

2013

Effects of Emotion Regulation Strategies on Sexual Risk-Taking

Monica Lackups

Follow this and additional works at: <http://commons.emich.edu/theses>



Part of the [Clinical Psychology Commons](#)

Recommended Citation

Lackups, Monica, "Effects of Emotion Regulation Strategies on Sexual Risk-Taking" (2013). *Master's Theses and Doctoral Dissertations*. 716.

<http://commons.emich.edu/theses/716>

This Open Access Thesis is brought to you for free and open access by the Master's Theses, and Doctoral Dissertations, and Graduate Capstone Projects at DigitalCommons@EMU. It has been accepted for inclusion in Master's Theses and Doctoral Dissertations by an authorized administrator of DigitalCommons@EMU. For more information, please contact lib-ir@emich.edu.

Effects of Emotion Regulation Strategies on Sexual Risk-Taking

by

Monica Lackups

Thesis

Submitted to the Department of Psychology

Eastern Michigan University

in partial fulfillment of the requirements

for the degree of

MASTER OF SCIENCE

in

Clinical Psychology

Thesis Committee:

Natalie Dove, PhD, Chair

Carol Freedman-Doan, PhD

Tamara Loverich, PhD

December 19, 2013

Ypsilanti, Michigan

Abstract

Sexual risk-taking is a growing problem and an area where there are significant individual differences in behavior. One contributing factor to risky sexual behavior may be emotion regulation difficulties. For example, suppression has negative effects on emotion experience, while reappraisal leads to increased well-being. Previous research has demonstrated the use of sexual behavior as an emotion regulation strategy in victimized populations. This study investigated whether emotion regulation strategies influence sexual risk-taking in a non-clinical college population. Individuals with higher levels of emotion regulation difficulties and higher suppression use engaged in more frequent sexual risk-taking behavior, whereas individuals who used reappraisal more frequently engaged in less sexual risk-taking. In addition, the use of reappraisal partially mediated the relationship between difficulties in emotion regulation and risky sexual behavior, for females. The gender differences suggest that females may benefit most significantly from risk-taking interventions focused on increasing positive emotion regulation strategies.

Table of Contents

Abstract	ii
Chapter 1. Introduction and Literature Review	1
Sexual Risk-taking	3
Individual Differences in Sexual Risk-taking	3
Substance use	3
Gender differences	6
Correlates of sexual behavior and gender differences	8
Emotion Regulation.....	10
Gross’s Model of Emotion Regulation.....	10
Suppression and Reappraisal.....	12
Physiological, emotional, and cognitive effects.	13
Psychopathology.	16
Emotion Regulation Difficulties	17
Difficulties in Emotion Regulation and Emotion Regulation Strategy Use.....	18
Emotion Regulation Strategy Use and Gender	20
Emotion Regulation Difficulties and Gender	22
Summary.	23
Emotion Regulation and Sexual Risk-taking	23
Emotion Regulation, sexual risk-taking, and victimization.....	25
Sexual behavior as emotion regulation.	27
Summary	28
Self-regulation.....	28

Present Study.....	30
Hypotheses	32
Chapter 2. Methods.....	35
Sample Characteristics	35
Procedures	38
Measures.....	39
Difficulties in emotion regulation.....	39
Emotion regulation.....	40
Sexual risk.....	42
Drug and Alcohol Use.	44
Chapter 3. Results	51
Data Preparation	51
Hypothesis Testing.....	52
Gender differences	52
Associations among emotion regulation, strategy use, and risky sexual behavior.....	53
Gender differences.	55
Mediation.	58
Substance use.	61
Chapter 4. Discussion	67
Gender Differences in Behavior.....	67
Substance Use	72
Emotion Regulation Difficulties and Strategy Use	73
Emotion Regulation and Sexual Risk-Taking.....	74

Mediation.....	76
Implications.....	78
Treatment.....	78
Research.....	81
Limitations.....	83
Conclusion.....	84
References.....	86
Appendix A.....	96
Appendix B.....	98
Appendix C.....	100
Appendix D.....	106
Appendix E.....	109
Appendix F.....	113
Appendix G.....	115
Appendix H.....	117

List of Tables

Table

1	Demographics	36
2	Means, Standard Deviations, and Ranges for All Variables.....	47
3	Sample Size, Means, Standard Deviations, and Ranges for All Variables by Gender	48
4	Analysis of Covariance Summary	53
5	Total Sample Intercorrelations Between Variables	54
5	Total Sample Intercorrelations Between Variables, Controlling for Substance Use.....	54
7	Gender-Based Intercorrelations Between All Variables.....	57
8	Gender Based Partial Intercorrelations Between All Variables.....	58

List of Figures

Figure

- 1 Mediation model tested for the effect of suppression on the relationship between difficulties in emotion regulation and sexual risk-taking behavior for the female sample.63
- 2 Mediation model tested for the effect of suppression on the relationship between difficulties in emotion regulation and sexual risk-taking behavior for the female sample controlling for substance use.64
- 3 Mediation model tested for the effect of reappraisal on the relationship between difficulties in emotion regulation and sexual risk-taking behavior for the female sample.65
- 4 Mediation model tested for the effect of reappraisal on the relationship between difficulties in emotion regulation and sexual risk-taking behavior for the female sample controlling for substance use.66

Chapter 1. Introduction and Literature Review

Casual sex has become a cultural phenomenon in recent years, creating a “hook-up culture” and leading to greater sexual risk-taking behavior. Sexual risk-taking is defined in several different ways, including inconsistency of condom use, increased numbers of casual partners, and increased numbers of lifetime sexual partners (Turchik & Garske, 2009). Risky sexual behavior results in many negative consequences including sexually transmitted infections (STI) and unintended pregnancies (CDC, 2013). There is an average of 20 million new sexually transmitted infections each year and 110 million infections in the United States, which costs the healthcare system approximately \$16 billion each year (CDC, 2013). Individuals aged 15-24 have the fastest growing rate of STIs and account for approximately 50% of diagnoses (CDC, 2013). Unintended pregnancy rates are also high in this age group. In 2006, approximately 49% of pregnancies were unintended and the majority of those cases were individuals age 18-24 (Finer & Zolna, 2011). As such, sexual risk-taking is a growing and pertinent issue, particularly among college-aged individuals.

There are significant individual differences in sexual risk-taking, most notably gender differences. Research has demonstrated that males are more likely than females are to engage in risky sexual behavior (Poulson, Eppler, Satterwhite, Weunsch, & Bass, 1998). The gender differences in risky sexual behavior suggest that there are mediating factors, such as personality characteristics, between biological sex and sexual behavior. One possible mediating factor that was investigated in the current study is emotion regulation difficulties and strategy use, which encompass the way individuals influence and express their emotions. Emotion regulation difficulties are defined as the absence of some or all of the following abilities: awareness and understanding of emotions, emotional acceptance, ability to control impulsive behaviors and act

in accordance with goals when feeling negative emotions, and the ability to use appropriate emotion regulation strategies in a flexible manner (Gratz & Roemer, 2004). Emotional suppression and reappraisal are two specific emotion regulation strategies that have different effects on behavior. Emotion suppression is defined as an individual altering or diminishing an emotion after it has occurred and cognitive reappraisal is defined as an individual changing whether or not they will experience an emotion before it starts (Gross, 1998a). Emotion suppression is related to greater psychological distress, whereas reappraisal is related to greater feelings of well-being (McRae, Ochsner, Mauss, Gabrieli, & Gross, 2008). Research has demonstrated that emotion regulation difficulties are related to sexual risk-taking behaviors in victims of childhood sexual and physical abuse (Walsh, DiLillo, & Messman-Moore, 2012); however, the relationship between emotion regulation difficulties, the specific strategies of suppression and reappraisal, and risky sexual behavior has yet to be studied in a non-clinical population.

Based upon past research, it appears that emotion regulation difficulties and strategy use, specifically the use of suppression, may contribute to sexual risk-taking behavior (Cooper, Wood, Orcutt, & Albino, 2003). As previously noted, it is yet unclear if this effect is present in nonclinical populations or explains the gender differences in sexual risk-taking. The present study seeks to determine the effects of the specific emotion regulation strategies of suppression and reappraisal on sexual risk-taking for both males and females. Research on risky sexual behavior has examined the contributions of several individual differences such as substance abuse and gender to this risky behavior.

Sexual Risk-taking

Risky sexual behavior is most often defined as inconsistent or non-use of condoms, increased numbers of casual partners, and increased numbers of lifetime sexual partners (Turchik & Garske, 2009). Higher numbers in each of these three areas contribute to higher risk of sexually transmitted infections and unwanted pregnancy (Turchik & Garske, 2009). Current research has predominantly focused on these three areas of sexual risk-taking when assessing the individual differences and correlates of sexual behavior (Turchik & Garske, 2009). Individuals engage in risky sexual behavior for different reasons, which include being under the influence of substances, to fit in with a peer group, being under pressure from a partner, or to cope with one's emotions (Cooper, Shapiro, & Powers, 1998; Walsh, DiLillo, & Messman-Moore, 2012). Below is a summary of the current research on the individual differences and correlates of risky sexual behavior.

Individual Differences in Sexual Risk-taking

Researchers have examined individual differences that affect sexual risk-taking. These include, ethnicity (Ratliff-Crain, Donald, & Dalton, 1999), social beliefs (Shearer, Hosterman, Gillen, & Lefkowitz, 2005), religious beliefs (Zaleski & Schiaffino, 2000), substance use (Huang, Jacobs, & Derevensky, 2010), and gender (Poulson, Eppler, Satterwhite, Weunsch, & Bas, 1998; Winfield & Whaley, 2005). Through these studies, it has been demonstrated that two factors that significantly contribute to sexual risk-taking are substance use and gender. As such, more specific findings pertaining to these two contributors are outlined below.

Substance use. Substance use is significantly associated with risky sexual behavior, including less condom use, multiple partners, and sex with casual partners, for both males and females (Huang, Jacobs, & Derevensky, 2010; Poulson, Eppler, Satterwhite, Weunsch, & Bass

1998; Scott-Sheldon, Carey, & Carey, 2010). Poulson, Eppler, Satterwhite, Weunsch, and Bass (1998), in a study of 210 undergraduates in a rural area of the Southeastern United States, found greater self-reported incidence of risky sexual behavior in both males and females who reported heavy alcohol use. In addition, an interview-based study of undergraduates found that self-reported heavy alcohol use is correlated with self-reported sexual risk-taking with a steady partner for both genders (Scott-Sheldon, Carey, & Carey, 2010).

Research has demonstrated that substance use is also correlated with lack of protection in sexual encounters (Cooper, 2002; Evans et al., 2003). In a review of the research on substance use and sexual behavior in college students (Cooper, 2002), it was reported that individuals who identified as heavy alcohol users reported being less likely to use protection than non-alcohol users. Cooper (2002) also reported that the use of alcohol prior to or during a sexual encounter was correlated with less use of protection, such as condoms, in a number of studies. In a national self-report survey study of 20,739 university athletes, heavy alcohol consumers, or individuals who reported consuming five or more drinks in one sitting in the last month, reported more unprotected sex than non-drinkers did (Huang, Jacobs, & Derevensky, 2010). A national interview-based study of adolescents aimed at predicting causality in substance use and risky sexual behavior found that heavy drinking led to a significant increase in sexual intercourse without contraception (Rees, Argys, & Averett, 2001). Thus, the research suggests that substance use may increase the likelihood that individuals will engage in unprotected sex.

Substance use is also correlated with sex with casual or unknown partners (Graves, 1995; Smith & Brown, 1998). Smith and Brown (1998) examined substance use and sexual risk-taking in a survey study of 304 undergraduates at a large Southern university. They found that 43% of reported sexual interactions with a new or casual partner involved alcohol, whereas 26% of

reported sexual encounters with a primary partner involved alcohol. Graves (1995) in an interview-based correlation study of young adults (age 18-30), found that individuals who engaged in substance use were significantly more likely to have a casual partner or to have a partner they knew less than three weeks than were individuals who did not drink. The above research suggests that substance use may increase the likelihood that individuals engage in casual sex, a type of potentially risky sexual behavior.

