly victims of completed rape by acquaintances. Prior history of sexual assault has also been associated with PTSD symptoms in a sample of women treated for sexual assault at an emergency department in a hospital; they were interviewed at two time points, within 72 hours of the assault and 6 to 8 weeks later (Kramer & Green, 1991). Women with a previous history of assault tend to have lower mean cortisol levels (an indicator of stress response) after the event, but have a higher risk of experiencing PTSD (Resnick, Yehuda, Pitman, & Foy, 1995). Previous psychopathology is important to consider with the development of PTSD, as previous depressive symptoms have been shown to lead to significantly higher levels of PTSD for women that were victims of completed rape and were injured during the incident (Resnick, Kilpatrick, Best, & Kramer, 1992).

Peritraumatic factors. There's also evidence that peritraumatic factors lead to the development of PTSD. For instance, if individuals experience strong feelings of helplessness, fear, or horror during an interpersonally violent traumatic event, they are more likely to meet

diagnostic criteria for PTSD six months after the event (Brewin, Andrews, & Rose, 2000). In addition, Johnson, Pike, and Chard (2001) found that female CSA survivors who experienced unwanted penetration, perceived life threat, and physical injury exhibited more severe PTSD symptoms. There's also evidence that trauma survivors that experience a panic attack during the traumatic event are significantly more likely to report PTSD symptoms at a later time point (e.g., Galea et al., 2003; Lawyer et al., 2006).

Rates of PTSD also vary according to the nature of the sexual assault. Using data drawn from a survey of 265 college women, women who were forcibly raped (i.e., sexually assaulted with the use of physical force) reported significantly higher numbers of PTSD symptoms in comparison to both incapacitated rape (i.e., unable to consent due to voluntary substance use) and verbal coercion, with incapacitated rape survivors reporting significantly higher symptoms than verbal coercion survivors (Brown, Testa, & Messman-Moore, 2009). Using a national sample of women, Resnick et al. (1993) also found that perceptions of life threat and physical injury during assault were associated with higher PTSD severity. Perceived life threat and physical injury have also been found to predict PTSD diagnosis in a probability sample of both men and women and a sample of female sexual assault survivors (Stein, Walker, & Forde, 2000; Ullman & Filipas, 2001). Further, there is some evidence that adult sexual assault survivors who have been diagnosed with PTSD are more likely to have been forcibly assaulted with weapons or threats of violence, and are also more likely to have been assaulted by strangers (Bownes, O'Gorman, & Sayers, 1991). Ullman et al. (2007) also found higher PTSD symptoms in women assaulted by strangers and relatives versus acquaintances and romantic partners. Adolescents are also at increased risk for PTSD symptoms if they are assaulted by a family member (Lawyer et al., 2006). Further, Ullman (2007) found that child sexual assault survivors were significantly

more likely to exhibit PTSD symptoms if they were assaulted by relatives compared to acquaintances or strangers, and those assaulted by acquaintances had significantly higher symptoms than individuals assaulted by stranger perpetrators. In the same study, PTSD symptoms were significantly more likely for individuals that had experienced higher severity of abuse in terms of penetration. Therefore, it appears that the life-threatening nature of sexual assault and associated risk of severe physical injury, the identity of the perpetrator, presence of weapons, and the use of force can increase susceptibility for the presence of PTSD symptoms following these atrocious acts of violence.

Post-assault and maintenance factors. Other post-assault factors can heighten vulnerability for PTSD symptoms. Carper et al. (2015) administered a series of questionnaires to a sample of 120 women who had experienced sexual assault in the past month at four time points: one, two, three, and four months after the event. Women who reported high amounts of re-experiencing and emotional numbing symptoms one month after the event were significantly more likely to have higher PTSD symptom severity three months after the event. Negative cognitions about oneself (e.g., self-blame) mediated this relationship. Delayed disclosure (one year or longer) of sexual assault to friends, romantic partners, relatives, or mental health professionals predicts PTSD symptom severity, but may be indicative of lack of social support (Ullman et al., 2007). Negative social reactions from others also significantly predicted this outcome (Ullman et al., 2007). This finding was consistent with previous research linking negative social reactions, negative social support, and interpersonal friction with PTSD symptom severity (Andrews et al., 2003; Campbell et al., 1999; Ullman & Filipas, 2001; Zoellner, Foa, & Brigidi, 1999). Within a diverse sample of 323 adult sexual assault victims (85.9% victims of completed rape), Ullman and Filipas (2001) found that negative social reactions, especially being

treated differently, strongly predicted higher PTSD symptom severity, while perceived quality of social support and size of social support network were unrelated to PTSD pathology. The authors posit that negative reactions from other people reinforce or exacerbate society's attitudes of victim-blaming toward survivors of rape and sexual assault. Within samples of college women, sexual assault survivors who disclose rape incidents to others are also more likely to report more forceful assaults, higher levels of resistance, clearly expressing refusal to the perpetrator, and higher numbers of PTSD symptoms (Layman, Giycz, & Lynn, 1996).

Cognitive alterations. Symonds (1980) argued that “secondary victimization” is commonly experienced by rape victims as they are recipients of victim blame, disbelief, and stigmatization by other people. These social responses to a victim's trauma often communicate that something is characteristically flawed with the victim or that the event somehow negatively changed the individual. These perceptions can lead to self-blame, persistent negative beliefs about oneself, and low self-worth as victims' distress is invalidated by other people. Ullman and Filipas (2001) argue that environments that discourage disclosure of the deleterious effects of these traumatic events reinforce that the world is an unsafe place with little or no support from other people, which could, in turn, lead to internalization of distress and more PTSD symptoms, especially negative alterations in cognitions and mood..

Interpersonal victimization can lead to cognitive biases and negative beliefs about the individual, others, and the world in general (Janoff-Bulman, 1992). These beliefs usually entail pervasive self-blame, helplessness, low self-worth, and the view of the world as a dangerous, hostile place (McCann & Pearlman, 1990). College sexual assault victims tend to report lower amounts of positive affect and lowered ability to experience positive emotions than do nonvictims (Harned, 2001). Further, negative self-perceptions are associated with PTSD severity

(Foa & Rauch, 2004; Moser, Hajcak, Simons, & Foa, 2007) as is lack of perceived control. Women with histories of chronic child sexual abuse report lower levels of perceived control, which has been associated with more PTSD symptoms following forced revictimization as adults (Bolstad & Zinbarg, 1997). Thus, maladaptive cognitive beliefs can lead to psychological distress and posttraumatic disorder symptoms.

Cognitive appraisals of life threat, negative beliefs about the self and other people, and self-blame concerning personal flaws are associated with PTSD symptom severity (Frazier et al., 1997; Koss, Figueredo, & Prince, 2002; Resnick et al., 1993; Ullman et al., 2007). Frazier (2003) found that self-blame surrounding one's own behavior and blame on the perpetrator were both associated with greater levels of distress in a sample of female survivors of stranger rape. Using DSM-5 diagnostic criteria for PTSD, directly experiencing interpersonal assault also tends to be a significantly stronger predictor of persistent negative self and world beliefs and self-blame than other types of trauma exposure (i.e., combat, accident/fire, witnessing interpersonal assault), frequency of trauma exposure, and demographic variables (i.e., gender, ethnicity) (Cox, Resnick, & Kilpatrick, 2014). Foa, Riggs, and Gershuny (1995) also showed that these numbing symptoms are associated with higher overall PTSD severity, and are better at discerning adult sexual assault survivors with and without PTSD. Thus, sexual assault survivors may start to perceive themselves, others, and the world in a negative light, creating greater difficulty in establishing trusting and supportive relationships with others. This could lead to social alienation and isolation, thereby preventing them from the potential protective effects of positive social support and increasing risk for the development of posttraumatic pathology.

Sexual Violence Exposure and Coping

Coping strategies may be an important factor that prevent, reduce, or exacerbate PTSD symptom severity depending on the intention of the strategy. When confronted with a stressful situation, individuals tend to use three different types of coping strategies: problem-focused (i.e., the individual attempts to address the situation that is creating distress), avoidant (i.e., the individual engages in behavior to avoid the situation or related stress), or emotion-focused, (i.e., the individual tries to decrease or control the emotional distress associated with the situation) (Zeidner & Endler, 1996). Traumatized individuals often engage in maladaptive coping strategies in attempts to manage overwhelming distress. These cognitive and behavioral strategies are used to relieve distress without confronting the origin of the distress itself (Ullman, Peter-Hagene, & Relyea, 2014). These strategies can include dissociation, self-harm, substance use, and risky sexual behavior. These behaviors are thought to be tension reduction behaviors, in that they soothe, distract, and/or reduce debilitating negative emotionality associated with the traumatic event (Briere, 1992, 2001).

Dissociation. Posttraumatic (i.e., persistent) dissociation is dissociative experiences that occur after the traumatic event, whereas peritraumatic dissociation transpires during the traumatic event, considered to protect the individual by decreasing awareness of the salient threat of the experience (Cardena & Spiegel, 1993). Dissociative symptoms include recurrent and persistent experiences of feeling as though an individual is detached from his or her own mental processes or environment, almost as if he or she is not real or in a dream (APA, 2013). Dissociative symptoms reported after a traumatic event frequently include decreased awareness of one's surroundings, derealization (i.e., feeling as though the world is not real), depersonalization (i.e., feeling detached from one's self), dissociative amnesia, and a perceived sense of detachment or numbing (Zoellner, Jaycox, Watlington, & Foa, 2003). Dissociation can

be an adaptive psychological coping response in that it can decrease anxiety connected to overwhelming traumatic experiences through imaginative disengagement (e.g., visualizing another place), compartmentalization/avoidance, and emotional numbing in response to memories or cues (e. g., Beahrs, 1990; Eisen & Lynn, 2001; Lynn, Neufeld, Green, Rhue, & Sandberg, 1996; Terr, 1991).