Substance use is also correlated with an increased number of sexual partners (Cooper, 2002; Evans et al., 2003; Huang, Jacobs, & Derevensky, 2010). Researchers have demonstrated that substance use may increase the likelihood of having multiple sexual partners (Cooper, 2002). In a review of the survey research on substance use and sexual behaviors in college students, Cooper (2002) reported that the use of alcohol was significantly associated with a greater likelihood that individuals engaged in sexual relationships with multiple partners in the last month. In addition, a national survey study of 20,739 college athletes found that heavy drinkers were more likely to have multiple sexual partners in a 12-month period than non-drinkers did (Huang, Jacobs, & Derevensky, 2010). Graves and Leigh (1995) conducted a survey study of undergraduates and found that individuals who reported being frequent drinkers, drinking five or more drinks at a time, and who sometimes drank to intoxication were more likely to report having two or more sexual partners in the last year compared to individuals who did not endorse these items. In addition, 40% of individuals who drank at least once a week reported having had two or more partners in the last year compared to 10% of individuals who did not drink (Graves & Leigh, 1995). The correlation of substance abuse to increased numbers of sexual partners further suggests that substance use is a major factor in risky sexual behavior. Due to the

significant correlations between substance use and risky sexual behavior, substance use was considered in the current study.

Gender differences. Additionally, as partially noted above, previous research has demonstrated that there are gender differences in sexual risk-taking when sexual risk-taking is operationalized as an increased number of sexual partners or inconsistency of condom use. A study of 210 undergraduates at a large rural university in the Southeast United States found that males had higher rates of risky sexual behavior than did females (Poulson, Eppler, Satterwhite, Weunsch, & Bass, 1998). Similar results were found in a sample of Hispanic adults (Hines & Caetano, 1998), in a national sample of adolescents (Raffaelli & Crockett, 2003), and in a sample of Black undergraduates (Winfield & Whaley, 2005).

When sexual risk-taking is conceptualized as inconsistent condom use, gender differences are also noted. In a survey-based correlation study of college athletes, Huang, Jacobs, and Derevensky (2010) found that males reported more unprotected sex (10.2%) than did females (7.9%). Winfield and Whaley (2005) found that when considering their entire sample of Black undergraduates, males were more likely to report “never using condoms” compared to females. However, when just the portion of the sample that “ever used condoms” was considered, females were more likely to be inconsistent condom users (55%) as compared to males (33%). In a national sample of Hispanic males and females, Hines and Caetano (1998) found that males were more likely to report not using a condom consistently than were females. In addition, the researchers reported that females were more likely to report that they were protected from AIDS (Hines & Caetano, 1998). As stated above, males are more likely to engage in unprotected sex than females are, demonstrating gender differences in this particular risky sexual behavior.

When risky sexual behavior is conceptualized as higher numbers of partners, gender differences are still noted. More specifically, in a national study of college athletes, researchers found that males were more likely than females were to have multiple partners in a 12-month period (14.6% versus 9.3%, respectively; Huang, Jacobs, & Derevensky, 2010). In an interview-based study of juvenile offenders, Biswas and Vaughn (2011) found that more males than females reported greater than ten lifetime sexual partners. In addition, a survey-based study of 563 Hispanic adults found that males were more likely to report having multiple partners than females were (Hines & Caetano, 1998). The above research further demonstrates the pervasive gender differences in sexual risk-taking behaviors.

When risky sexual behavior is conceptualized as casual sex or sex with an individual one has just met, significant gender differences are also found. A survey-based correlation study of 2,108 undergraduates at two large public universities found that males were more likely than females were to have had their first sexual experience with a casual partner (Simons, Burt, & Peterson, 2009). Similar survey-based studies of undergraduates found that men were more likely to engage in sexual behavior with a casual partner (Grello, Welsh, & Harper, 2006; Hittner & Kennington, 2008; Hittner & Kryzanowski, 2010). A survey-based study of U.S. adults conducted in bars found that males had greater numbers of casual sexual experiences when based on number of casual sexual encounters, but not when based on number of partners (Herold & Mewhinney, 1993). The above research demonstrates that in the areas used to define risky sexual behavior there are significant gender differences. It is important to examine whether gender is the true cause of these differences in risky sexual behavior, or whether another underlying factor that varies by sex may be contributing to these noted differences in sexual risk between males

and females. Several of these correlates of gender and sexually risky behavior are outlined below.

Correlates of sexual behavior and gender differences. In addition to gender differences in risky sexual behavior, there are gender differences in the correlates of this behavior. Two of the areas noted in the research are attitudes and beliefs about and related to sexual behavior, and substance use (Scott-Sheldon, Carey, & Carey, 2010; Simons, Burt, & Peterson, 2009). For example, a study of the correlates of sexual behavior in 2,108 undergraduates at two large Eastern universities found that males have more permissive attitudes about sex than females do (Simons, Burt, & Peterson, 2009). In addition, the same study found that females were less likely to engage in risky sexual behavior if they had strong religious beliefs compared to females who did not have strong religious beliefs (Simons, Burt, & Peterson, 2009). This study did not find a significant effect of religious beliefs on male risky sexual behavior. A survey-based correlation study of 220 undergraduates at a large public Northeastern university found that men who reported believing that males should engage in masculine behaviors also reported engaging in unprotected sex more often than did men with less gender stereotyped views (Shearer, Hosterman, Gillen, & Lefkowitz, 2005). In addition, in an interview-based national study of 1,417 adolescents who had sex in the last six months, females reported greater perceived costs of having sex, such as risk of STDs or pregnancy, on a date and being less likely to engage in sexual behavior on a first date than males did (Cooper & Orcutt, 1997). Thus, the gender differences in risky sexual encounters may be due to the differences in beliefs and attitudes about or related to sexual behavior among males and females. Again, these gender differences in attitudes towards sex and the effect of beliefs suggest that there may be mediating factors to sexual risk-taking for which gender serves as a proxy.

In addition to gender differences in beliefs about or related to sexual behavior, researchers consistently find gender differences in the relation of substance use with risky sexual behavior (Bell, O'Neal, Feng, & Schoenrock, 1999; Evans et al., 2003; Hittner & Kennington, 2008; Scott-Sheldon, Carey, & Carey, 2010). Scott-Sheldon, Carey, and Carey (2010) found that heavy alcohol use is correlated with less condom use, but only among males. Hittner and Kennington (2008) found that males were more likely than females to engage in sex without a condom when drunk or high. A study of risky behaviors and sexual risk in college students found that sexual risk was highly correlated with substance use, social risk, and vehicular risk behaviors, but again, only for males (Bell, O'Neal, Feng, & Schoenrock, 1999). The gender differences in the relation of substance use to sexual risk-taking are significant and suggest that substance use may serve a different purpose for each gender. However, this was beyond the scope of this study and an area for future research. Due to these differences and the high correlation of substance use and risky sexual behavior stated above, substance use was considered in this study.

In sum, given the gender differences in sexual risk-taking and the correlates of sexual behavior, it may be that the gender differences in risky sexual behaviors can be accounted for by an underlying factor for which gender is a proxy. Consistently, previous research has demonstrated gender differences in risky sexual behavior and the correlates of risky sexual behavior. The correlation of substance use behaviors with sexual risk-taking among males and females warranted further research into mediating or moderating factors that would further explain these relations. One possible mediating factor is emotion regulation. If males and females use different emotion regulation strategies, it may be emotion regulation, and not gender per se, that causes the differences in sexually risky behavior for males and females.

Emotion Regulation

The overarching construct of affect regulation includes the different ways of coping with emotions, mood regulation, psychological defenses such as repression, and emotion regulation (Gross & Thompson, 2007). Specific to this study, emotion regulation is the way an individual experiences, modulates, and expresses his or her emotions and emotional behavior (Gross, 1998a). Emotion regulation involves both increasing and decreasing positive and negative affect. These processes occur in a recursive manner with emotional stimuli and behavioral responses, creating a feedback loop (Gross & Thompson, 2007).

Emotion regulation as a construct has been studied in several different areas of psychology, including personality, biological, developmental, cognitive, and social (Gross, 1998a). Currently, there are three different models of emotion regulation used. One model examines the specific behaviors involved in the regulation of each emotion (Rippere, 1977), another categorizes regulation efforts based on the components of the emotion targeted (Walden & Smith, 1997), and the final model examines the underlying processes common to all emotion regulatory processes (Gross, 1998a). Due to its prevalence in the clinical and sexual risk-taking literature, the model used for this study is Gross's model of emotion regulation and is detailed further below.

Gross's Model of Emotion Regulation

Gross and Munoz (1995) identify the two categories of emotion regulation strategies: antecedent-focused and response-focused. Antecedent-focused emotion regulation occurs when an individual changes whether or not he or she will experience the emotion before it starts. This type of emotion regulation includes strategies that alter the emotion-inducing stimuli that the individual experiences, such as situation selection, situation modification, attentional deployment, and cognitive change (Gross, 1998b). Response-focused emotion regulation occurs

when an individual alters the expression of an emotion or tries to diminish or augment it after it has occurred, manipulating the output (Gross, 1998b). In other words, response-focused regulation includes strategies that intensify or diminish an emotion that has already occurred, such as response modulation through the use of suppression (Gross, 1998b).

Within these two domains of emotion regulation, there are a number of specific responses (as noted above) including situation selection, situation modification, attentional deployment, cognitive change, and response modulation (Cisler, Ollantunji, Feldner, & Forsyth, 2010). Antecedent-focused emotion regulation strategies include situation selection, situation modification, attention deployment, and cognitive change (Gross, 1998b). Of the five emotion regulation strategies above, only response modulation is categorized as a response-focused strategy and can include the strategy of suppression (Gross, 1998b). Situation selection involves engaging in or avoiding situations that elicit specific emotions (Gross & Thompson, 2007). For example, an individual may get to an exam right before it starts rather than going early and sitting with nervous classmates. Situation modification involves changing the emotion eliciting stimuli in a situation (Gross & Thompson, 2007). For example, an individual may avoid talking about the big exam with a friend if doing so may cause negative emotions to arise. Individuals can engage in attentional deployment by focusing their attention on specific stimuli that do not contribute to the negative emotion; an example of attentional deployment would be distracting oneself with music before a big exam is to take place (Gross & Thompson, 2007). Cognitive change occurs when individuals alter their evaluation of the situation (Gross & Thompson, 2007). For example, an individual may remind himself or herself that the test is only a specific amount of their grade and not a big deal. Response modulation involves changing the response to and trajectory of emotion once it has occurred (Gross & Thompson, 2007). For example, an

individual might hide anxiety about the exam when a friend asks about it. This study looked specifically at the emotion regulation strategies of suppression and reappraisal, which are outlined further below.

Suppression and Reappraisal

This study looked specifically at two emotion regulation strategies: expressive suppression and cognitive reappraisal and the effect of each on sexual risk-taking behaviors. Emotional suppression is defined as altering or diminishing an emotion after it has occurred and is a response-focused emotion regulation strategy (Gross, 1998a). This strategy is defined as a response-focused emotion regulation strategy as the individual engages in suppression after the emotion has occurred. An example of emotional suppression is drinking alcohol, or possibly engaging in sexual behavior, when feeling sad in order to reduce one's sadness. Reappraisal is defined as changing whether or not an emotion will be experienced prior to it beginning and is an antecedent-focused emotion regulation strategy (Gross, 1998a). Reappraisal is defined as an antecedent-focused emotion regulation strategy, however can be used as a response-focused strategy. For the purposes of this study it is defined as an antecedent-focused strategy as that is the way it is most commonly defined in the literature (Gross, 1998a). An example of reappraisal is if an individual approaches a possibly emotion-eliciting situation in a detached manner, such that they will not experience the emotion. Studies show there are differences between individuals who use emotional suppression and those who use reappraisal, both in how they experience emotions and how they cognitively process information (Gross, 1998b; Gross & Levenson, 1993; Gross & Levenson, 1997; Richards & Gross, 2000). The consequences of different emotion regulation strategies are delineated below.

Physiological, emotional, and cognitive effects. Several experimental studies have examined the short-term emotional, physiological, and cognitive effects of the emotion regulation strategies of suppression and reappraisal (Gross, 1998b; Gross & Levenson, 1993; Gross & Levenson, 1997; Liverant, Brown, Barlow & Roemer, 2008; Richards & Gross, 2000). For example, Gross and Levenson (1993) researched the effect of suppression on emotion experience and physiological responses to emotion-eliciting films. Participants were undergraduates from a large public Southwestern university who were asked to watch a number of films that elicited either emotion or disgust. One group was asked to suppress their emotions by not displaying the emotions they felt and one group was asked to allow their emotions to occur without trying to change them. The researchers found that, in comparison to the non-suppression group, the suppression group effectively reduced their expressions of disgust, but the act of suppression did not affect the self-reported levels of disgust (Gross & Levenson, 1993). In addition, the suppression group had greater increases of sympathetic arousal than the non-suppression group. The above study suggests that suppression may not be effective at reducing the experience of negative emotions, despite its effectiveness at reducing displayed emotions.

Gross and Levenson (1997) expanded on their initial work by conducting a study of the effect of suppression on female undergraduate emotion experience and physiological responses to emotion-eliciting films. Participants, 180 female undergraduates from a large Southwestern university, were placed in two groups: a no-suppression group and a suppression group. Prior to watching four emotion-eliciting films, the suppression group was asked to watch the films presented, but to not let their feelings show on their faces, while the no-suppression group was asked to carefully watch the films without further instruction. Individuals in the suppression group showed less emotion than the no-suppression group as judged by independent observers.