However, dissociation can increase the risk of not identifying or responding appropriately to cues that may indicate the need to escape or avoid a dangerous situation (Chu, 1992; Gold, Sinclair, & Balge, 1999). Difficulty in recognizing risk or threats is associated with sexual revictimization (Meadows, Jaycox, Stafford, Hembree, & Foa, 1995). Thus, although the individual may automatically engage in dissociation to avoid or suppress distress associated with sexual traumatization, it may actually increase the risk of subsequent victimization, producing a harmful, cyclical effect and increase susceptibility for many more long-term negative effects.

Persistent dissociation may prevent access to and integration of traumatic memories and related feelings, exacerbating psychopathology in the process (Foa & Hearst-Ikeda, 1996). Peritraumatic dissociation predicts PTSD status as well as PTSD symptoms (Birmes et al., 2003; Koopman, Classen, & Spiegel, 1994). When the variance explained by persistent dissociation is already accounted for in earlier steps, peritraumatic dissociation no longer significantly predicts PTSD in sequential regression analyses (Briere, Scott, & Weathers, 2005; van der Velden & Wittman, 2008). Therefore, it may be that long-term coping difficulties following the traumatic event (i.e., persistent dissociation) lead to more impairing psychopathology than one's reaction during the event. Further, interpersonal violence tends to lead to higher rates of dissociation, with evidence that the undergraduate female survivors of IPV report higher amounts of peritraumatic dissociation than female survivors of natural disasters or those that experienced the sudden,

unexpected death of a close family member or friend (Hetzel-Riggin & Roby, 2013). Higher severity of avoidant and dissociative PTSD symptoms are also found in adults with a history of CSA (Deblinger, McLeer, Atkins, Ralphe, & Foa, 1989). Perhaps the intensity of being the target of violence by another person produces an intolerable level of distress that necessitates detachment from reality and the self.

Self-Harm. Self-harm is often defined as an individual's deliberate injury to his or her body, without conscious intent to die as a result of the injury, although there may be fatal consequences (Feldman, 1988; Simeon et al., 1992). The most common type of self-harm is self-cutting, although self-injurious behavior can also include self-burning, preventing wound healing, self-biting, and self-hitting (Herpertz, 1995; Langbehn & Pfohl, 1993). There is also evidence that women are more likely to engage in self-injury than men (Zlotnick, Mattia, & Zimmerman, 1999), but other studies have found no gender differences (e.g., Briere & Gil, 1998; Stanley et al., 2001). Using a sample of 125 women with depressive disorders, Gladstone et al. (2004) found that women with a history of CSA were significantly more likely to engage in deliberate self-injury (i.e., cutting) and attempt suicide than women without a CSA history. Further, O'Hare, Shen, and Sherrer (2015) found that a lifetime history of sexual abuse was significantly associated with self-harm behavior in a sample of women in treatment for severe mental illness, controlling for symptoms of these disorders. Beyond self-harm behavior, there is evidence that college students who have experienced sexual victimization while in college are significantly more likely to experience suicidal ideation or to make a suicide attempt (Brenner, McMahon, Warren, & Douglas, 1999; Stepakoff, 1998; Stephenson, Pena-Shaff, & Quirk, 2006).

Dissociative experiences are often followed by self-injurious behavior, especially cutting (Klonsky & Moyer, 2008; Weierich & Nock, 2008; Yates, Carlson, & Egeland, 2008). The

dissociation model posits that self-harm behavior is used to end dissociative experiences that ensue from intense, overwhelming emotions (Suyemoto, 1998). Dissociation and self-harm are therefore highly connected; in fact, Lev-Wiesel and Zohar (2014) found that significantly higher levels of persistent dissociation were found among adolescent Israeli females with a history of CSA versus those without, and dissociation significantly predicted self-injurious behavior in this sample. Whether it is through the visual shock of seeing blood or the physical sensation itself, creating physical injury to one's own body may disrupt a dissociative episode and help the individual reconnect with the self or his or her surroundings (Gunderson, 1984; Simpson, 1975). Self-harm behavior may thus be used to produce emotional responses and tangible physical sensations, as dissociation is often described as feeling numb, unreal, or detached, grounding the individual in the present moment (Klonsky, 2007). Consequently, it appears that maladaptive coping strategies may perpetuate each other; increased dissociation leads to increased self-harm behavior, and the self-injurious behavior is likely negatively reinforced by the reduction of distress associated with dissociation.

Substance Use. Substance abuse is a common form of coping following incidents of sexual abuse or assault. Survivors of CSA often engage in substance use to avoid or suppress distressing anxiety, memories, and low self-esteem (Miller, Downs, & Testa, 1993). It seems that the nature and severity of sexual violence begets subsequent substance use. Indeed, one meta-analysis found that greater severity of CSA was associated with higher severity of alcohol abuse (Moncrieff & Farmer, 1998). Recent sexual assault also predicts subsequent alcohol use, but not drug use, although drug use was related to increased susceptibility for revictimization (Kilpatrick, Acierno, Resnick, Saunders, & Best, 1997). Moreover, incapacitated, forcible, and drug-facilitated rape are associated with past-year binge drinking, marijuana use, and other illicit

drug use (McCauley, Ruggiero, Resnick, & Kilpatrick, 2010). Women who have a history of multiple sexual assaults also are more than 3 times more likely to start or escalate substance use compared to women that reported being victims of one sexual assault incident (McFarlane et al., 2005). In the same study, alcohol was the most frequently reported substance, and only women with a history of multiple assaults also reported illicit drug use, primarily crack or cocaine. Some substances, however, carry greater risk for revictimization than others, with evidence that cocaine-dependent women report more experiences of sexual assault than alcohol-dependent women (Grice, Brady, Dustan, Malcolm, & Kilpatrick, 1995), which may be more indicative of the context of the substance use than the substance itself.

Revictimization in a sample of college women was also associated with higher amounts of monthly binge drinking and increased odds of substance use compared to non-victims (Walsh et al., 2014). Increased use of substances can lead to dependency, and in fact, Messman-Moore and Long (2003) found that women with CSA histories were more likely to receive a diagnosis of a substance use disorder than women without a history of victimization. There can be a bidirectional relationship between trauma and substance use, with female trauma survivors of adult sexual assault reporting high rates of alcohol use both before and after incidents of sexual violence (Lis-Turlejska & Polak, 2002). McFarlane (1998), based on meta-analytic evidence, suggested however that traumatic events precede PTSD symptoms, which subsequently increase risk for both alcohol abuse and sexual revictimization. Therefore, although the directionality of the relationship is difficult to identify, there is still empirical evidence that substance use is a common coping strategy following sexual traumatization.

One of the most common underlying theories for substance use as a trauma coping strategy is the tension reduction hypothesis, whereby trauma survivors use and abuse substances

as a coping mechanism to deal with negative affective experiences related to PTSD including fear, hostility, and guilt (e.g., Epstein, Saunders, Kilpatrick, & Resnick, 1998; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Miranda, Meyerson, Long, Marx, & Simpson, 2002; Stewart & Israeli, 2002). However, there is also evidence that substance use may not reduce tension, but rather decrease sensitivity to punishment for users (Rasmussen & Newland, 2009). For instance, negative external consequences such as social rejection, criminal arrests, or loss of employment are not as punishing when intoxicated compared to states of sobriety, negatively reinforcing substance use. Internalized distress is not being directly reduced then, negative environmental stressors are perceived as less aversive instead, leading to lowered experience of negative affect. Yankofsky, Wilson, Adler, Hay, & Vrana (1986) also posit that substance do not modify negative affect directly, but instead influences cognitive processing of incoming information to be less distressing. It is therefore not completely clear as to why individuals use substances to cope with the deleterious effects of sexual trauma, although PTSD and substance use are highly related following trauma exposure.

Ullman, Najdowski, and Filipas (2009) found that re-experiencing, avoidance, and hyperarousal PTSD symptoms following sexual trauma predict problem drinking, which predicts later sexual revictimization in a longitudinal study. In this same sample of victimized women, these PTSD symptoms predicted alcohol abuse, but not illicit drug use, whereas numbing symptoms predicted illicit drug use, but not alcohol abuse. Thus, there may be differential predictive relationships between substance use and sexual victimization depending on the manifestation of posttraumatic stress, highlighting how different substances can be used to cope with different variations of distress. For example, perhaps numbing symptoms predict illicit drug use because the effects of these drugs allow individuals to feel alive, full of energy, with

heightened euphoria or positive affect. Re-experiencing, arousal, and avoidance symptoms, on the other hand, may precipitate alcohol abuse as alcohol could potentially help reduce arousal, decrease the incidence of intrusive thoughts and memories, and perpetuate avoidance. Substance use could potentially lead to comorbid substance use disorders with PTSD, increasing functional impairment and distress rather than alleviating symptoms, necessitating the use of more adaptive coping mechanism.