However, there were no differences in the self-reported emotional experience (Gross & Levenson, 1997). Nevertheless, significant differences were found in the physiological responses of the two groups, with the suppression group demonstrating greater sympathetic activation of both the cardiovascular and respiratory systems in response to the sadness-eliciting film (Gross & Levenson, 1997). This suggests that suppression is a physiologically taxing emotion regulation strategy, which raises a question as to whether or not suppression is taxing in other ways, such as emotionally or cognitively.

In a similar study, Gross (1998b) examined the effects of suppression and reappraisal on undergraduates' physiological and emotional responses to disgust-eliciting films. Participants were divided into three groups including a no-strategy group, a reappraisal group, and a suppression group. Reappraisal participants were asked to watch the films in a way that prevented them from experiencing the emotion, such as distracting themselves. The suppression participants were asked to watch the films, but to not express their emotion verbally or to show it on their faces (Gross, 1998b). The suppression and reappraisal participants demonstrated fewer facial expressions of emotion as evaluated by independent observers than the no strategy group did. In addition, the suppression group reported greater feelings of disgust while watching the film and had greater sympathetic activation than the reappraisal or no strategy groups did (Gross, 1998b). This suggests that not only does suppression cost the individual physiologically, but also that it may not reduce self-reported experiences of emotions.

Disgust is not only the only emotion that has been empirically investigated in this way. In a similar study to the ones above, Liverant, Brown, Barlow, and Roemer (2008) conducted a study on the effect of suppression on feelings of depression in a sample of 60 depressed individuals from a community clinic. Individuals in the suppression group were asked to not express their

emotions while watching a sad film, and individuals in an acceptance group were asked to allow their emotions to occur without using any additional regulation strategies. The researchers found that individuals who were asked to suppress their emotions indicated significantly more depression than did those who were asked to accept their emotions (Liverant, Brown, Barlow, & Roemer, 2008). The same study found that participants in the acceptance group experienced more sadness in response to a sad film, but that their sadness decreased more steeply from exposure to recovery than the suppression group's sadness did. Thus, suppression may actually increase the experience of a negative emotion in both length of time and emotional intensity, whereas reappraisal may decrease the length of time an emotion is experienced.

In addition to the physiological and emotional effects, suppression as an emotion regulation strategy has also been shown to affect cognitive processes, such as memory. In one study, the researchers had participants either suppress or not regulate their emotions while watching either a sad or a humorous film prior to completing a difficult anagram task (Baumeister, Bratslavsky, Muraven, & Tice, 1998). The individuals in the suppression group performed significantly worse than the no-regulation group when completing the task (Baumeister, Bratslavsky, Muraven, & Tice, 1998). This provides further evidence for the hypothesis that suppression is a cognitively taxing emotion regulation strategy. In a similar study, undergraduate participants were asked to regulate their emotions through suppression while watching a sad video, followed by squeezing a handgrip (Muraven, Tice, & Baumeister, 1998). Participants in the regulation group stopped squeezing the handgrip significantly earlier than the non-regulation participants did (Muraven, Tice, & Baumeister, 1998). This suggests that cognitive and physical resources may be depleted while trying to regulate one's emotions through suppression. Richards and Gross (2000) conducted an experimental study in which participants engaged in an emotion induction exercise

and were asked to suppress or allow their emotions before viewing a film clip. Participants were then given a memory test using cues from the film clip. The researchers found that suppression participants remembered less of the stimuli than did control, or no-strategy, participants when faced with high emotion-provoking stimuli. Suppression participants reported less confidence in their memory and performed worse on the memory test than did participants who were asked to watch the stimuli without using any emotion regulation strategies (Richards & Gross, 2000). In addition, previous research has found that impaired performance on an anagram task was associated with emotional non-acceptance in a sample of individuals with Borderline Personality Disorder (Gratz, Rosenthal, Tull, Lejuez, & Gunderson, 2006). This suggests that emotional non-acceptance, a type of suppression, may interfere with goal-directed behaviors (Gratz, Rosenthal, Tull, Lejuez, & Gunderson, 2006). The above research suggests that individuals who suppress their emotions may not fully engage with the stimuli presented, and, hence, may experience memory difficulties which may interfere with decision making around sexual behavior.

Psychopathology. In addition to the above short-term effects of suppression, different emotion regulation strategies have also been associated with long-term effects, including psychopathology (Berking et al., 2011; Gratz, Rosenthal, Tull, Lejuez, & Gunderson, 2006; Kashdan & Steger, 2006; McRae, Ochsner, Mauss, Gabrieli, & Gross, 2008). A survey study of socially anxious individuals found that individuals high in trait social anxiety reported greater daily suppression of emotions than did individuals low in trait social anxiety (Kashdan & Steger, 2006). Emotion regulation strategies such as reappraisal and acceptance have been associated with alcohol abstinence during and after treatment for substance abuse (Berking et al., 2011). Individuals who more frequently used reappraisal and acceptance were less likely to drink during treatment and to maintain alcohol abstinence following treatment as compared to those who used

reappraisal and acceptance-based strategies less frequently (Berking et al., 2011). In addition, according to a survey-based study of gender differences in emotion regulation, conducted with 25 non-clinical participants recruited from a large southwestern university, reappraisal frequency is associated with overall greater well-being in both genders regardless of psychopathology (McRae, Ochsner, Mauss, Gabrieli, & Gross, 2008). The above research demonstrates that there are correlations between the use of reappraisal and suppression and long-term well-being and psychopathology, further evidencing the wide-reaching effects of emotion regulation strategies. The effects of emotion regulation strategies may be confounded by overall emotion regulation difficulties and difficulties in emotion regulation. Thus emotion regulation difficulties are discussed below.

Emotion Regulation Difficulties

Emotion regulation difficulties, or emotion regulation difficulties, have been defined as being unable to meet expected parts of emotion regulation, including awareness of emotional responses, flexibility of responding, ability to regulate emotions in order to meet goals, and efficiency in addressing emotions (Thompson, 1994). Emotion regulation difficulties does not mean that the emotions are unregulated, but that the emotions are poorly regulated (Cole, Michel, & Teti, 1994). Cole, Michel, and Teti (1994) further define the different areas of emotion regulation difficulties and the difficulties experienced in each area. One specific area is having access to the full range of emotions, suggesting that if the individual cannot access all of their emotions they may have difficulties regulating them (Cole, Michel, & Teti, 1994). Further, the ability to modulate the intensity and duration of an emotion is important to responding appropriately in different situations (Cole, Michel, & Teti, 1994). Situationally appropriate responses also assist in meeting goals while regulating one's emotions (Thompson, 1994). The

ability to modulate emotions includes access to a range of coping resources. Thus, limited access to strategies is indicative of emotion regulation difficulties (Thompson, 1994). The verbal regulation of emotional processes includes the ability to think and talk about emotions (Cole, Michel, & Teti, 1994). Thus, it is adaptive to label, describe, and understand one's feelings, and being unable to do this suggests difficulties with emotion regulation. Further, appropriate verbal expressions of emotions are associated with more emotional control (Cole, Michel & Teti, 1994).

The above are various areas associated with emotion regulation difficulties and difficulties regulating emotions, which have been used in developing the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). Gratz and Roemer (2004) conceptualized difficulties in emotion regulation as failure to meet the following areas: awareness of emotions, acceptance of emotions, ability to engage in goal directed behavior when experiencing difficult emotions and not engage in impulsive behaviors, and ability to use situationally-appropriate emotion regulation strategies in order to meet goals. Each of these areas came from the above research conceptualizing the development of emotion regulation strategies in childhood (Gratz & Roemer, 2004). Researchers have demonstrated associations between emotion regulation strategy use and emotion regulation difficulties, which are summarized below.

Difficulties in Emotion Regulation and Emotion Regulation Strategy Use

There is evidence of significant overlap between difficulties in emotion regulation and emotion regulation strategy use (Ehring & Quack, 2010; Salsman & Linehan, 2012; Turner, Chapman, & Layden, 2012). In a study of 162 non-suicidal, self-injurious, adolescents, and adult female, who were recruited from online support communities, significant correlations between overall difficulties in emotion regulation and strategy use were found (Turner, Chapman, & Layden, 2012). Specifically, overall difficulties in emotion regulation were positively correlated

with the use of suppression and negatively correlated with the use of reappraisal (Turner, Chapman, & Layden, 2012). Thus, individuals who had more difficulty regulating their emotions were more likely to use suppression and less likely to use reappraisal to regulate their emotions than individuals who had less difficulty regulating their emotions.

In addition, there are significant correlations between reappraisal and suppression and the different areas of difficulties in emotion regulation as measured by the DERS subscale (Ehring & Quack, 2010; Salsman & Linehan, 2012). For example, a study of 456 non-clinical undergraduates at a small Midwestern university and large Pacific Northwest university found that overall difficulties in emotion regulation were positively associated with the use of suppression and negatively associated with the use of reappraisal (Salsman & Linehan, 2012). The same study found specific links between the different areas of difficulties in emotion regulation, as measured by the DERS subscales, and emotion regulation strategies. Reappraisal was negatively associated with the subscales of impulse control, access to emotion regulation strategies, and awareness of emotions. In contrast, suppression was positively associated with the subscales of impulse control, access to strategies, lack of awareness of emotions, lack of emotional clarity, and non-acceptance of emotions (Salsman & Linehan, 2012). Similar results were found in a national web-based survey of 616 trauma survivors who met criteria for Post-Traumatic Stress Disorder (Ehring & Quack, 2010). For this sample, reappraisal was negatively associated with lack of awareness of emotions, lack of clarity around emotions, non-acceptance of emotions, difficulty engaging in goal-directed behaviors when distressed, impulse control difficulties, and limited access to emotion regulation strategies. However, suppression was positively associated with all of the above subscales. Thus, it appears that difficulties with emotion regulation are associated with increased use of suppression as an emotion regulation

strategy. Despite the lack of current research looking specifically at a mediation effect of strategy use on difficulties in emotion regulation, based on the above significant correlations, it is hypothesized that strategy use may mitigate difficulties in emotion regulation. Specifically, due to the negative correlation between emotion regulation difficulties and reappraisal it is hypothesized that an increased use of reappraisal will reduce an individual's difficulties in emotion regulation. Further, the significant positive correlation between emotion regulation difficulties and suppression suggests that greater use of suppression may contribute to greater emotion regulation difficulties. This study aimed to examine these relationships as they contributed to risky sexual behavior.

Emotion Regulation Strategy Use and Gender

There are a number of individual differences that factor into the use of emotion regulation strategies. These include constructs such as culture, gender, and personality (Gross, 1999). There is significant research on gender differences in the use of specific emotion regulation strategies (Nolen-Hoeksema, 2012).

First, past research has demonstrated that there are significant gender differences in the use of specific emotion regulation strategies. A study of 335 adult rheumatoid arthritis patients in the Netherlands, for example, found that females endorsed greater likelihood of attending to their emotions, valued their emotions more in daily life, and experienced emotions more intensely when regulating their emotions than males did (van Middendorp, et al., 2008). This suggests that females may be more likely than males to have greater emotional clarity and possibly engage in antecedent-focused emotion regulation strategies, such as reappraisal. In addition, a meta-analysis of gender differences in emotion regulation found that females use *all* emotion regulation strategies more frequently than males do (Tamres, Janicki, & Helgeson, 2002), but the

specific strategies used *most* frequently by females focused on contemplation or expression of emotion, each of which requires non-suppression of emotion. Thus, it appears that females are less likely to engage in suppression-based emotion regulation strategies than are males.

Further, researchers have demonstrated that in some situations, females are more likely than males to use reappraisal as an emotion regulation strategy (Martin & Dahlen, 2005; Nolen-Hoeksema, & Aldao, 2011; Tamres, Janicki, & Helgeson, 2002). A meta-analysis of research on the use of emotion regulation strategies found that within the 19 studies that examined the use of reappraisal, females were significantly more likely to engage in reappraisal as an emotion regulation strategy than males were (Tamres, Janicki, & Helgeson, 2002). In a study of depression and emotion regulation, Nolen-Hoeksema and Aldao (2011) found that females were significantly more likely to use reappraisal, acceptance, rumination, and active coping than males were. Further, a correlation study on the use of emotion regulation strategies in undergraduates found that females reported more frequent use of reappraisal than males did (Martin & Dahlen, 2005). While the above studies found significant gender differences in the use of reappraisal, significant differences in the use of suppression were not found in this research.