Risky Sexual Behavior. Risky sexual behavior is a common occurrence from adolescence to adulthood. Among high school students, 41% had experienced sexual intercourse, 30% had sexual intercourse in the previous 3 months with 43% reporting they did not use condoms during the last time and 21% drinking alcohol or using drugs before having sexual intercourse (CDC, 2015). Risky sexual behavior can include increased promiscuity, sexual intercourse without a condom, and early sexual activity (Beadnell et al., 2005; Levy et al., 2009). These behaviors increase risk for negative health outcomes, such as sexually transmitted infections, HIV/AIDS, and unexpected pregnancy (Bryan, Schmiege, & Magnan, 2012). However, in the case of sexual victimization, trauma can have varying effects on victims' decision making tendencies in future sexual situations. The role of childhood sexual trauma is important, as childhood sexual abuse predicts the likelihood of engaging in sexual activity on the first date or with a stranger (Molitor Ruiz, Klausner, & McFarland, 2000; Walker et al., 1999). Women with a history of CSA have a higher number of consensual sexual partners, reduced use of condoms during intercourse, increased pregnancies during adolescence, and are more likely to be a younger age at the time of first consensual sexual intercourse (e.g., Fergusson, Horwood, & Lynskey, 1997; Miller, Monson, & Norton, 1995; Noll, Trickett, & Putnam, 2003; Siegel & Williams, 2003) than women without CSA histories. CSA also is associated with more frequent

risky sexual behaviors among female college students (Rodriguez-Srednicki, 2001). Adolescent sexual victimization also is associated with interpersonal issues, number of sexual partners, and alcohol abuse (Gidycz et al., 1995).

Adult sexual trauma also is related to risky sexual behavior, with multiple assaults associated with higher levels of risk behaviors than single assaults, and risky behavior to be highest in sexual and physical assault groups than non-victim groups (Davis, Combs-Lane, & Jackson, 2002). Green et al. (2005) found that female college students exposed to a single sexual assault incident tend to report more risky sexual behavior than those that who have experienced no trauma, a physical trauma, or a non-interpersonal trauma (i.e., traumatic loss). Thus, even one incident of sexual victimization tends to increase the likelihood of risky sexual behavior in comparison to not only non-traumatized control groups, but other forms of trauma including physical assault. Violent sexual assault victimization in adolescence or adulthood also is significantly associated with anticipation of a higher negative reaction from sexual partners if the victim refuses unprotected sex (Masters et al., 2014).

Some researchers posit that coping strategies are important in delineating sexual risk behaviors, as avoidant strategies have been associated with fewer sexual partners, whereas self-destructive strategies have been associated with higher amounts of sexual partners (Merrill, Guimond, Thomsen, & Milner, 2003). Polusny and Follette (1995) theorize that risky sexual behavior may be a form of avoidant coping, suggesting that behavioral strategies are used to avoid and/or reduce negative internal emotional experiences following trauma, including re-experiencing and numbing symptoms. Emotional avoidance is a process that entails disproportionately high negative evaluations of unpleasant internal experiences (e.g., intrusive thoughts, dissociative flashbacks), an unwillingness to endure these experiences, and efforts to

reduce, control, numb, or escape from them (Polusny & Follette). Although other coping behaviors such as dissociation, self-harm, and substance abuse can be conceptualized as tension reduction behaviors (e.g., Briere & Runtz, 1991; Kessler et al., 1995), risky sexual behavior can also be understood as avoidant coping perpetuated by the temporary alleviation or suppression of aversive posttraumatic distress and subsequent relief (Polusny & Follette, 1995). Briere and Runtz (1993) and Briere (2001) assert that risky sexual behavior is also a form of tension reduction used to regulate distressing internal experiences associated with sexual victimization when internal regulation capacities are overwhelmed. Thus, it appears that risky sexual behavior, dissociation, self-harm, and substance use may be behavioral avoidant coping strategies that are negatively reinforced by the short-term reduction of distress despite long-term posttraumatic difficulties and increased risk of revictimization (e.g., Livingston, Testa, & VanZile-Tamsen, 2007). More research is needed though considering competing theories for the mechanisms underlying substance use behavior (i.e., decreased sensitivity to punishers).

Sexual assertiveness may also be an important mechanism to consider in the relationship between sexual trauma and coping in the form of sexual risk-taking behavior. Some studies suggest that women who were sexually abused as children are less likely to ask their sexual partners about acquired risk factors for HIV and report less confidence in their partners' HIV risk status (Harlow et al., 1998; Quina, Harlow, Morokoff, Burkholder, & Deiter, 2000). Further, Quina, Morokoff, Harlow, and Zurbriggen (2004) posit that negative emotional responses (e.g., fear) to CSA or adult sexual assault experiences can reduce the likelihood of engaging in self-protective behaviors (e.g., assertively asking about condom use) which creates higher susceptibility for unprotected sex. Another possibility is that negative alterations in cognitions after victimization results in women experiencing maladaptive perceptions of less risk in

unprotected sex than women without a history of assault or CSA (Smith, Davis, & Fricker-Elhai, 2004). Some researchers have also suggested that both CSA and adult sexual victimization are experiences where the trauma survivor feels trapped and unable to escape, leading to feelings of powerlessness (i.e., learned helplessness), which results in the individual feeling helpless to avoid future sexual violence (Finkelhor, 1987; Peterson & Seligman, 1983). Thus, this powerlessness is exhibited behaviorally as a lack of sexual assertiveness, leading to higher incidences of vulnerability to future victimization (Livingston et al., 2007).

Lifetime victimization predicts low sexual assertiveness which then predicts revictimization using prospective path analysis in a longitudinal study of adult women (Livingston et al. 2007). Experiences of verbal sexual coercion have also been associated with lower assertiveness, suggesting that women who are less assertive may be more susceptible to being manipulated into engaging in unwanted sex; the same relationship was not found for completed rape (Testa & Dermen, 1999). However, it is important to emphasize that the first incidences of highly traumatic experiences of sexual victimization set the stage for detrimental cognitive, emotional, and behavioral outcomes throughout both child development and adult functioning.

Sexual Violence and Coping Self-Efficacy

There may be underlying mechanisms that drive the relationship between sexual trauma and maladaptive coping strategies, including coping self-efficacy and emotion regulation. Coping self-efficacy is the perceived ability to maintain one's level of functioning and navigate high environmental demands of distress following a traumatic event (Benight & Bandura, 2004). Social cognitive theory underlies coping self-efficacy, explaining human functioning with triadic reciprocal causation: the idea that internal cognitive, emotional, and biological factors

bidirectionally interact with behavioral tendencies and environmental features to produce favorable or unfavorable outcomes (Bandura, 1986). Coping self-efficacy is theorized to help predict effective recovery through adaptive regulation of internal emotional and cognitive responses, application of effective coping strategies, and adaptive management of external demands related to environmental challenges (Lambert, Benight, Wong, & Johnson, 2012). Self-efficacy beliefs are considered to be extremely important in promoting posttraumatic resiliency, as they can increase self-enhancement, motivate to endure intense difficulties, improve the quality of one's affectivity, and reduce vulnerability to stress (Benight & Bandura, 2004). Thus, rather than prolonging or even exacerbating distress following CSA or adult sexual assault, coping self-efficacy can heighten resiliency and increase one's confidence in his or her abilities to address potential challenges and obstacles in recovery.

Coping self-efficacy has been found to play an integral role in the severity of posttraumatic stress and adaptive recovery following traumatic events, including military combat (Solomon, Benbenishty, & Mikulincer, 1991), terrorist attacks (Benight et al., 2000), natural disasters (Benight et al., 1997; Benight & Harper, 2002), and intimate partner violence (Benight, Harding-Taylor, Midboe, & Durham, 2004). Coping self-efficacy significantly mediates the relationship between negative cognitions (e.g., self-blame, negative thoughts about the world) and posttraumatic distress in a sample of adult female victims of CSA (Cieslak, Benight, & Lehman, 2008). Further, control beliefs of sexual assault survivors significantly predict PTSD after controlling for the effect of assault severity (Kushner, Riggs, Foa, & Miller, 1997). That is, low perceived control, one's lower perceived ability to use his or her influence to control traumatic events, leads to higher severity of PTSD. Perceptions of one's coping ability can influence distress, resulting in lowered severity of PTSD symptoms, lowered depressive

symptoms, and increased self-esteem (Benight & Midboe, 2002). Therefore, coping self-efficacy may be a critical factor underlying the relationship between sexual trauma exposure and maladaptive coping, leading to higher or lower levels of posttraumatic distress.

Sexual Violence and Emotion Regulation

Throughout any individual's daily life, he or she is exposed to a wide range of emotionally-laden stimuli, including both internal physiological sensations such as an increased heart rate, and external events such as being terminated from employment. In order to navigate the arousing emotions associated with every day events, people must employ strategies to maintain normal psychosocial functioning. If an individual uses adaptive emotion regulation strategies, it can result in positive effects such as diminished influence of negative emotions, increased resilience during periods of intense stress, and the support of personal growth (Bonanno, 2004). Maladaptive emotion regulation strategies, conversely, can serve as etiological and maintenance factors for psychopathology such as depression and anxiety disorders (Gross & Munoz, 1995; Helbig-Lang, Rusch, & Lincoln, 2015; Moore, Zoellner, & Mollenholt, 2008). Emotion regulation difficulties include maladaptive emotional patterns such as a lack of emotional awareness and clarity, resistance to accept one's emotions, and issues with managing one's behavior when experiencing high amounts of emotional distress (Gratz & Roemer, 2004).

Just as it's strongly associated with other forms of psychopathology, emotion regulation is theorized to be an important component in relation to exacerbating or alleviating posttraumatic distress. O'Bryan et al. (2015) found that difficulties with emotional acceptance significantly predicted higher hyperarousal and avoidance PTSD symptom cluster severity while controlling for negative affect and number of different trauma types. PTSD symptoms also are associated

with difficulty regulating negative emotions, higher use of emotional suppression, and lower use of reappraisal strategies to down-regulate negative emotions (Shepherd & Wild, 2014).

Following the intensely traumatic experience that is sexual victimization, individuals likely endure widespread emotional lability. Thus, emotion regulation is a pivotal coping component to consider following sexual trauma. Ullman, Peter-Hagene, and Relyea (2014) showed that emotion dysregulation mediated the relationship between CSA and PTSD severity in a sample of adult sexual assault victims, with emotion dysregulation as the strongest predictor of PTSD. Further, there is evidence that survivors of adult sexual assault experience difficulty in identifying and labeling emotions (Zeitlin, McNally, & Cassiday, 1993). Particularly for women that have been sexually revictimized, there is evidence that they struggle with emotional regulation, nonacceptance of emotions, and lack of emotional awareness or clarity (Walsh, DiLillo, & Scalora, 2011). Emotion dysregulation can also exhibit a bidirectional relationship with sexual trauma. Messman-Moore, Ward, and Zerubavel (2015) found that poor emotion regulation and alcohol abuse predicted alcohol-related sexual assault, highlighting negative relationships between this coping factor and sexual trauma, both before and after the event. These emotion dysregulation tendencies may perpetuate risk for future revictimization, as women may engage in substance abuse or sexual promiscuity to alleviate negative affect, but in doing so, increase the risk of potential perpetration by men seeking vulnerable victims (Grayson & Nolen-Hoeksema, 2005; Orcutt, Cooper, & Garcia, 2005).

In addition, inadequate affect regulation is associated with intentional self-harm, substance abuse, and indiscriminant sexual activity (e.g., Becker, Rankin, & Rickel, 1998; Briere & Gil, 1998; Grilo et al., 1997; Verheul, van den Brink, & Geerlings, 1999). Johnson and Lynch (2013) also showed that self-blame, posttraumatic distress, and emotion dysregulation are

significantly related to maladaptive coping strategies involving dissociation and denial-disengagement in a sample of incarcerated CSA survivors. Self-blame mediated the relationships between CSA and poor emotion regulation and CSA and posttraumatic stress, with both factors predicting maladaptive coping (2013). Thus, poor emotion regulation strategies can arise from negative alterations in cognitions (i.e., self-blame), leading to maladaptive coping, which could potentially place an individual at risk for negative long-term consequences, exacerbating posttraumatic distress and promoting dissociative experiences. Further, Briere, Hodges, & Godbout (2010) found that posttraumatic stress and poor emotion regulation skills mediate the relationship between cumulative interpersonal trauma exposure and dysfunctional avoidance (i.e., a latent factor combining suicidality, substance abuse, dissociation, and self-injury) in a general community sample. Using a prospective design over a 9-week period, Messman-Moore, Ward, and Zerubavel (2013) also found that emotion dysregulation predicted the likelihood of incapacitated sexual assault revictimization after controlling for the effects of substance use, alcohol and marijuana, and guilt. Emotion dysregulation can therefore serve as a risk factor for both maladaptive coping and revictimization, highlighting the importance of emotional awareness and identification/labeling of negative emotions in the recovery process following sexual trauma.

Emotion Regulation and Impulsivity. Emotional regulation also appears to be tied to impulsivity. Ceschi, Billieux, Hearn, Furst, and Van der Linden (2014) found traumatized participants with a strong propensity for impulsivity tended to use more maladaptive emotional regulation strategies than other participants. Emotion regulation also mediated the relationship between different facets of impulsivity in this study. Poor emotion regulation strategies and issues with impulse control also partially mediate the relationship between lifetime sexual

victimization and poor risk perception using a college sexual assault vignette (Walsh, DiLillo, & Messman-Moore, 2012). In addition, Weiss et al. (2012) showed that emotional dysregulation fully mediated the relationship between impulsive behaviors and PTSD symptom severity in participants with substance use disorders.) Filipas and Ullman (2006) also found emotion dysregulation to be related to both risky sexual behavior and substance use, perhaps increasing the risk for revictimization. In fact, Messman-Moore, Walsh, and DiLillo (2010) showed that emotion dysregulation mediated the relationship between CSA and revictimization as an adult, and predicted risky sexual behavior, which then predicted revictimization in sample of college women. Thus, there appears to be a strong relationship between posttraumatic symptoms, impulsive behaviors (i.e., substance use, risky sexual behavior), and emotion regulation.

One aspect of emotion regulation that has received relatively little study is how the experience of emotion influences health-related decisions. For example, delay discounting (i.e., a behavioral measure of impulsivity) and positive/negative urgency (i.e., the tendency to act impulsive when experiencing positive or negative affect) are associated with sexual risk taking, such as unsafe sexual activity, sexual infidelity, and infrequent condom use (Daugherty & Brase, 2010; Chesson et al., 2006; Johnson & Bruner, 2012; Lawyer & Mahoney (In Progress); Lawyer & Schoepflin, 2013; Reimers et al., 2009; Zapolski et al., 2009). Although the literature is somewhat limited, discounting procedures can be applied to sexual risk-taking and decision-making processes.

Delay Discounting

Delay discounting refers to the devaluing an outcome or reward based on its delay (Ainslie, 1975; Green & Myerson, 2004). In general, an individual's value of a reward diminishes as a function of how long one must wait to receive it. Individual patterns of delay

discounting are often measured by establishing the subjective value of a large amount of money across a series of delays (e.g., the immediate subjective value of \$100 in a day, a week, a month etc.; Rachlin, Raineri, & Cross, 1991), but can also be determined for other non-monetary outcomes as well such as food, substance use, and sexual activity (e.g., Bickel, Odum, & Madden, 1999; Johnson & Bruner, 2012; Lawyer & Schoepflin, 2013; Odum & Rainaud, 2003). Indifference points are then established at the points at which the participant perceives the smaller and larger values as equivalent, the subjective value of the delayed outcome. Lower subjective values of delayed outcomes are indicated by a steeper 'rate' of delay discounting, suggesting a pattern of preference for smaller-sooner outcomes over larger-delayed outcomes, indicative of difficulty with delaying gratification.

Each participant's rate of discounting (b) can be calculated by applying the hyperbolic decay function (Mazur, 1987) ($Y = A/(1+bX)$) to individual indifference points using nonlinear regression. In this model, Y is the subjective value of the delayed outcome, A is the actual value of the delayed outcome, X is the delay before receiving the large outcome, and b is a free parameter representing the rate of discounting. In delay discounting, higher b values indicate a preference for smaller-sooner or more impulsive outcomes, and thus a steeper rate of discounting. Several behavior problems are associated with steep delay discounting, including alcohol and drug problems (e.g., Bickel & Marsch, 2001; Coffey, Gudleski, Saladin, & Brady, 2003; Dom, D'Haene, Hulstijn, & Sabbe, 2006; Mitchell, Fields, D'Esposito, & Boettiger, 2005; Petry, 2001; Vuchinich & Simpson, 1998), cigarette smoking (e.g., Bickel et al., 1999), obesity (e.g., Lawyer, Boomhower, & Rasmussen, 2015; Rasmussen, Lawyer, & Reilly, 2010), sexual risk-taking (e.g., Chesson et al., 2006; Johnson & Bruner, 2012), and gambling (e.g., Alessi & Petry, 2003).

Domain Specificity. Delay discounting can be influenced by the nature of the commodity (i.e., domain specificity), with evidence, for example, that percent body fat is more strongly associated with delay discounting for food than delay discounting for money (Rasmussen et al., 2010). Substance users also tend to discount substances such as alcohol, cocaine, and opioids at higher rates than money (Coffey et al., 2003; Madden, Petry, Badger, & Bickel, 1997; Petry, 2001). Individuals tend to exhibit higher rates of discounting for consumable items as well, such as food and alcohol, than for money (e.g., Estle, Green, Myerson, & Holt, 2007; Odum, Baumann, Rimington, 2006; Odum & Rainaud, 2003). Cigarette smokers even differentially discount commodities, with higher discounting rates for cigarettes than for food, and higher rates for food than for money (Odum & Baumann, 2007). Further, sexual drug use risk behaviors are significantly correlated with delay discounting for sexual activity, but not delay discounting for money (Johnson & Bruner, 2012). Lawyer and Schoepflin (2013) have also found varying effects of domain specificity, with sexual activity discounting predicting sexual excitability, but not non-sexual outcomes or sexual inhibition. Thus, it's crucial to use the appropriate commodity for measuring impulsive choice for that outcome, rather than attempting to apply discounting rates for money to other domains (e.g., food, substances, sexual activity).