In contrast, some research has demonstrated that, in some circumstances, males are more likely to engage in strategies such as blaming others and suppression (Flynn, Hollenstein, & Mackey, 2010; Garnefski, Teerds, Kraij, Legerstee, & van den Kommer, 2004; Gross & John, 2003; Haga, Kraft, & Corby, 2009; Zlomke & Hahn, 2010). A survey-based cross-cultural study of 489 undergraduates in Norway, Australia, and the United States found that men reported more frequent use of suppression than women reported (Haga, Kraft, & Corby, 2009). Gross and John (2003) conducted a survey-based study of undergraduates' use of emotion regulation strategies and found that men used suppression more frequently than women did. In addition, a survey-

based study of the link between strategy use and depression in 328 undergraduates from a Canadian university found that males were significantly more likely to use suppression than females were regardless of depressive symptoms (Flynn, Hollenstein, & Mackey, 2010). The results of this research provide further support for the theory that females use emotion regulation skills more frequently, specifically reappraisal, as compared to males. As such, it is possible that the different use of emotion regulation skills between genders will lead to differences in sexual risk-taking behaviors. Although there are gender differences in strategy use, research has not found significant differences in difficulties in emotion regulation. This is further explored in the section below.

Emotion Regulation Difficulties and Gender

Current research has not found significant gender differences in overall emotion regulation difficulties and difficulties in emotion regulation (Fox et al., 2007; Gratz & Roemer, 2004; Neumann, van Lier, Gratz, & Koot, 2010). In a treatment-outcome study of recently abstaining cocaine abusers, Fox et al. (2007) found that there were no gender differences in overall difficulties in emotion regulation for either the cocaine-abusing sample or the control group. In a correlation study with a sample of 870 Dutch adolescents, there were no gender differences in overall difficulties in emotion regulation (Neumann, van Lier, Gratz, & Koot, 2010). However, there were significant gender differences on specific scales. Specifically, females had higher scores on the DERS subscales of Lack of Emotional Clarity, Difficulties Engaging in Goal Directed Behaviors when Distressed, Non-acceptance of Negative Emotional Responses, and Limited Access to Emotion Regulation Strategies, whereas males reported higher levels of Lack of Emotional Awareness (Neumann, van Lier, Gratz, & Koot, 2010). However, the researchers note that the gender differences may be due not only to true differences in difficulties with

emotion regulation, but due to differences in item ratings between the genders (Neumann, van Lier, Gratz, & Koot, 2010). In addition, in the development of the DERS, no gender differences were noted in difficulties in emotion regulation (Gratz & Roemer, 2004). This study looked at the overall levels of difficulties in emotion regulation and, based on the above research, gender differences were not expected.

Summary. Emotion regulation may be the underlying factor that explains several of these previously explained linkages between gender and sexual risk-taking. Particularly noteworthy is the fact that, to date, the link between the use of emotion regulation strategies and sexual risk-taking behaviors has not been studied in a non-clinical population. In addition, no one has fully investigated whether gender differences in sexual risk-taking may be partially explained by gender differences in the use of emotion regulation strategies. The next section reviews the research on the effect of emotion regulation difficulties and strategy use on sexual risk-taking.

Emotion Regulation and Sexual Risk-taking

Research has demonstrated that difficulties with emotion regulation and the use of emotion suppression are associated with increased risk-taking behaviors, including sexual risk-taking. Emotion regulation difficulties also appears to be associated with increased risky sexual behavior in past research (Hessler & Katz, 2010; Tull, Weiss, Adams, & Gratz, 2012). A national longitudinal study of self-regulation in 443 adolescents found that lower levels of parent-reported behavior and affect regulation at the ages of 12-13 (Time 1) was related to self-reported higher levels of risky sexual behavior four years later when these participants were compared to adolescents who had higher levels of parent-reported self-regulation during Time 1 (Raffaelli & Crockett, 2003). Specifically, lower self-regulation at Time 1 was related to an increased number of sexual partners at Time 2, four years later, for both genders (Raffaelli & Crockett, 2003). In

addition, a longitudinal study of 88 adolescents, which examined emotional control and risky behaviors, found that emotion regulation at two different time points was related to fewer sexual partners (Hessler & Katz, 2010). Specifically, adolescents who had self-reported a better ability to regulate their anger had fewer sexual partners than adolescents who had lower abilities to regulate their anger did. The same longitudinal study also found that those children who had the ability to regulate their anger in middle childhood had fewer sexual partners in adolescence when compared to those children who had less of an ability to regulate their anger in middle childhood (Hessler & Katz, 2010). Further, a survey-based study of risky sexual behavior in 177 patients in a residential substance abuse treatment setting in the Southern United States found that overall emotional regulation difficulties, as measured by the DERS, predicted risky sexual behavior (Tull, Weiss, Adams, & Gratz, 2012). Specifically, lack of emotional clarity, or an inability to identify and label one's emotions, was found to be a greater predictor of unprotected sex while high on drugs in this sample than other subscales (Tull, Weiss, Adams, & Gratz, 2012). The link between emotional dysregulation and risky sexual behavior suggests that the individual differences in sexual risk-taking may be partially accounted for by differences in emotion regulation strategy use.

Research has also demonstrated that suppression as an emotion regulation strategy is related to increased sexual risk-taking behaviors (Cooper, Wood, Orcutt, & Albino, 2003; Magar, Phillips, & Hosie, 2008). Magar, Phillips, and Hosie (2008) conducted a study to examine the effects of emotion regulation on self-reported risk-taking behaviors in 153 undergraduates at a Scotland university. The researchers found that individuals who used suppression frequently, were more likely to smoke, and engage in other problem behaviors, such as shoplifting and joyriding, more often while under the influence of alcohol than did individuals who used

reappraisal more often (Magar, Phillips, & Hosie, 2008). When given a vignette detailing risk-taking behaviors, individuals who reported suppressing emotions more often also endorsed greater benefits of risk-taking behaviors than did individuals who engaged in more reappraisal (Magar, Phillips, & Hosie, 2008). A longitudinal interview-based study of 2,544 adolescents, demonstrated that avoidance coping was positively related to risky sexual behavior, including increased numbers of partners and greater likelihood of sexually transmitted infections (Cooper, Wood, Orcutt, & Albino, 2003). The association of specific emotion regulation strategies and the aforementioned risk-taking behaviors tentatively suggest that emotion regulation difficulties may be a factor leading to risky sexual behavior. Moreover, the gender differences in the relationship between difficulties in emotion regulation and sexual risk-taking may be explained further by the gender differences in emotion regulation strategy use. However, this linkage has really only been studied in victimized populations, as noted below.

Emotion Regulation, sexual risk-taking, and victimization. Current models of emotion regulation as a contributor to sexual risk-taking behavior have exclusively focused on those who have suffered from childhood and/or adult sexual victimization (Arttime & Peterson, 2012; Messman-Moore, Walsh, & DiLillo, 2010; Walsh, DiLillo, & Messman-Moore, 2012; Wayment & Aronson, 2007). In a study of emotion regulation and sexual risk-taking of 320 urban men in the Midwestern United States with a history of childhood sexual abuse, Arttime and Peterson (2012) found that emotional dysregulation was related to increased numbers of lifetime sexual partners, but that it was unrelated to condom use or number of sexually transmitted infections. The same study found that limited access to all emotion regulation strategies was related to increased lifetime number of sexual partners. Limited access to emotion regulation strategies is a factor of the DERS and is defined as whether or not the individual has effective strategies for

regulating their emotions (Gratz & Roemer, 2004). Thus, difficulties in emotion regulation appear to contribute to sexual risk-taking behaviors. A study of revictimization in a population of 752 undergraduate females from a mid-sized Midwestern university with childhood sexual or physical abuse found that, for those with a history of abuse, difficulty with emotion regulation was positively correlated with lifetime sexual partners and frequency of risky sex with a stranger (Messman-Moore, Walsh, & DiLillo, 2010). Researchers found no significant correlation between difficulty with emotion regulation and risky sex with a regular partner. Thus, it appears that emotion regulation may play a role in the increase of risky sexual behavior in victimized populations. The current study aimed to contribute to the literature by examining this effect in a non-clinical sample.

Sexual victimization is associated with a greater likelihood of future victimization with emotion regulation difficulties possibly mediating the relationship between past and future victimization (Messman-Moore, Walsh, & DiLillo, 2010; Walsh, DiLillo, & Messman-Moore, 2012). Walsh, DiLillo, and Messman-Moore (2012) conducted a study with 714 females from a large Midwestern university with and without a history of sexual victimization to see if this history led to greater risk for current sexual victimization. Individuals with sexual victimization histories indicated that they would leave a sexually risky situation at a later point compared to those who had not been victimized. Moreover, lifetime victimization was correlated with non-acceptance of emotional responses, difficulty engaging in goal directed behaviors, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional clarity. However, the most significant associations were between sexual victimization, impulse control problems, and limited access to emotion regulation strategies. In this sample, individuals who were victimized had greater difficulties controlling their impulses

and used fewer overall emotion regulation strategies, with each partially mediating the relationship between victimization and risk perception. Previous research by other researchers also demonstrated that emotional regulation mediated the occurrence of adult rape and risky sex with strangers for victims of childhood sexual and physical abuse (Messman-Moore, Walsh, & DiLillo, 2010). Given these findings, it may be that sexual behavior acts as a form of suppression, or a way to avoid feeling negative emotions. In other words, sexual behavior may be a way to distract oneself from the negative emotions themselves or, relatedly, dealing with the negative emotions that have arisen. Thus, this study hypothesized that effective emotion regulation, such as through reappraisal, may mediate the relationship between emotion regulation difficulties and risky sexual behavior.

Sexual behavior as emotion regulation. Research has demonstrated that the use of sexual behavior to reduce negative affect is related to increased risky sexual behavior (Cooper, Shapiro, & Power, 1998; Orcutt, Cooper, & Garcia, 2005). A study conducted to develop and validate a measure of sexual behavior motives found that using sexual behavior to cope was related to increased risky sexual behaviors in a sample of 476 undergraduates from a large Midwestern university (Cooper, Shapiro, & Power, 1998). Specifically, individuals who reported higher levels of using sex to cope with emotions had higher self-reported lifetime sexual partners and engaged in risky sexual behaviors more frequently than did individuals who reported lower levels of using sex to cope with emotions. Similar results were found, in the same study, when using sex to cope with emotions was used to predict risky sexual behavior in a 6-month period, again, with higher levels of using sex to cope with emotions predicting increased numbers of sexual partners and engagement in risky sexual behaviors. Thus, emotion regulation through sexual behavior may be related to increased sexual risk-taking. In addition, a longitudinal study

over 13 years of 2,052 females with or without a history of childhood sexual abuse from the Northeast United States found that childhood sexual abuse was positively related to increased use of sex to reduce negative affect (Orcutt, Cooper, & Garcia, 2005). In addition, the use of sex to reduce negative affect was associated with increased numbers of sexual partners and the use of alcohol prior to and during engaging in sexual behavior (Orcutt, Cooper, & Garcia, 2005). Thus, sexual behavior may serve as a mechanism for regulating emotions, and individuals engaging in this form of regulation may be more likely to engage in risky sexual behavior. This study aimed to examine this effect further by examining the effect of different strategy use on this relationship.

Summary. Previous literature has demonstrated a significant relationship between emotion regulation difficulties, strategy use, and sexual risk-taking behavior. In addition, it appears that risky sexual behavior may function as an emotion regulation strategy for some individuals. Further, literature has demonstrated that reappraisal is negatively correlated to emotion regulation difficulties while suppression is positively correlated to emotion regulation difficulties. Based on the above research, it is hypothesized that strategy use may mediate the relationship between emotion regulation difficulties and risky sexual behavior. One possible reason for this mediation is that if an individual is able to effectively regulate their emotions through the use of reappraisal, they will have less need to engage in sexual behavior to manage their affect. A similar construct to emotion regulation that may contribute to sexual risk-taking is self-regulation, which is summarized below.

Self-regulation

Another area that may contribute to sexual risk-taking behaviors is self-regulation. Self-regulation is defined as the ability or capacity to modify one's responses to a situation, including

thoughts, emotions, and behaviors (Baumeister, 2002). Research suggests that self-regulation may deplete cognitive resources and lead to difficulties with decision-making (Baumeister, Bratslavsky, Muraven, & Tice, 1998). As such, self-regulation is a broader construct than emotion regulation (Baumeister, 2002). Baumeister, Bratslavsky, Muraven, and Tice (1998) experimentally examined the effects of self-regulation on undergraduates' persistence in difficult tasks. In the experiment, 84 undergraduates from a large Midwestern university were asked to complete one of two types of paper editing task prior to watching a boring film. The first group, Group A, was asked to simply cross off all the letter e's in the paper while the second group, Group B, was asked to follow a difficult set of rules to edit the paper. Within each group, one group was told they could stop the film by pressing a button (active quit group), while the other was told they could stop the film by letting go of a button they had to hold down to watch the film (passive quit group). Participants who completed the more difficult depletion task, Group B, were more likely to stop the film if they were in the passive quit group and simply had to release the button compared to participants in any other group. Thus, it appears that if individuals feel cognitively drained, when given an easy opportunity to escape negative emotions, they are more likely to do so than if they have more cognitive energy or have a more difficult means of escape.