Delay Discounting for Sexual Activity. Sexual decision-making and risk-taking can be measured with behavioral measures of impulsive choice, as opposed to self-report measures of other trauma coping strategies (i.e., dissociation, self-harm) and coping self-efficacy. Using a discounting task with hypothetical erotica viewing time as the commodity, Lawyer (2008) found that the hyperbolic decay function fit erotica discounting well overall and that erotica users exhibited similar decision-making patterns as for financial outcomes. Further, Lawyer, Williams, Prihodova, Rollins, and Lester (2010) established a discounting procedure for hypothetical

sexual activity, asking participants if they prefer a small amount of sexual activity immediately (e.g., 3 minutes right now) or a large amount of sexual activity after a delay (e.g., 10 minutes of sexual activity in 1 week), with no specification as to the type of activity. They found that delay discounting for hypothetical sexual activity also produced discounting patterns similar to hypothetical money, and that the hyperbolic decay function and two-parameter hyperboloid function fit median indifference point data well for both money and sexual activity (Lawyer et al., 2010). The hyperboloid function is the same as Mazur's (1987) hyperbolic decay function, except that the denominator is raised to a power (s) that represents the scaling of time, tending to produce significantly better fits to rates of discounting than one parameter functions (Green et al., 1994). Nonetheless, steep rates of discounting for sexual activity would indicate that an individual impulsively chooses immediate sexual gratification over delayed, longer, and perhaps more pleasurable sexual activity at a later date. However, these tasks do not necessarily measure risky sexual behavior as there is no implication of risk of STI, unwanted pregnancy, or other negative health-related outcomes. These procedures instead measure impulsive decision-making patterns for a specified amount of erotica viewing time or sexual activity.

Johnson and Bruner (2012) developed and established a discounting procedure with clinical implications for risky sexual behavior, asking cocaine-dependent participants to indicate their likelihood of having immediate unprotected sex (i.e., without a condom right now) or delayed protected sex (i.e., with a condom in 3 hours) with specific photographed individuals judged to be sexually desirable when no condom was available right away. The authors found that participants demonstrated significantly greater discounting (i.e., preference for unprotected sex right now) for partners considered to be the most sexually desirable or least likely to have an STI versus those found least sexually attractive or most likely to have an STI (Johnson & Bruner,

2012). Jarmolowicz, Lemley, Asmussen, and Reed (2015) established a variation of this task to measure sexual promiscuity as a form of sexual risk-taking, asking undergraduate college students to choose between hypothetical immediate sex with a less attractive partner versus delayed sex with the subjectively most attractive partner. Depending on their choice, more or less preferred partners were made available through a titration procedure until median indifference points were established across eight delays. Discounting rates were significantly higher for participants with four or more sexual partners, and were correlated with self-reported sexual risk behaviors (2015). However, measuring sexual promiscuity alone may be an invalid assessment of risky sexual behavior, as individuals may be engaging in consistent protected sex (i.e., with a condom). Risk of STI and/or unwanted pregnancy may be more indicative of risky health behaviors within the context of sexual activity.

Delay Discounting, Mood Induction, & Affect. Affective or emotional experiences can influence decision-making processes. For instance, experiences of positive affect tend to precipitate more engagement in creative processing and heuristic-based approaches to decisions (Clapham, 2001; Gasper, 2004). Negative affect tends to be more related to more analytic processing and less confidence in decision-making abilities (Bless & Schwarz, 1999; Harle & Sanfey, 2007). Primed affective information or mood induction procedures also can impact decision-making procedures. There's evidence that a storytelling paradigm can prime the experience of fear, which leads to less likelihood of engaging in risky behaviors (Lindquist & Barrett, 2008). Conversely, individuals with higher levels of depressive symptoms demonstrate lowered inhibitory control, which is associated with impulsive decisions (Moriya & Tanno, 2008).

Oreg and Bayazit (2009) posit that decisions are heavily influenced by emotion regulation biases, in that individuals experiencing positive affect attempt to further maximize pleasure from their environment while individuals experiencing negative affect attempt to minimize or reduce emotional or psychological pain. Decisions made during experiences of negative affect appear to be an attempt to return to baseline or neutral affect, whereas positive affect is associated with maintaining or even maximizing pleasurable feelings. Augustine, Hemenover, Larsen, and Shulman (2010) argue that negative affect indicates a salient disparity from one's ideal affective state, providing a cue to engage in emotion regulation behavior. However, the experience of positive affect predicts higher rates of delay discounting in some individuals (Hirsh, Guindon, Morisano, & Peterson, 2010).

Perhaps gravitating towards experiencing either positive or negative affect results in impulsive behavior. Positive urgency, the tendency to act impulsively when experiencing positive affect, is likely related to maximization of pleasure. For example, an individual who has been consuming alcohol is likely to make impulsive decisions to maximize and perpetuate his or her positive affect, potentially consuming more alcohol or even illicit substances despite negative long-term consequences. Negative urgency, the tendency to engage in potentially risky or impulsive behaviors while experiencing negative affect is likely related to emotion regulation; individuals are likely desperate to reduce experiences of negative emotion and engage in impulsive behavior (e.g., substance abuse, shopping sprees) to alleviate distress. Indeed, for individuals high in neuroticism, higher negative affective reactions to negative primes (i.e., mood induction) show larger rates of discounting for money (Augustine & Larsen, 2011). In the same study, individuals low in neuroticism with higher positive affective reactions to positive primes showed higher rates of discounting for money. However, no research to date has examined how

the experiences of positive and negative affect through mood induction procedures, and subsequent emotion regulation processes, influence health-related decisions in sexual assault survivors. It should be noted that autobiographical recall has demonstrated significantly greater efficiency in inducing positive (e.g., happiness, serenity) and negative (e.g., sadness, anger) affect in terms of valence and arousal than music with guided imagery (Jallais & Gilet, 2010). Although narrative paradigms have been created to measure psychophysiological responses to idiosyncratic trauma cues in victims of CSA (Orr et al., 1998; Pitman et al., 1987), no study has measured positive and negative affect from these procedures within the context of sexually impulsive behavior.

Further, suppression of affect is an emotion regulation strategy that involves behavioral or physiological suppression of experiences of positive and negative emotions (Dan-Glauser & Gross, 2011). Gross and John (2003) found that the use of suppression can lead to a reduction of positive emotion and higher levels of negative emotion. Moreover, Nickerson et al. (2016) found that torture survivors that engaged in more state emotional suppression during exposure to trauma cues experienced higher levels of distress, especially for those with higher levels of PTSD symptoms. Interestingly, among non-torture trauma survivors with high levels of PTSD, higher use of emotional suppression resulted in lower levels of negative affect when exposed to these same cues. Therefore, emotional suppression can have varying effects on experiences of negative affect and distress for trauma survivors, with limited literature for the comparison of sexual assault survivors to non-traumatized individuals.

Present Study

Lifetime sexual trauma exposure is significantly related to maladaptive coping, including dissociation (e.g., Deblinger, McLeer, Atkins, Ralphe, & Foa, 1989; Hetzel-Riggin & Roby,

2013), self-harm (e.g., Gladstone et al., 2004; O'Hare et al., 2015), substance abuse (e.g., McCauley et al., 2010; McFarlane et al., 2005), and risky sexual behavior (e.g., Davis et al., 2002; Rodriguez-Srednick, 2001). However, what is unclear is the underlying mechanisms that drive this relationship. Coping self-efficacy can be a protective factor from posttraumatic distress following exposure to interpersonal violence, and likely bolsters adaptive coping and recovery processes (Benight et al., 2004; Cieslak et al., 2008). A woman's perceived ability to maintain functioning and manage the emotional exhaustion of distress following sexual trauma likely influences her utilization of adaptive (e.g., social support, therapeutic exposure, acceptance) or maladaptive coping mechanisms. Adaptive emotion regulation strategies may also serve as protective factors, as emotion dysregulation has been demonstrated to be significantly associated with posttraumatic distress (e.g., O'Bryan et al., 2015; Ullman et al., 2014). Emotion dysregulation is also significantly associated with dissociation, self-harm, substance abuse, and indiscriminant sexual activity (Becker et al., 1998; Briere & Gil, 1998; Grilo et al., 1997; Johnson & Lynch, 2013). Coping self-efficacy and emotion regulation thus may be key mechanisms through which lifetime sexual trauma exposure affects these maladaptive coping strategies, highlighting potential maintenance and etiological factors for PTSD symptom severity, risk of revictimization, and/or negative health outcomes. Further, as literature is limited on behavioral measures of these coping strategies, it is important to build on this model and elucidate how moment-to-moment affective experiences and associated emotion regulation processes affect the use of maladaptive coping in a controlled, laboratory setting.

The present study will therefore address two broad sets of questions about emotion regulation, coping self-efficacy, maladaptive coping, affect, and impulsive health decisions following sexual trauma exposure. The first goal of the study will be to determine if coping self-

efficacy and emotion regulation mediate the relationship between lifetime sexual victimization and a latent maladaptive coping variable (i.e., dissociation, self-harm, substance use, risky sexual behavior). Maladaptive coping will then be examined to determine if it predicts PTSD symptom severity, as these individual coping constructs are associated with this form of highly distressing and functionally impairing psychopathology (e.g., Briere et al., 2005). There is evidence that posttraumatic stress and poor emotion regulation skills mediate the relationship between interpersonal trauma exposure (or self-blame) and maladaptive avoidant coping (Briere et al., 2010; Johnson & Lynch, 2013), but no study to date has examined the specific relationships of the present study. Specifically, no study has investigated these mediating mechanisms as well as if the combination of these four coping variables predicts PTSD symptoms above and beyond individual variance from each construct. The second goal of the study will be to examine whether the experience of (or suppression) of emotion among female sexual trauma survivors in a laboratory context increases the likelihood of risky sexual decisions using a laboratory analog measure. No study to date has utilized a behavioral measure of impulsive sexual decision-making to investigate risky decision-making in sexual trauma survivors while simultaneously inducing emotion regulation strategies. This is important as self-report measures of sexual risk-taking (e.g., the Sexual Risk Survey) measure past sexual behavior and thus do not allow for experimental investigation regarding how contextual and mood factors as well as emotion regulation strategies influence risk behavior.

It is hypothesized that (see Figure 1):

Hypothesis 1: Lifetime sexual trauma exposure will be significantly related to all of the other constructs as follows:

Hypothesis 1.1: Lifetime sexual trauma exposure will be negatively related to coping self-efficacy.

Hypothesis 1.2: Lifetime sexual trauma exposure will be positively associated with emotion dysregulation.

Hypothesis 1.3: Lifetime sexual trauma exposure will be positively related to maladaptive coping.

Hypothesis 1.4: Lifetime sexual trauma exposure will be positively associated with PTSD symptom severity.

Hypothesis 2: Coping self-efficacy and emotion dysregulation will fully mediate the relationship between lifetime sexual trauma exposure and maladaptive coping.

Hypothesis 2.1: Coping self-efficacy will negatively predict maladaptive coping.

Hypothesis 2.2: Emotion dysregulation will positively predict maladaptive coping.

Hypothesis 2.3: Coping self-efficacy and emotion dysregulation will also be inversely related to each other.

Hypothesis 3: The latent variable *Maladaptive Coping* will positively predict posttraumatic stress in the form of PTSD symptom severity. Although each of these coping behaviors is related to PTSD, the extant literature has yet to demonstrate how this latent variable composed of dissociation, self-harm, substance use, and risky sexual behavior is related to PTSD symptoms.

Further, in order to further understand the trauma-related psychopathology following sexual trauma, it is imperative to examine any increase or decrease in hypothetical sexual risk behaviors (i.e., a sexual discounting task) in response to both a mood induction procedure and suppression of affect experimental manipulation. This experiment will examine whether negative

emotionality and emotion regulation affects risky sexual decision-making, which may serve as a trauma coping mechanism. It is hypothesized that:

Hypothesis 5: There will be a significant interaction effect in that suppression of negative affect will significantly increase preference for risky sexual decisions for sexually traumatized participants. This preference will be indicated by significantly lower AUC values for delay discounting with sexual outcomes. This relationship will not be significant for non-sexually traumatized participants.

Hypothesis 5.1: There will be a significant main effect of affective condition. Both positive and negative affect will lead to lower AUC values for delay discounting with sexual outcomes.

Hypothesis 5.2: There will be a significant main effect of emotion suppression. Suppressing affect will lead to lower AUC values for delay discounting with sexual outcomes.

Hypothesis 5.3: Given the above interaction effect, there will be no significant effect of suppression of positive affect on risky sexual decision-making.

Hypothesis 5.4: Emotion suppression also will not have a significant effect on risky sexual decision-making for non-sexually traumatized participants.

Hypothesis 6: Suppression of negative affect will significantly increase risky sexual behavior more than non-suppression of negative affect. This will be made evident by significantly lower AUC values for delay discounting for the suppression group than the non-suppression group.

Hypothesis 7: Non-sexually traumatized controls will demonstrate significantly higher AUC values for delay discounting with sexual outcomes.

Proposed Method

Participants

Participants will consist of undergraduate students from Idaho State University (ISU), recruited through psychology courses and compensated with extra credit through the online SONA system. Although students will be able to see the study online, researchers will also go into classrooms to recruit students by announcing the study with a description. Pending grant approval from APF/Council of Graduate Departments of Psychology, participants will also be recruited across academic disciplines at ISU, providing a heterogeneous sample with varying sociocultural backgrounds, socioeconomic statuses, and histories of sexual assault. Two samples will be recruited for the present study, women with a history of sexual assault, and women without any history of sexual traumatization. Inclusionary criteria for participants will include: being 18 years of age or older, female, being sexually active, and willing to provide informed consent. An a priori power analysis indicated that a sample size of 87 participants for each group of participants (i.e., sexual trauma-exposed and non-traumatized controls), would be necessary to obtain a medium effect with high power, for a total of 174 participants. Due to the potential for missing data and the rate of lifetime sexual victimization (1 in 4 women report completed rape; Rothbaum et al., 1992), I plan on recruiting up to 400 total participants to obtain adequate sample sizes.

All established requirements set forth by the Institutional Review Board (IRB) will be met, as well as ethical standards for the use of human research subjects.

Self-Report Measures

Demographics Questionnaire. The demographics questionnaire is an 8-item survey inquiring about age, sexual activity, ethnicity, sexuality, relationship status, religious

preferences, level of education, and household income. This questionnaire will be given to gather descriptive statistics on the composition of both participant groups.

Trauma History Questionnaire (THQ; Green, 1996). The Trauma History Questionnaire is a 24-item self-report measure used to assess participants' exposure to different forms of trauma. The scale prompts participants to indicate whether they have experienced each type of event (e.g., "Has anyone ever made you have intercourse or oral or anal sex against your will?"), the number of times they were exposed to each event, and their age of victimization for each traumatic event. The THQ has demonstrated good psychometric properties, with moderate to high test-retest reliability, excellent interrater reliability, and excellent construct validity (Hooper, Stockton, Krupnick, & Green, 2011; Mueser et al., 2001). Green (1996) also found the THQ to exhibit test-retest correlations ranging between .54 and .92 over a 2 to 3 month period. As the present study is interested in examining sexual assault and victimization, women's responses to the items surrounding unwanted sexual touching, forced sexual intercourse, and other unwanted sexual contact will be used to identify the group of participants with a history of sexual trauma. Nonetheless, for descriptive and control purposes, data on all types of traumatic experiences will be gathered for the present study.

Trauma Coping Self-Efficacy scale (CSE-T; Benight et al., 2015). The CSE-T is a 9-item self-report measure used to assess perceptions of general trauma-related coping self-efficacy. The instrument prompts participants to rate how capable they are in successfully addressing various posttraumatic situations (e.g. "Deal with my emotions (anger, sadness, depression, anxiety) since the traumatic event", "Manage distressing dreams or images about the traumatic experience"). Every item is measured on a 7-point Likert-type scale (1 = *I'm Not At All Capable* and 7 = *I'm Totally Capable*). The CSE-T has demonstrated psychometrically sound

properties across three different samples, including hospitalized trauma patients (e.g., motor vehicle accident, interpersonal violence), natural disaster survivors (e.g., fire, hurricane), and an undergraduate population (Benight et al., 2015). Discriminant, convergent, criterion, and cross-event construct validity were all supported by this study (2015). Further, test-retest reliability in the disaster survivor sample was strong over each time period (ranging from $r = .76$ to $r = .81$ from 2 weeks to 2 months), and moderate in the hospital sample between 6 weeks and 3 months (ranging from $r = .57$ to $r = .72$).

Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The DERS is a 36-item self-report measure used to assess various issues with regulating emotional experiences. The scale prompts participants to rate their level of agreement with a series of statements concerning emotion dysregulation within six different domains including emotional clarity (Clarity; e.g., “I have no idea how I’m feeling”), emotional awareness (Awareness; e.g., “I am attentive to my feelings”), emotional acceptance (Acceptance; e.g., “When I’m upset, I feel ashamed with myself for feeling that way”), impulse control (Impulse; “When I’m upset, I lose control over my behaviors”), access to adaptive emotion regulation strategies (Strategies; “When I’m upset, I believe that wallowing in it is all I can do”), and ability to participate in goal-directed behavior during times of distress (Goals; “When I’m upset, I have difficulty getting work done”) (Gratz & Roemer, 2004). Every item is measured on a 5-point Likert-type scale (1 = *Almost Never* and 5 = *Almost Always*). The DERS demonstrates excellent psychometric properties with high internal consistency and test-retest reliability; subscale internal consistency estimates range from good to excellent in samples of incarcerated women and undergraduates ($\alpha = .93$ for total scale, $\alpha = .80 - .92$ for all subscales) (Gratz & Roemer, 2004; Johnson & Lynch,

2013; O'Bryan et al., 2015). For the purposes of the present study, a latent emotion dysregulation variable will be created to encompass all six subscales.

Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986). The DES is a 28-item self-report measure used to assess the frequency of dissociative experiences (e.g., “Some people sometimes have the experience of feeling that other people, objects, and the world around them are not real”) in terms of percentages. The instrument prompts participants to rate the percentage of time that certain events occur for them, without being under the influence of alcohol or drugs. The items are measured on a scale ranging from 0% to 100% in 10-point increments with a single mean score derived from the 28 items, with higher mean scores denoting more frequent experiences. Waller, Putnam, and Carlson (1996) suggest a cut-off score of 30 or greater to indicate pathological dissociation. The DES has demonstrated excellent psychometric properties with strong test-retest reliability ranging from .84 to .96 over intervals of 4 to 6 weeks (Bernstein & Putnam, 1986), functioned well on various indices of validity (Firschholz et al., 1991), and can reliably predict traumatic experiences and dissociative disorders (van Ijzendoorn & Schuengel, 1996).