Consistent with this notion, research has demonstrated that when individuals believe their emotions will improve, they are more likely to eat unhealthy foods, seek immediate gratification, and procrastinate, because these are easy and quick methods to reduce distress (Tice, Bratslavsky, & Baumeister, 2001). A study of 74 undergraduates at a large Midwestern university had participants engage in a negative mood induction exercise before being asked to taste-test a vegetables, crackers, and cookies (Tice, Bratslavsky, & Baumeister, 2001). Participants were then put into two groups in which they were told either that eating does not

improve mood or told nothing. Those who were told nothing, and thus believed that they could change their mood by eating, ate more of the cookies than the other group. Thus, it appears that if individuals are experiencing negative emotions, they may be more likely to engage in feel-good behaviors, such as risky sexual behavior, if they are unable to regulate their negative emotions in another way.

If these findings are applied to individuals who engage in risky sexual behavior, it may be that individuals who are depleted through emotional suppression may be more likely to engage in sexual risk-taking behavior, as it requires less self-regulation and fewer cognitive resources. Thus, those who engage in suppression may have their cognitive and emotional resources depleted and may be more likely to engage in risky sexual behavior either as an emotion regulation strategy or due to depletion of their ability to regulate. While other means of self-regulation may play a role in sexual risk-taking, investigating methods of self-regulation (beyond emotion regulation) is beyond the scope of this study.

Present Study

To summarize, research has demonstrated that men are more likely to engage in risky sexual behavior than are women. It has been demonstrated that there are mediating factors that may help explain the gender differences in sexual risk-taking, such as substance abuse and social or religious beliefs. Additionally, the gender differences suggest that there may be an additional mediating factor between gender and sexual risk-taking, which could be a difference in emotion regulation strategy use.

This review has outlined the gender differences in emotion regulation and the use of specific emotion regulation strategies, such as suppression and reappraisal. Emotional suppression is related to greater psychological disorder, greater risk-taking, and a decrease in cognitive

resources, which may lead to problematic decision making. Reappraisal is associated with greater well-being and fewer risky behaviors. Thus, individuals who are using sexual behavior to suppress their negative affect or increase their positive affect (in the absence of other more productive emotion regulation strategies) may engage in risky practices, such as inconsistent condom use or increased numbers of sexual partners given the literature. It has been noted that men are more likely than women to engage in suppression as an emotion regulation strategy, and, thus, it was hypothesized that men would engage in more sexual risk-taking behaviors than would women.

The current study aimed to examine the mediating effects of suppression and reappraisal as emotion regulation strategies on emotion regulation difficulties and risky sexual behavior for both men and women. Research has demonstrated a link between emotion regulation and sexual risk-taking behaviors in a specific population, abuse victims. However, no research has been conducted examining the differences in the specific effects of suppression and reappraisal on risky sexual behavior in non-abused samples. More specifically, this study aimed to examine the specific strategies of suppression and reappraisal on risky sexual behavior in a non-clinical university student population.

This study aimed to provide a greater understanding of the factors that influence risky sexual behavior. The contribution this study aimed to make to the current research are three-fold: 1) research has focused on the relation between emotion regulation and risky sexual behavior only in individuals with histories of adult and childhood sexual victimization, while the current research focused on a non-clinical population, 2) this research also looked specifically at the effects of suppression and reappraisal rather than overall difficulties in emotion regulation, and 3) this study examined whether sex differences in emotion regulation strategies could partially

explain the differences in sexual risk-taking behavior. This greater understanding of risky sexual behavior may allow clinicians and educators to address an underlying cause of unsafe sexual behavior and reduce the costs associated with such practices.

Hypotheses

The hypotheses that guided the present research are as follows:

1. The first set of hypotheses examined gender differences in the variables.
 - a. Based on the past research that stated that males engage in more sexual risk-taking behavior, and alcohol use (Huang, Jacobs & Derevensky, 2010; Poulson, Eppler, Satterwhite, Weunsch & Bass, 1998), it was hypothesized that males would engage in more sexual risk-taking behavior, and would endorse more alcohol and substance use than would females.
 - b. Based on the research that stated males use suppression strategies more frequently than women do (Nolen-Hoeksema & Aldao, 2011), it was hypothesized that males would use suppression strategies more often than females would.
 - c. Based on the research that females are more likely to use reappraisal strategies than males (Nolen-Hoeksema & Aldao, 2011), it was hypothesized that females would use reappraisal strategies more often than males would.
2. The second set of hypotheses focused on exploring the associations between emotion regulation and sexual risk-taking.
 - a. Based on the research that victimized individuals who are higher in emotion regulation difficulties are more likely to engage in sexual risk-taking behavior (Messman-Moore, Walsh & DiLillo, 2010), it was hypothesized that greater

difficulties with emotion regulation would be associated with greater sexual risk-taking behavior in the college-aged participants.

- b. Based on the research that individuals who engage in avoidance coping, a type of suppression strategy, are more likely to have increased numbers of sexual partners and a greater likelihood of sexually transmitted infections (Cooper, Wood, Orcutt & Albino, 2003), it was hypothesized that the more often individuals used suppression strategies, the more they would engage in sexual risk-taking behavior.
- c. Based on the research that individuals who use reappraisal more often engage in fewer risk-taking behaviors (Magar, Phillips & Hosie, 2008), it was hypothesized that the more often individuals use reappraisal strategies, the less they would engage in sexual risk-taking behavior.
- d. Because past research has shown that males are more likely to use suppression strategies than females (Nolen-Hoeksema & Aldao, 2011) and because past research has demonstrated that individuals who engage in avoidance coping are more likely to have increased numbers of sexual partners and a greater likelihood of sexually transmitted infections (Cooper, Wood, Orcutt & Albino, 2003), it was hypothesized that the use of suppression strategies would explain more variance in the amount of sexual risk-taking behavior for males (as compared to females) in the current sample.
- e. Based on the research that females are more likely to use reappraisal strategies than males (Nolen-Hoeksema & Aldao, 2011) and the research that individuals who use reappraisal more often engage in fewer risk-taking behaviors (Magar, Phillips & Hosie, 2008), it was hypothesized that the use of reappraisal strategies

would explain more variance in the amount of sexual risk-taking behavior for females (as compared to males) in the current sample.

3. The third set of hypotheses examined the possible mediation of the relationship between emotion regulation and sexual risk-taking.
 - a. It was hypothesized that the use of the emotion regulation strategies of suppression and reappraisal would mediate the link between difficulties in emotion regulation and sexual risk-taking behavior.
 - b. Because past research that males are more likely to use suppression strategies than females (Nolen-Hoeksema & Aldao, 2011), it was hypothesized that the use of suppression strategies would more fully mediate the path between difficulties in emotion regulation and the amount of sexual risk-taking behavior for males (as compared to females) in the current sample.
 - c. Based on the research that females are more likely to use reappraisal strategies than males (Nolen-Hoeksema & Aldao, 2011), it was hypothesized that the use of reappraisal strategies would more fully mediate the path between difficulties in emotion regulation and the amount of sexual risk-taking behavior for females (as compared to males) in the current sample.

Chapter 2. Methods

Sample Characteristics

Participants were 280 students at Eastern Michigan University, 220 of whom were females and 60 of whom were males. The total sample had a mean age of 21.82 ($SD = 5.66$) years. The majority of participants were Caucasian (71.4%, $n = 200$). Other participants were Black/African American (16.8%, $n = 47$), Hispanic/Latino (4.3%, $n = 12$), Asian/Pacific Islander (3.6%, $n = 10$), Native American/American Indian (.4%, $n = 1$), and other (3.6%, $n = 10$). The participants were in their freshmen (19.3%, $n = 54$), sophomore (20.7%, $n = 58$), and junior (28.6%, $n = 80$), senior (27.5%, $n = 77$) years or were graduate students (3.9%, $n = 11$). A slight majority of the sample was in a relationship (48.2%, $n = 135$), although 45.5% were single ($n = 127$), and 6.4% were married ($n = 18$). See Table 1 for a breakdown of all participant characteristics, and a breakdown of age, race/ethnicity, year in school, and relationship status by sex.

Table 1

Demographics

	Total					
	Sample		Males		Females	
	N	%	N	%	N	%
Age						
18	49	17.5	5	8.3	44	20
19	46	16.4	6	10	40	18.2
20	45	16.1	6	10	39	17.7
21	30	10.7	9	15	21	9.5
22-26	76	27.2	27	44.3	49	22.4
27-30	14	5	5	8.3	9	4.2
30-35	12	4.3	2	3.3	10	4.6
35-40	6	2.1	2	3.4	4	1.9
40-45	4	1.4	0	0	3	1.4
45-50	2	0.8	0	0	1	0.5
50+	1	0.4	0	0	1	0.5
Sex						
Male	60	21.4	60	100	-	-
Female	220	78.6	-	-	220	100
Sexual Orientation						
Heterosexual	235	83.9	50	83.3	185	84.1
Homosexual	9	3.2	3	5	6	2.7

Bisexual	29	10.4	7	11.7	22	10
Other	7	2.5	0	0	7	3.2
Ethnicity						
White	200	71.4	44	73.3	156	70.9
Hispanic/Latino	12	4.3	3	5	9	4.1
Black/African American	47	16.8	9	15	38	17.3
Native American/Indian						
American	1	0.4	0	0	1	0.5
Asian/Pacific Islander	10	3.6	1	1.7	9	4.1
Other	10	3.6	3	5	7	3.2
Year						
Freshman	54	19.3	8	13.3	46	20.9
Sophomore	58	20.7	11	18.3	47	21.4
Junior	80	28.6	15	25	65	29.5
Senior	77	27.5	22	36.7	55	25
Graduate Student	11	3.9	4	6.7	7	3.2
Relationship Status						
Single	127	45.4	36	60	91	41.4
In a relationship	135	48.2	19	31.7	116	52.7
Married	18	6.4	5	8.3	13	5.9

Procedures

Participants were recruited through psychology class announcements, the Psychology Department SONA system, and fliers posted around campus. The SONA system is the Psychology department's online study recruitment software. Individuals recruited through the in-class announcements were directed to the SONA system to gain access to the study in SurveyMonkey. SurveyMonkey is free online software used to create online surveys and collect data. Individuals recruited through fliers took a tab at the bottom of the flier with the web address for access via SurveyMonkey. Psychology student participants who completed the study were offered extra credit at the discretion of their psychology professor. Non-psychology participants were offered a \$10 Amazon gift card for their participation. (See Appendix A for the in-class and SONA system announcements).

Participants were directed to the survey in SurveyMonkey where they were first asked to read and sign the informed consent. The informed consent form detailed the sexual nature of some questions in the study and the participant's right to leave the study at any point without consequence. Please see Appendix B for the full informed consent. Following the informed consent, participants were asked to complete several measures on emotion regulation, substance use, and sexual behavior. The survey took approximately 20 minutes for each participant to complete. At the end of the survey the participant was asked if s/he was a psychology student. If participant indicated psychology student status, s/he was directed to the Thank you page and received credit. If s/he reported "no," the second page asked if s/he would like to receive compensation for their time. Participants who indicated that they would like to receive compensation were linked to a second survey and were instructed to enter their e-mail address

and were then sent to the Thank you page. Following completion of the study, participants eligible for compensation were e-mailed a \$10 Amazon gift card.

Data were kept confidential and secure. Individuals were not required to enter their names in order to consent to the study and no other identifying information was connected to the data. All data were kept in a password-protected computer in a secure lab space to ensure confidentiality was maintained.

Measures

The following measures were administered to participants, in this order:

Difficulties in emotion regulation. The Difficulties in Emotion Regulation Scale (DERS) is a 36-item questionnaire that assesses an individual's skills and difficulties in regulating their emotions (Gratz & Roemer, 2004). There are six subscales in the DERS: 1) *acceptance*: non-acceptance of emotions, 2) *goals*: difficulties in engaging in goal-directed behavior when distressed, 3) *impulse*: impulse control difficulties, 4) *awareness*: lack of emotional awareness, 5) *strategies*: limited access to emotion regulation strategies, and 6) *clarity*: lack of emotional clarity. The DERS includes items such as "I have difficulty making sense out of my feelings" (*clarity*), "When I'm upset, I believe that my feelings are valid and important" (*awareness*), and "When I'm upset, it takes me a long time to feel better" (*strategies*). Items are scored on a 5-point Likert scale that ranges from one (*almost never*) to five (*almost always*). There are 11 reverse scored items. Researchers may compute a total score for the scale in addition to the six subscale scores. The current study used the total score for the measure. See Appendix C for the full scale.