Self-Harm Behavior Questionnaire (SHBQ; Gutierrez, 1998). The SHBQ is a self-report measure used to assess self-harm behavior and suicidality. The instrument is separated into four sections: (a) non-suicidal intentional self-harm, (b) suicide attempts, (c) threats of suicide, and (d) suicidal ideation. For the purposes of the present study, only the first section will be administered to participants. The section begins with the question “Have you ever hurt yourself on purpose? (e.g., scratched yourself with a finger nails or a sharp object).” If the woman endorses this question, follow-up questions are then asked including how many times she has participated in the behavior, her age during the first incident, her age during the most recent

event, if anyone else knows about the behavior, and if the self-harm behavior created an injury serious enough to require medical treatment (Gutierrez, Osman, Barrios, & Kopper, 2001). The SHBQ has demonstrated excellent internal consistency estimates, particularly for the self-harm section ($\alpha = .96$), and evidence of convergent validity with moderate to strong relationships with widely used and validated suicidality measures (Gutierrez et al., 2001).

Substance Abuse. The Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993) is a 10-item screening instrument used to identify alcohol consumption patterns that are hazardous and harmful; it gathers information on amount and frequency of intake, dependence, and issues associated with consumption. The assessment can aid in the identification of patterns of excessive alcohol consumption as the cause of presenting problems, provide a structure for therapeutic intervention to help hazardous and harmful drinkers to reduce or quit drinking to avoid adverse repercussions, and identify alcohol dependency (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). Scores range from 0 to 40, with a cutoff score of 8 or more for males and 6 or more for females on the instrument indicating hazardous alcohol consumption and possible alcohol dependence (Reinart & Allen, 2002). The AUDIT has demonstrated convergent validity, strong test-retest reliability ($r = .84 - .95$ over one month), and good internal consistency estimates in a sample of undergraduate students ($\alpha = .81$), with evidence that it can help screen for Alcohol Use Disorders in this population (Adewuya, 2005; Dybek et al., 2006; Kokotailo et al., 2004; Selin et al., 2003).

The Drug Use Disorders Identification Test (DUDIT; Berman, Bergman, Palmstierna, & Schlyter, 2005a) is an 11-item self-report instrument used to identify psychosocial indicators of drug use issues within the past year. It provides information on the amount of drug intake and selected diagnostic criteria for substance abuse, harmful use, and dependence according to the

ICD-10 and DSM-IV diagnostic manuals. Scores range from 0 to 44, with a score of 25 being indicative of heavy dependency on drugs (Berman et al., 2005a). Further, scoring is gender-specific with cutoff scores of 6 for males and 2 for females indicating harmful substance abuse. The DUDIT has also exhibited excellent psychometric properties with internal consistency estimates ranging from good to excellent in general ($\alpha = .93$) and clinical samples ($\alpha = .80 - .94$), high convergent validity ($r = .85$) with the Drug Abuse Screening Test (DAST-10), and good discriminant validity discriminating alcohol abusers from drug abusers (Berman, Bergman, Palmstierna, & Schlyter, 2005b; Voluse et al., 2012). The DUDIT has also been shown to reliably predict substance abusers from inpatient opiate users (Berman, Kallmen, Berredal, & Lindqvist, 2008).

Sexual Risk Survey (SRS; Turchik & Garske, 2009). The SRS is a 24-item self-report measure used to assess sexual risk-taking behavior. The scale prompts participants to answer a series of questions about their patterns of risky sexual behavior over the past six months (e.g. “How many times have you ‘hooked up’ but not had sex with someone you didn’t know or didn’t know well?”) and over their lifetime (e.g., “How many times have you had vaginal intercourse without a latex or polyurethane condom?”). The SRS has demonstrated excellent psychometric properties, with a strong internal consistency estimate ($\alpha = .88$), test-retest reliability ($r = .93$ over 2 weeks), and evidence of convergent validity with scales of sexual inhibition/excitation, sexual desire, and impulsive sensation-seeking in a sample of undergraduates (Turchik & Garske, 2009).

PTSD Checklist for DSM-5 (PCL-5; Weathers et al., 2013). The PCL-5 is a 20-item self-report inventory of PTSD symptoms that assesses the 20 symptoms of PTSD according to the DSM-5. The checklist can be used to screen individuals for PTSD, provide a provisional

diagnosis of PTSD, and/or track any changes in symptoms during the course of treatment (National Center for PTSD, 2016). Every item is measured on a 5-point Likert-type scale (0 = *Not At All* and 5 = *Extremely*), and scores range from 0-80. Scoring can be determined several ways: (a) with a total symptom severity score based on the total sum of all 20 items, (b) with symptom cluster severity scores based on the sum of items within each cluster (c) or considering each item with a score of 2 or higher as an endorsed symptom to provide a provisional diagnosis of PTSD while following the DSM-5 diagnostic criteria (Blevins, Weathers, Davis, Witte, & Domino, 2015). The DSM-5 has exhibited strong psychometric properties, with evidence of high internal consistency ($\alpha = .94$) and test-retest reliability ($r = .82$), along with support for convergent and discriminant validity in samples of trauma-exposed undergraduate students and veterans (Bovin et al, 2015; Blevins et al., 2015).

Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988).

The PANAS is a 20-item self-report measure used to assess the intensity of positive and negative affect. The measure contains a 10-item Likert-type scales for both positive and negative affect, and can be used to measure current and past reports of subjective affect (Hirsh et al., 2010). High internal consistency estimates have been found for this measure for both positive ($\alpha = .86-.90$) and negative affect ($\alpha = .84-.87$), with low correlations between the two subscales ($r = -.12$ to $-.23$), and good test-retest reliability (Watson et al., 1988). For the purposes of the present study, the PANAS will be used to measure participant's level of positive and negative affect both before and after the mood induction procedure to determine if both the experimental manipulation and the suppression condition were effective.

Behavioral Measure

The Sexual Discounting Task (SDT; Johnson & Bruner, 2012). The Sexual Discounting Task assesses delay discounting for sexual rewards with the use of photographs of specific hypothetical sexual partners. Based on physical appearance, participants are asked to first choose photographs of all the individuals with whom they would be willing to have casual sexual intercourse using the following verbal script (Johnson & Bruner, 2012):

“For this task, we will ask you hypothetical or pretend questions about your willingness to have sex in various situations. For the purpose of this task, please pretend that you are single and available, and that you are not cheating on anybody if you indicate you would have sex with somebody in this task. As you can see, I have laid out a lot of pictures of people. For each person, I would like you to think about how attractive that person is. Based on physical appearance alone, please think about whether each person is someone that you would consider having sex with in the right environment and if you liked the person’s personality. Please pick up the pictures of the people you would have sex with.”

Then, the participant is asked to identify the photo of the person that she would most want to have sex with based on physical appearance alone. Participants are then asked to complete a computerized questionnaire with eight visual analog scale (VAS) lines, 100-mm each, with the photograph in sight. The VAS lines range from “I will definitely have sex with this person now *without* a condom” to “I will definitely wait [delay] to have sex with this person *with* a condom,” with the initial line as a 0-delay trial to determine the likelihood (0-100%) of using sexual protection if it was immediately available. For the remaining seven VAS delay trials, the participant is asked to rate her likelihood of waiting for protected sexual intercourse after a definitive period of time when no condom was initially accessible. The delays increase in ascending order and include 0 hours, 1 hour, 3 hours, 6 hours, 1 day, 1 week, 1 month, and 3

months. The SDT has been validated in a sample of cocaine-dependent individuals and fits the hyperboloid discounting equation well (Johnson & Bruner, 2012). Sexual discounting data from this task also appears to be mainly orderly and systematic, with strong test-retest reliability over a one week period (Johnson & Bruner, 2013).

Procedure and Proposed Analyses

Study 1 Procedure. Participants will be 18 years of age or older, female, and sexually active. They will be undergraduate psychology students recruited with the ISU SONA system, and compensated with course credit for their participation. Pending grant approval from APF/COGDOP, they will also consist of undergraduate and graduate students from across academic disciplines at ISU, and will be financially compensated with a small stipend of \$10. However, if the grant proposal is denied, all participants will be undergraduate psychology students recruited with SONA.

The first study will examine the potential mediating roles of coping self-efficacy and emotion regulation in the relationship between lifetime sexual trauma exposure and a latent maladaptive coping variable, predicting to PTSD symptom severity. Participants will be asked to complete the series of questionnaires including the demographics questionnaire, THQ, SES, CSE-T, DERS, DES, SHBQ, AUDIT, DUDIT, SRS, and PCL-5 online through Qualtrics. There will be several validation checks throughout the study to ensure participants are answering honestly and accurately. If they code positively for lifetime sexual trauma exposure on the THQ, they will be invited to take part in the second phase of the study with an equal number of non-sexually traumatized controls from the first phase of the study.

Study 1 Proposed Analyses. The data will first be screened for missing values, non-normality, and outliers using SPSS software. Descriptive statistics from the demographics

questionnaire will be analyzed and reported including age, ethnicity, sexuality, relationship status, religious preferences, level of education, and household income. Chi-square analyses will also be conducted to examine differences on categorical demographic data as a function of lifetime sexual victimization history, and possible inclusion of these variables as controls. Descriptive statistics will also be reported on all of the self-report measures for both the non-sexually traumatized and sexually traumatized groups including the THQ, SES, CSE-T, DERS, DES, SHBQ, AUDIT, DUDIT, SRS, and PCL-5. Then, a series of independent *t*-tests will be utilized to compare scores for both groups of participants on these variables. Bivariate correlations will also be conducted to evaluate the relationships between self-report measures of lifetime sexual victimization, emotion regulation, coping self-efficacy, dissociation, self-harm, substance use, risky sexual behavior, and PTSD symptom severity.