Gratz and Roemer (2004) report good psychometric properties for the DERS. It has reasonable internal consistency ($\alpha = .80$) and stability ($\alpha = .69$). Test-retest reliability over a 4-8

week period was reported to be $r = .88, p < .01$. The DERS is significantly positively correlated with the Acceptance and Action Questionnaire, a measure of experiential avoidance, $r = .60, p < .01$, indicating that increased difficulties with emotion regulation are correlated with increased levels of experiential avoidance, which evidences the convergent validity of the measure. It was also found that the DERS is negatively correlated with the Emotional Expressivity Questionnaire (Kring, Smith & Neale, 1994), $r = -.23, p < .01$, indicating that higher levels of difficulties with emotion regulation are correlated with lower levels of emotional expressivity (Gratz & Roemer, 2004). This is evidence of divergent validity. In addition, relevant to this study is that no gender differences were found in the levels of emotion regulation difficulties in the norming sample (Gratz & Roemer, 2004).

The scale was found to have very good internal consistency in the present sample as a whole ($\alpha = .94$) as well as in each subsample (males, $\alpha = .92$; females, $\alpha = .98$). Difficulties in emotion regulation were non-normally distributed for the total sample, with skewness of .64 (SE = .14) and kurtosis of .11 (SE = .29). Non-normal distribution was confirmed by a Shapiro-Wilks test (S-W = .96, $p = .000$). Data from the males was significantly more non-normally distributed, with skewness of .79 (SE = .30) and kurtosis of 1.35 (SE = .60; S-W = .95, $p = .020$), than data from the females, where skewness was -.06 (SE = .16) and kurtosis was .98 (SE = .32; S-W = .96, $p = .000$). See Table 2 for a distribution of the data for each subscale of the DERS.

Emotion regulation. The Emotion Regulation Questionnaire (ERQ) is a 10-item measure that assesses an individual's use of specific emotion regulation strategies (Gross & John, 2003). There are two subscales in the ERQ: the suppression scale and the reappraisal scale. The suppression scale includes items such as, "I control my emotions by not expressing them," and the reappraisal scale includes items such as, "I control my emotions by changing the way I

think about the situation I'm in." Items are scored on a 7-point Likert scale that ranges from one (*strongly disagree*) to seven (*strongly agree*). There are no reverse scored items. See Appendix D for the full scale.

Gross and John (2003) reported good psychometric properties for the ERQ. It has reasonable internal consistency for both the reappraisal ($\alpha = .79$) and suppression ($\alpha = .73$) subscales. Test-retest reliability over 3 months was reported to be $r = .69$. Confirmatory factor analysis suggested a good fit for the two-factor model of the subscales ($\chi^2(34) = 227.58, p < .05$; Melka, Lancaster, Bryant, & Rodriguez, 2011).

In the present study, the Cronbach's alphas for reappraisal, suppression and the total scale were above the threshold of acceptability ($\alpha = .88, .78, \text{ and } .72$, respectively). Cronbach's alphas for the total scale, reappraisal subscale, and suppression subscale were .76, .88, and .68 for males and .72, .88, and .78 for females, which are all within the acceptable range (See Table 2 for measure statistics). The total scale was non-normally distributed for the total sample, with skewness of $-.41$ ($SE = .14$) and kurtosis of $.75$ ($SE = .29$). A Shapiro-Wilks test of normality of data confirmed that the total scale data were non-normally distributed ($S-W = .98, p = .011$). Non-normal distribution was found for the total sample for reappraisal, with skewness of $-.49$ ($SE = .14$), kurtosis of $-.18$ ($SE = .29$), and $S-W = .97, p = .000$, and for suppression, with skewness of $.15$ ($SE = .14$), kurtosis of $-.64$ ($SE = .29$), and $S-W = .98, p = .001$. However, the total scale data were normally distributed with skewness of $-.50$ ($SE = .30$) and kurtosis of $.82$ ($SE = .60$) for males. This was confirmed by a Shapiro-Wilks test ($S-W = .97, p = .340$). Total scale data for females was also found to be normally distributed with skewness of $-.43$ ($SE = .16$) and kurtosis of $.80$ ($SE = .32$) for females. A Shapiro-Wilks test of normality of data confirmed that the data were normally distributed ($S-W = .98, p = .020$). Reappraisal was normally

distributed for males with skewness of $-.48$ ($SE = .30$) and kurtosis of $-.56$ ($SE = .60$; $S-W = .97$, $p = .138$). However, it was non-normally distributed for females with skewness of $-.50$ ($SE = .16$), kurtosis of $-.05$ ($SE = .32$), and $S-W = .96$, $p = .001$. A similar distribution was found for suppression with skewness of $-.20$ ($SE = .30$) and kurtosis of $.01$ ($SE = .60$; $S-W = .98$, $p = .838$) for males, and skewness of $.29$ ($SE = .16$) and kurtosis of $-.57$ ($SE = .32$), $S-W = .97$, $p = .001$ for females.

Sexual risk. The Sexual Risk Survey (SRS) is a 23-item measure that assesses an individual's sexual risk behaviors (Turchik & Garkse, 2009). There are five subscales in the SRS: Sexual Risk-taking with Uncommitted Partners, Risky Sex Acts, Impulsive Sexual Behaviors, Intent to Engage in Risky Sexual Behaviors, and Risky Anal Sex Acts. For the purposes of this study only the Sexual Risk-Taking with Uncommitted Partners, Risky Sex Acts, and Impulsive Sexual Behaviors subscales were used, resulting in a measure containing 18 items. The Sexual Risk-Taking with Uncommitted Partners subscale assesses the extent to which individuals engage in sexual behaviors with an individual to whom one is not committed or does not know well. This subscale includes eight items such as "How many people have you had sex with that you know but are not involved in any sort of relationship with (i.e. 'friends with benefits,' 'fuck buddies')," and "How many partners have you had sex with that you didn't trust?" (Turchik & Garkse, 2009). The Risky Sex Acts subscale is defined as a measure of sex acts without protection. This subscale includes 5 items such as "How many times have you had vaginal intercourse without a latex or polyurethane condom," and "How many times have you given or received fellatio (oral sex on a man) without a condom" (Turchik & Garkse, 2009). The Impulsive Sexual Behaviors subscale is defined as unplanned sexual behaviors. This subscale

includes five items such as, “How many times have you had an unexpected and unanticipated sexual experience?” (Turchik & Garkse, 2009).

The frequency of acquired responses stemming from the current sample is used to score the SRS. For each question, individuals indicate how many times they have engaged in that behavior in the past six months. If an individual marks an item 0, it is coded as a 0. Responses greater than 0 are coded according to the frequency with which they are endorsed by the entire sample. Accordingly, 1 = approximately 40% of responders endorsed the item as such, 2 = approximately 30% of responders endorsed the item as such, 3 = approximately 20% of responders endorsed the item as such, and 4 = approximately 10% of responders endorsed the item as such. The coded items for each individual are then summed for the total SRS score, which ranged from 0-59. For example, Turchik and Garske (2009) scored item 1 (“How many partners have you engaged in sexual behavior with, but not had sex with?”) as 1 = 1-2 partners (47.1%), 2 = 3-4 partners (17.7%), 3 = 5-9 partners (9.4%), and 4 = 10+ partners (4.5%). Higher scores on the SRS are indicative of greater sexual risk-taking. Due to the restricted variability of frequencies in some of the items for a given sample, previous authors have found it impossible to code the items exactly to the guidelines. To address this, the authors coded the items as closely to the original scale as possible (Turchik & Garske, 2009). For this sample several items were impossible to code by the guidelines, thus they were coded as closely as possible using the current sample data. For these cases, items were scored with percentages as close to the original frequency percentages as possible. Specifically, Item 17 of the SRS was unable to be scored within the percentage ranges and thus the frequency for two categories had only a 1% difference. See Appendix E for the full scale and Appendix F for the scoring for this sample.

The SRS has strong reported psychometric properties. The internal consistency has been reported as $\alpha = .88$ and the 2-week test-retest reliability is $\alpha = .93$ (Turchik & Garske, 2009). The reliability for the subscales used in the current study has been reported in a prior sample as follows: Sexual Risk-taking with Uncommitted Partners ($\alpha = .88$; $r = .90$), Risky Sex Acts ($\alpha = .80$; $r = .89$), and Impulsive Sexual Behaviors ($\alpha = .78$; $r = .79$; Turchik & Garkse, 2009).

For the present sample, the Cronbach's alpha of the total scale was computed as $\alpha = .91$ for the total sample, with $\alpha = .94$ for males, and $\alpha = .88$ for females. Internal consistency was examined for each subscale with the Sexual Risk-Taking with Uncommitted Partners subscale alphas computed to be $\alpha = .91$ for the total sample, with $\alpha = .93$ for males, and $\alpha = .90$ for females. For the Risky Sex Acts subscale Cronbach's alpha was $\alpha = .85$ for the total sample, with $\alpha = .92$ for males, and $\alpha = .81$ for females. Finally, the Impulsive Sexual Behavior subscale had alphas of $\alpha = .83$ for the total sample, with $\alpha = .94$ for males, and $\alpha = .75$ for females. Due to the higher alpha for the total scale, the current study examined the total score for the three combined subscales rather than the subscale scores.

Sexual risk was non-normally distributed for the total sample, with skewness of 1.11 (SE = .14), kurtosis of .80 (SE = .29), S-W = .89, $p = .000$. Sexual risk data were similarly non-normally distributed for males, with a skewness of .78 (SE = .30), kurtosis of -.29 (SE = .60), and S-W = .90, $p = .000$, and for females, with a skewness of 1.08 (SE = .16), kurtosis of .78 (SE = .32), and S-W = .90, $p = .000$.

Drug and Alcohol Use. To measure drug and alcohol use, the current study used the Drug Use and Excessive Alcohol Use subscales of The Composite Measure of Problem Behaviors (CMPB; Kingston, Clarke, Ritchie & Remington, 2011). The CMPB is a 46-item measure that assesses an individual's engagement in problem behaviors. These include nicotine

use, deliberate self-harm, excessive internet/computer game use, drug use, excessive exercise, excessive alcohol use, binge eating, sexual promiscuity, aggression, and restrictive eating (Kingston, Clarke, Ritchie & Remington, 2011). Items are scored on a 6-point scale ranging from 1 (very like me) to 6 (very unlike me). The current study only included the 6-item Drug Use scale, and the 5-item Excessive Alcohol Use subscales. Each subscale has one reverse scored item. This study examined both the total score after combining the two subscales and the individual scores from each subscale. See Appendix G for the scale.

The CMPB demonstrates good psychometric properties with an internal reliability for the composite scale of $\alpha = .87$ (Kingston, Clarke, Ritchie & Remington, 2011). Test-retest reliability was reported to be $r = .97$ at 2-weeks, $r = .87$ at 2-4 months and $r = .91$ at 8-14 months. The subscales for this study, Drug Use and Excessive Alcohol Use subscales, also demonstrate strong psychometric properties. The Drug Use subscale had an internal reliability of $\alpha = .91$ and test-retest reliability of $r = .91$ at two-weeks. It is highly correlated with the Drug Problem Index ($r = .70, p < .01$). The Excessive Alcohol use subscale has an internal reliability of $\alpha = .86$ and test-retest reliability of $r = .89$ at two-weeks. The Excessive Alcohol use subscale is highly correlated with the Alcohol Use Disorder Identification Test (Kingston, Clarke, Ritchie & Remington, 2011), which is evidence of convergent validity.

Good internal validity was found for the current sample for alcohol use ($\alpha = .83$), and the total scale ($\alpha = .77$). However, the total scale alpha for the drug use scale was poor ($\alpha = .59$). When calculated separately for males and females, Cronbach's alphas for the drug use scale were .49 and .61, for the alcohol scale alphas were .85 and .83, and alphas for the total scale were .74 and .78.

Substance use was non-normally distributed in this sample with skewness of -1.09. (SE = .14), kurtosis of -.07 (SE = .29), and S-W = .94, $p = .000$. In addition, the separate drug and alcohol use subscales were non-normally distributed with skewness of -1.09 (SE = .14) and -.35 (SE = .14) and kurtosis of .07 (SE = .29) and -1.03 (SE = .29), respectively. A Shapiro-Wilks test of data normality confirmed non-normal distribution for the drug scale (S-W = .81, $p = .000$) and for the alcohol scale (S-W = .93, $p = .000$). Male data were non-normally distributed for both the drug use scale (skewness = -.93, SE = .30; kurtosis = -.25, SE = .60; S-W = .84, $p = .000$), alcohol scale (skewness = -.04, SE = .30; kurtosis = -1.21, SE = .60; S-W = .94, $p = .007$), and total scale (skewness = -.58, SE = .30; kurtosis = -.32, SE = .60; S-W = .95, $p = .018$). A similar distribution was found within the female data for the drug use scale (skewness = -1.15, SE = .16; kurtosis = .23, SE = .32; S-W = .79, $p = .000$), the alcohol use scale (skewness = -.43, SE = .16; kurtosis = -.93, SE = .32; S-W = .93, $p = .000$), and the total scale (skewness = -.77, SE = .30; kurtosis = -.04, SE = .32; S-W = .93, $p = .000$).

Several of the measures used for this study were non-normally distributed. This poses a difficulty as the statistical analyses assume normality of data. The non-normal distribution may relate to some of the unusual findings and is addressed further in the limitations section of the paper.

Table 2

Means, Standard Deviations, and Ranges for All Variables

Scale	Mean (SD)	Sample Range	Alpha
Difficulties in Emotion Regulation Scale	82.58 (23.75)	34-159	.94
Nonacceptance	13.72 (6.25)	5-30	.92
Goals	14.82 (4.84)	4-25	.87
Impulse	12.11 (5.45)	5-30	.87
Aware	13.70 (4.98)	5-28	.85
Strategies	17.63 (7.11)	8-39	.90
Clarity	10.49 (3.53)	4-22	.75
Drug & Alcohol Use	46.24 (11.59)	16-66	.77
Drug Use	26.31 (6.55)	10-36	.59
Alcohol Use	19.94 (7.42)	5-30	.83
Suppression	14.20 (5.60)	4-28	.78
Sexual Risk Survey	14.60 (12.57)	0-59	.91
Sexual Risk-Taking with Uncommitted Partners	5.98 (6.70)	0-27	.91
Risky Sex Acts	4.88 (4.77)	0-20	.85
Impulsive Sexual Behaviors	3.73 (3.78)	0-17	.77

Table 3

Sample Size, Means, Standard Deviations, and Ranges for All Variables by Gender

Scale	Gender	Mean (<i>SD</i>)	Possible Range	Sample Range	Alpha
Difficulties in Emotion Regulation Scale	Male	79.46 (21.87)	36-180	43-153	.92
	Female	83.30 (24.19)	36-180	36-159	.94
Nonacceptance	Male	12.55 (6.14)	6-30	6-25	.92
	Female	14.04 (6.25)	6-30	6-30	.91
Goals	Male	13.88 (5.26)	5-25	5-25	.89
	Female	15.08 (4.70)	5-25	5-25	.86
Impulse	Male	11.40 (5.45)	6-30	6-29	.90
	Female	12.30 (5.44)	6-30	6-30	.89
Aware	Male	14.47 (4.73)	6-30	8-27	.80
	Female	13.41 (5.01)	6-30	6-28	.86
Strategies	Male	17.15 (6.56)	8-40	8-39	.88
	Female	17.90 (7.23)	8-40	8-37	.90
Clarity	Male	10.26 (3.58)	5-25	5-20	.71

	Female	10.55 (3.52)	5-25	5-22	.76
Drug & Alcohol Use	Male	44.25 (11.13)	11-66	19-61	.74
	Female	46.86 (11.65)	11-66	16-66	.78
Drug Use	Male	25.61 (6.12)	6-36	11-32	.49
	Female	26.57 (6.58)	6-36	10-30	.61
Alcohol Use	Male	18.63 (7.64)	5-30	5-30	.85
	Female	20.29 (7.35)	5-30	5-30	.83
Emotion Regulation Questionnaire	Male	45.23 (9.74)	10-70	14-67	.76
	Female	43.14 (8.72)	10-70	10-65	.72
Reappraisal	Male	28.45 (8.20)	6-42	8-42	.88
	Female	29.66 (7.16)	6-42	6-42	.88
Suppression	Male	16.78 (4.92)	4-28	5-28	.68
	Female	13.47 (5.57)	4-28	4-28	.78
Sexual Risk Survey	Male	18.21 (16.79)	0-59	0-59	.94
	Female	13.61 (11.00)	0-59	0-52	.90
Sexual Risk-Taking with Uncommitted	Male	7.61 (8.34)	0-32	0-26	.93

Partners					
	Female	5.53 (6.13)	0-32	0-27	.90
Risky Sex Acts	Male	6.31 (6.34)	0-20	0-20	.92
	Female	4.50 (4.18)	0-20	0-19	.81
Impulsive Sexual Behaviors	Male	4.28 (4.56)	0-20	0-17	.83
	Female	3.58 (3.53)	0-20	0-15	.75

Chapter 3. Results

Data Preparation

Data were prepared for analysis in SPSS. Participants with missing data were deleted from the analyses in a list-wise deletion. Following scoring, each scale was coded into z-scores in order to conduct the mediation analysis.

The Difficulties in Emotion Regulation Scale (DERS) and the drug and alcohol subscales of the Composite Measure of Problem Behaviors have reverse scored items. Items 1, 2, 6, 7, 8, 10, 17, 20, 22, 24, and 34 of the DERS, items 2 and 10 of the drug and alcohol subscales were reverse scored in SPSS. The ERQ does not have reverse scored items. Following the reverse scoring, the DERS, DAS, and ERQ scores were summed for each individual.

The Sexual Risk Survey (SRS) is scored according to the sample data frequency. As noted in the methodology the SRS was scored using the guidelines provided by Turchik and Garske (2009). Thus, if an individual marks an item “0,” that item is coded as a “0.” Items marked greater than “0” are coded according to the frequency with which they are endorsed by the entire sample. Accordingly, 1 = 40% of responders endorsing the item as such, 2 = 30% of responders endorsing the item as such, 3 = 20% of responders endorsing the item as such, and 4 = 10% of responders endorsed the item as such. Due to the variability of the data, it was not possible to classify all of the frequencies in this manner. Several of the variables were distributed in a manner that the percentages for each rank were very similar. In particular, for item number 17, the percentages did not allow for a scoring as above and required that items coded 2 and items coded 3 were within 1% of responses (Appendix F). However, each item was categorized into the same five categories using as close as frequencies as possible. The data frequency and scoring are located in Appendix F.

To account for the significant covariance between the variables of interest and substance use, the analyses were conducted both with and without controlling for substance use. To examine gender differences in the variables, the analyses were conducted controlling for substance use only.

Hypothesis Testing

Gender differences. The first analyses focused on examining whether there were gender differences in emotion regulation difficulties, suppression use, reappraisal use, and sexual risk-taking behavior. To assess gender differences in substance use behavior, an ANOVA was conducted to examine gender differences in substance use behavior. Contrary to expectations, it was found that males and females reported equivalent levels of substance use ($F(1, 278) = 2.41, p = .121$). Despite the lack of gender differences in substance use, substance use was controlled for in all of the analyses due to the significant correlation with the other variables. To examine gender differences, an Analysis of Covariance (ANCOVA) was used. See Table 4 for a complete summary of the ANCOVA. It was hypothesized that males and females would report equivalent levels of emotion regulation difficulties, while males would report significantly higher levels of suppression and sexual risk-taking behaviors. It was also hypothesized that females would report more reappraisal.

Consistent with Hypothesis 1a, males were found to engage in significantly more suppression ($F(1, 277) = 18.08, p = .00$), and more sexual risk-taking behaviors ($F(1, 277) = 4.85, p = .028$). Contrary to expectations, no gender differences were found for the use of reappraisal, $F(1, 277) = .91, p > .339$. Worth noting, no gender differences were found for reported levels for difficulties in emotion regulation ($F(1, 277) = 2.12, p = .146$).

Table 4

Analysis of Covariance Summary

Sources	Sum of Squares	df	Mean Square	F
Difficulties in Emotion Regulation	1149.43	1	1149.43	2.12
Reappraisal	49.88	1	49.88	.919
Suppression	535.35	1	535.35	18.08****
Sexual Risk-Taking	4.48	1	4.48	4.85*

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

Associations among emotion regulation, strategy use, and risky sexual behavior. The second set of analyses focused on the associations between emotion regulation difficulties, strategy use, substance use, and sexual risk-taking behavior through the use of bivariate Pearson correlations performed on the total sample and for the male and female samples separately. In addition, partial correlations were conducted controlling for substance use in order to control for the variance in the associations accounted for by substance use. It was hypothesized that greater emotion regulation difficulties, greater suppression, and greater substance use would be associated with more frequent sexual risk-taking behavior. It was also hypothesized that greater reappraisal would be associated with less frequent sexual risk-taking behavior.

Table 5

Total Sample Intercorrelations Between Variables

	1	2	3	4	5
1. Difficulties in Emotion Regulation	-				
2. Reappraisal	-.46***	-			
3. Suppression	.18**	-.06	-		
4. Drug & Alcohol Use	-.20**	.11	.03	-	
5. Sexual Risk Taking	.15**	-.12*	-.08	-.25**	-

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

Table 6

Total Sample Intercorrelations Between Variables, Controlling For Substance Use

	1	2	3	4
1. Difficulties in Emotion Regulation	-			
2. Reappraisal	-.44***	-		
3. Suppression	.19**	-.07	-	
4. Sexual Risk Taking	.11	-.09	-.07	-

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

For the total sample, it was found that, as hypothesized, greater difficulties in emotion regulation were positively related to increased sexual risk-taking behavior ($r = .15$, $p = .009$) and greater suppression ($r = .18$, $p = .003$). In addition, greater difficulties in emotion regulation were negatively related to reappraisal ($r = -.46$, $p = .000$). Contrary to expectations, emotion regulation difficulties were negatively related to drug and alcohol use ($r = -.20$, $p = .001$). Also

contrary to expectations, sexual risk-taking behavior was negatively related to the use of suppression ($r = -.08, p = .163$) and to substance use ($r = -.26, p = .000$). Consistent with Hypothesis 2c, the negative correlation between reappraisal and sexual risk-taking behavior was significant ($r = -.12, p = .043$).

An additional exploratory correlation matrix for the total sample was created to examine the associations among these variables, controlling for drug and alcohol use due to the significant correlations between substance use and the other variables. The correlation between emotion regulation difficulties and sexual risk-taking was no longer significant ($r = .11, p = .066$). In addition, the correlation between suppression and sexual risk-taking did not remain significant when substance use was controlled for ($r = -.07, p = .199$). In addition, the correlation between reappraisal and risky sexual behavior was no longer significant ($r = -.09, p = .115$). See Table 5 for a complete partial Pearson correlation matrix controlling for substance use.

Gender differences. The aforementioned analyses were then conducted separately for males and females to examine Hypotheses 2d-f. See Table 7 for the complete correlation matrix for males and females. The correlations were compared using a Fisher's r to z transformation. Next, partial Pearson correlations were calculated, while controlling for substance use. See Table 8 for the partial Pearson correlation matrix. It was hypothesized that there would be no gender differences in the effect of emotion regulation difficulties, suppression would account for greater variance in sexual risk-taking behavior for males, and reappraisal would account for greater variance in sexual risk-taking behavior for females. There were no hypotheses related to the effect of substance use.

There were no significant gender differences found in the Pearson correlations. A significant positive correlation between difficulties in emotion regulation and sexual risk-taking

behavior was found for females ($r = .18, p = .005$), but not for males ($r = .13, p = .313$). Consistent with expectations, however, the gender differences in the correlations were not significant ($z = .34, p = 0.730$). Contrary to expectations, the use of suppression was significantly negatively related to sexual risk-taking behaviors for females ($r = -.14, p = .032$), but not for males ($r = -.08, p = .515$). However, a significant difference between the two correlations was not found, $z = .40, p = .683$. As hypothesized, a significant positive correlation was found between reappraisal use and sexual risk-taking behaviors for females ($r = -.20, p = .002$), but not for males ($r = -.08, p = .501$). Again, this gender difference was not significant ($z = .82, p = 0.410$).

While no gender differences were found when substance use was controlled for, the correlations remained significant or non-significant as reported before. Specifically, the significant correlation between emotion regulation difficulties and risky sexual behaviors for females remained ($r = .15, p = .027$), and the correlation for males remained non-significant ($r = .09, p = .490$). No significant differences between these partial correlations were found ($z = .40, p = .341$). A significant negative correlation between the use of suppression and sexual risk-taking behaviors for females ($r = -.13, p = .041$), but not for males ($r = -.04, p = .744$) was found when substance use was controlled for. The gender difference between these correlations remained non-significant ($z = .61, p = .542$). When substance use was controlled for, a significant negative correlation remained between reappraisal and sexual risk-taking behaviors for females ($r = -.18, p = .006$), but not for males ($r = .10, p = .432$). The gender differences were not significant ($z = -1.89, p = .057$).