Structural equation modeling (SEM) will be used to evaluate proposed hypotheses surrounding the potential mediating roles of coping self-efficacy and emotion regulation in the relationship between lifetime sexual trauma exposure and a latent maladaptive coping variable predicting to posttraumatic stress. SEM is a form of statistical analysis that portrays relationships among observed variables testing various theoretical models, hypothesizing how sets of observed variables comprise latent constructs and relationships between these constructs (Schumacker & Lomax, 2010). The primary goal of SEM analysis is to determine the model fit of a theoretical model to sample data. Depending on the fit, more complex models can be hypothesized, the original model can be amended, or other models need to be developed. This process of analysis improves the conceptualizations of the dynamic relationships among constructs. The proposed analyses include two unobserved constructs, emotion regulation and maladaptive coping, and SEM thus provides the opportunity to first evaluate the measurement model for the factor

loadings and indicators (e.g., emotional awareness, dissociation, substance use, etc.) of these latent variables.

The measurement model of the latent variables and the overall structural model will be analyzed in MPLUS and evaluated for goodness of fit through several indices including chi-square, the Tucker-Lewis Index (TLI), the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA). First, the chi-square test of model fit will be examined to evaluate the discrepancy between the sample and population covariance matrices, with an insignificant test indicating a good fit of the model. As this test is sensitive to small sample size, it is important that at least 150 to 200 participants are recruited to ensure accurate model fit. Second, the TLI and CFI will be examined to determine the degree of congruence between the model and the actual data, with good model fit indicated by values of .9 or higher. Third, the RMSEA will be examined to estimate the lack of fit of a model when compared to the saturated model; values of .06 or less indicate a good model fit. The proposed measurement model will include two latent factors. First, dissociation, self-harm, substance use, and risky sexual behavior will load onto a latent maladaptive coping variable. Models will be compared with and without risky sexual behavior to find the best model fit. Second, emotional clarity, emotional awareness, emotional acceptance, impulse control, emotion regulation strategies and goal-directed behavior will hopefully load onto a latent emotion dysregulation variable.

After examination of the measurement model, the structural model will be examined in MPLUS as well. The structural model is all of the relationships between the latent and observed variables including lifetime sexual trauma exposure, coping self-efficacy, emotion dysregulation, maladaptive coping, and PTSD symptom severity. It is predicted that (a) lifetime sexual trauma exposure will predict maladaptive coping; (b) coping self-efficacy will mediate the relationship

between lifetime sexual trauma exposure and maladaptive coping; (c) emotion dysregulation will also mediate the relationship between lifetime sexual trauma exposure and maladaptive coping; (d) maladaptive coping will predict PTSD symptom severity. Mediating relationships will be determined to be significant based on asymmetric confidence intervals.

Study 2 Procedure. One hundred sexually traumatized and one hundred non-sexually traumatized participants recruited from the first phase of the study will be asked to come to Dr. Steven Lawyer's lab in Garrison Hall. The mood induction procedure will take place in a windowed room with a computer surrounded by a barrier for privacy. The procedure for the experiment will apply procedures previously validated in the literature for both the mood induction and emotional suppression experimental manipulations (Augustine & Larsen, 2011; Krauth-Gruber & Ric, 2000; Westermann, Spies, Stahl, & Hesse, 1996; Zhang, Yu, & Barrett, 2014). To ensure that the mood induction procedure is effective, a small pilot study (i.e. 10 participants) will first be conducted with recruited participants from SONA who will complete the procedure along with the PANAS to confirm its validity. Upon entering the lab, each participant will read and sign an informed consent document outlining the study aims, procedures, and risks/benefits. Participants will then be randomly assigned to one of four groups: (1) positive affect/suppression, (2) positive affect/no suppression, (3) negative affect/suppression, and (4) negative affect/no suppression. They will then be administered the PANAS to establish baseline affect. After completion of this measure, depending on the condition, they will be asked to engage in the autobiographical recall procedure to evoke either positive or negative affect.

For the mood induction procedure, an autobiographical recall procedure will be used. Autobiographical narrative sheets will be provided for participants to write down a sad (i.e.,

negative affect) or happy (i.e., positive affect) event for a period of 10 minutes. Participants in both suppression and non-suppression conditions a research assistant will read the following script:

“For this task, we will ask you to recall one of the [happiest/saddest] moments of your life. For the purpose of this task, please think of one of the [happiest/saddest] memories from your life, and write out the event with as much detail as possible. After you finish, please take 5 minutes to re-read the memory to yourself and try to relive the experience as vividly as possible using all of your senses including visual imagery, sounds, smells, tastes, and physical sensations.”

For participants in the suppression conditions, the research assistant will also read the following, derived from previous mood suppression research (Evers, Stok & de Ridder, 2010; Gross, 1998; Jenks, 2016):

“...If you have any feelings while engaging in this task, please try your best not to let those feelings show. In other words, as you remember, write, and read about one of the happiest (saddest) moments of your life, try to behave in such a way that a person watching you would not know that you were feeling anything. It’s very important to control your facial expressions and body language to make it appear as though you’re not experiencing any emotions.”

Regardless of suppression condition, participants will then be asked to quickly complete the PANAS again to establish if the mood induction procedure has produced the intended changes in affect. After completion of the second PANAS, they will complete the Sexual Discounting Task.

Study 2 Proposed Analyses. The second phase of the study examining the influence of a mood induction procedure and emotional suppression on sexual discounting will be analyzed separately. A 2 X 2 factorial ANOVA (i.e., suppression/no suppression; positive affect/negative affect) will be used to analyze the effects of these experimental manipulations. AUC values for sexual delay discounting will be used as the dependent variable. It is hypothesized that there will be a significant interaction of affect and emotional suppression: (1) suppression of negative affect will significantly increase preference for risky sexual decisions; (2) suppression of positive affect will not have a significant effect on risky sexual decision-making; and (3) suppression of negative affect will significantly increase delay discounting for sexual activity more than non-suppression of negative affect.

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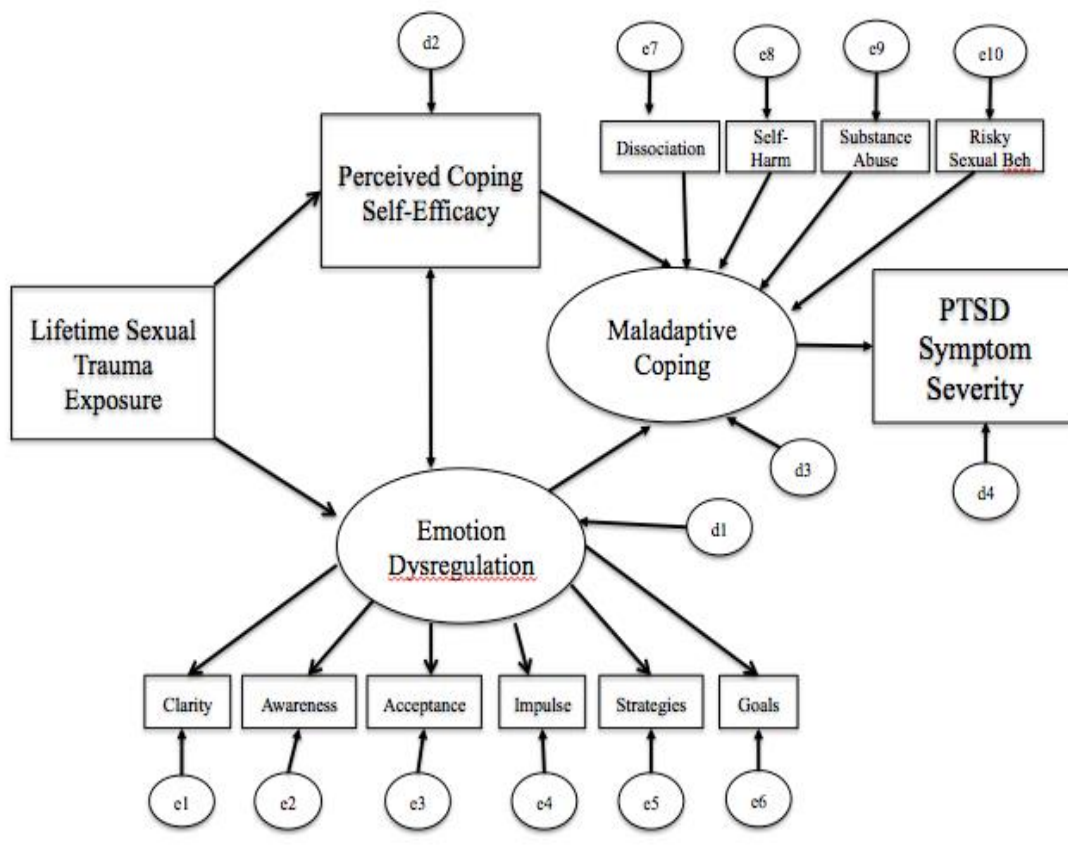


Figure 1. Hypothesized structural model wherein perceived coping self-efficacy and emotion dysregulation mediate the relationship between lifetime sexual trauma exposure and maladaptive coping predicting to PTSD symptom severity.