Table 7

Gender-Based Intercorrelations Between All Variables

	1	2	3	4	5
1. Difficulties in Emotion Regulation	-	-.46***	-.10	-.12	0.13
2. Reappraisal	-.47***	-	.04	.01	-.08
3. Suppression	.27**	-.07	-	.11	-.08
4. Drug & Alcohol Use	-.22**	.13*	.04	-	-0.39**
5. Sexual Risk Taking	.18**	-.20**	-.14*	-.20**	-

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

Note. Intercorrelations for male participants ($n = 60$) are presented above the diagonal, and intercorrelations for female participants ($n = 220$) are presented below the diagonal.

Table 8

Gender Based Partial Intercorrelations Between All Variables

	1	2	3	4
1. Difficulties in Emotion Regulation	-	-.46***	-.03	.09
2. Reappraisal	-.44***	-	.03	.10
3. Suppression	.19**	-.07	-	-.04
4. Sexual Risk Taking	.15*	-.18**	-.13*	-

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

Note. Intercorrelations for male participants ($n = 60$) are presented above the diagonal, and intercorrelations for female participants ($n = 220$) are presented below the diagonal.

Mediation. To test the mediation proposed in Hypothesis 3, the procedures recommended by Baron and Kenny (1986) were followed. The authors recommend the following steps and regression equations to test for mediation: 1) regress the mediator on the independent variable, 2) regress the dependent variable on the independent variable, and 3) regress the dependent variable on both the independent variable and the mediator. All three regressions need to be significant in order for mediation to be tested. Finally, to test the significance of the mediator, a Sobel test is conducted.

To apply these steps to the current data, first, a linear regression analysis was conducted to examine the direct relationship between emotion regulation difficulties and sexual risk taking behavior. Next, a linear regression analysis was conducted to assess the relation between emotion regulation difficulties and the hypothesized mediator, suppression. Then, a linear regression analysis was conducted to assess whether suppression predicted sexual risk taking behavior. Lastly, to assess the mediation effect, emotion regulation difficulties and suppression

were entered into a linear regression model as simultaneous predictors of sexual risk taking behavior. The presence of mediation was determined by examining whether the significance of the beta representing emotion regulation difficulties was lessened when suppression was included in the model. To examine this formally, a Sobel test was conducted to examine whether the change in the beta weight for the original predictor, emotion regulation difficulties, was significantly lessened when the mediator was present in the model. Identical procedures, substituting reappraisal use for suppression use, were conducted to determine if reappraisal mediates the relation between emotion regulation difficulties and sexual risk taking behavior.

When these analyses were conducted for males only, not all tested paths were significant. Specifically, the relationships between sexual risk-taking and difficulties in emotion regulation, suppression, and reappraisal were not significant. In addition, the path between emotion regulation difficulties and sexual risk-taking was not significant. Due to the lack of significant associations between the variables for males, it was not possible to test the mediational model for the male sample.

The following steps were conducted to test whether suppression mediated the relationship between emotion regulation difficulties and risky sexual behavior for the female sample. In Step 1 of the mediation model, difficulties in emotion regulation significantly predicted risky sexual behavior ($\beta = .18$, $t(218) = 2.83$, $p = .005$; $R^2 = .03$). Step 2 of the model demonstrated that difficulties in emotion regulation significantly predicted the use of suppression ($\beta = .25$, $t(218) = 3.93$, $p = .000$; $R^2 = .06$). Thus, difficulties in emotion regulation account for 6% of the variance in suppression use. Contrary to expectations, Step 3 of the model demonstrated that suppression was significantly negatively related to sexual risk-taking behaviors ($\beta = -.14$, $t(218) = -2.14$, $p = .032$; $R^2 = .02$) for females. A mediation model was tested for this sample using the above

significant regressions (see Figure 1 for a diagram of the full mediational model). Step 4 of the mediation process demonstrated that when suppression was included in the model with emotion regulation difficulties, difficulties in emotion regulation remained a significant predictor of sexual risk-taking behavior, $\beta = .24$, $t(218) = 3.57$, $p = .000$; $R^2 = .07$). Thus, suppression did not reduce the relationship between emotion regulation difficulties and sexual risk-taking. In addition, a Sobel test was conducted and found no significant mediation in the model ($z = .21$, $p = .830$).

To test whether reappraisal mediated the relationship between emotion regulation difficulties and risky sexual behavior the following steps were conducted. As before, in Step 1 of the mediation model, difficulties in emotion regulation significantly predicted risky sexual behavior ($\beta = .18$, $t(218) = 2.83$, $p = .005$; $R^2 = .03$). Step 2 of the model demonstrated that difficulties in emotion regulation significantly negatively predicted the use of reappraisal ($\beta = -.47$, $t(218) = -7.86$, $p = .000$; $R^2 = .22$). This demonstrates that difficulties in emotion regulation account for 22% of the variance in the use of reappraisal. Consistent with the expectation, Step 3 of the model demonstrated that reappraisal was significantly negatively related to sexual risk-taking behaviors ($\beta = -.20$, $t(218) = -3.14$, $p = .002$; $R^2 = .04$). Due to the significance of these paths, a mediation model was tested for this female sample (see Figure 2 for the full mediational model). Step 4 of the mediation process showed that when reappraisal was included in the model with emotion regulation difficulties, difficulties in emotion regulation were no longer a significant predictor of sexual risk-taking behavior, $\beta = .11$, $t(218) = 1.55$, $p = .121$; $R^2 = .04$). The R^2 change for this equation was .05, demonstrating that there was a 5% reduction in the variance of the relationship between emotion regulation difficulties and risky sexual behavior. This demonstrates that reappraisal partially mediated the relationship between difficulties in

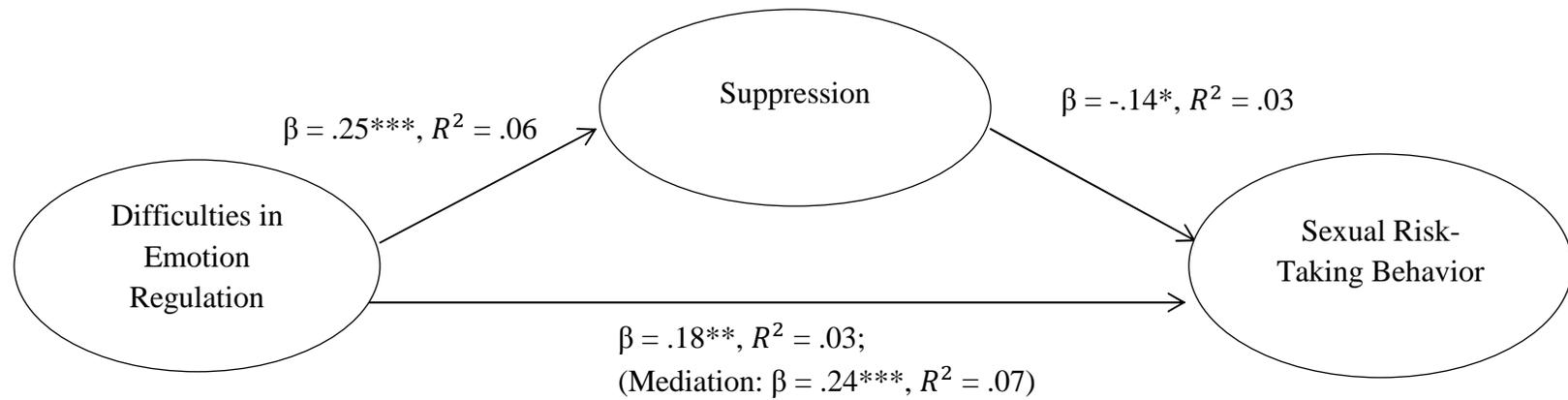
emotion regulation and sexual risk-taking. However, a Sobel test was conducted and found that mediation in the model was not significant ($z = .10, p = .916$).

Substance use. The regression analyses to test mediation, as noted above, were rerun controlling for substance use. This was done to control for the variance substance use accounted for in these relationships, as demonstrated by the earlier correlation analyses.

To test the effect of suppression on the relationship between emotion regulation difficulties and risky sexual behavior controlling for substance use, the same prior steps were taken with substance use entered into each regression equation. This time, in Step 1 of the mediation model, difficulties in emotion regulation significantly predicted risky sexual behavior ($\beta = .15, t(217) = 2.20, p = .027; R^2 = .06$). Step 2 of the model demonstrated that difficulties in emotion regulation significantly predicted the use of suppression ($\beta = .28, t(217) = 4.22, p = .000; R^2 = .07$). When controlling for substance use, difficulties in emotion regulation accounts for 7% of the variance in suppression use, which is a difference of 1% from the previous model. Once again, contrary to expectations, Step 3 of the model demonstrated that suppression was significantly negatively related to sexual risk-taking behaviors ($\beta = -.13, t(217) = -2.05, p = .041; R^2 = .05$). Due to the significance of these paths, a mediation model was tested for the female sample (see Figure 3 for the full mediational model). Step 4 of the mediation process demonstrated that when suppression was included in the model with emotion regulation difficulties, difficulties in emotion regulation remained a significant predictor of sexual risk-taking behavior, $\beta = .20, t(217) = 2.95, p = .003; R^2 = .09$). For this model the R^2 change was .09 indicating that there was a 9% change in the amount of variance in risky sexual behavior accounted for by difficulties in emotion regulation, but this change in variance was not

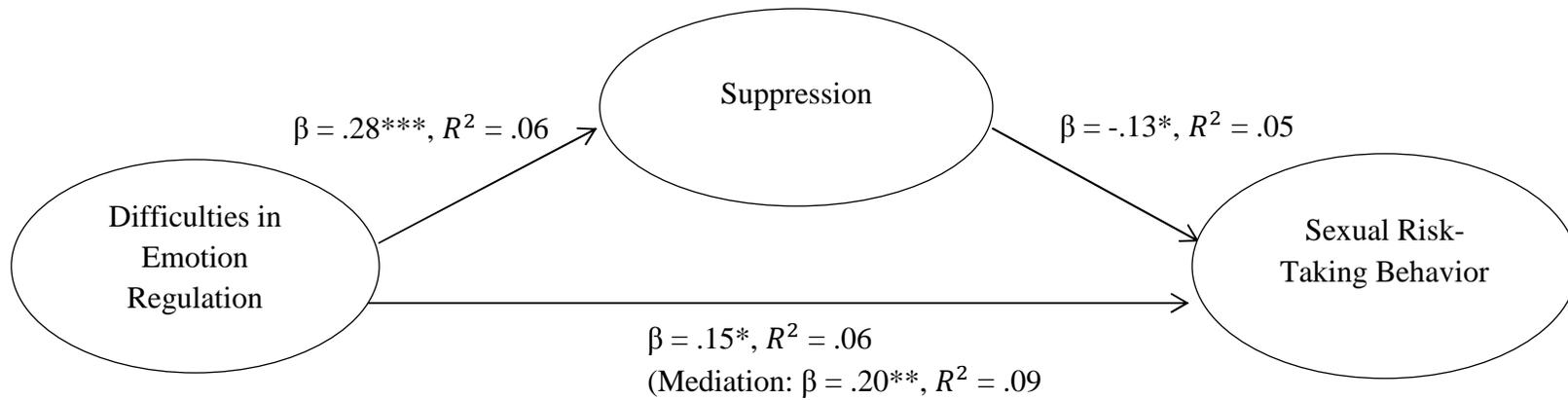
significant. As before, a Sobel test was conducted and found no significant mediation in the model ($z = .12, p = .900$).

In order to test the effect of reappraisal on the relationship between emotion regulation difficulties and risky sexual behavior controlling for substance use, the following steps were conducted. In Step 1 of the mediation model, difficulties in emotion regulation significantly predicted risky sexual behavior ($\beta = .15, t(217) = 2.22, p = .027; R^2 = .06$). Step 2 of the model demonstrated that difficulties in emotion regulation significantly negatively predicted the use of reappraisal ($\beta = -.46, t(217) = -7.52, p = .000; R^2 = .22$). The amount of variance in reappraisal accounted for by emotion regulation difficulties was the same in this model despite controlling for substance use. Consistent with expectations, Step 3 of the model demonstrated that reappraisal was significantly negatively related to sexual risk-taking behaviors ($\beta = -.18, t(217) = -2.78, p = .006; R^2 = .07$). Due to the significance of these paths, a mediation model was tested for this sample (see Figure 2 for the full mediational model). Step 4 of the mediation process showed that when reappraisal was included in the model with emotion regulation difficulties, difficulties in emotion regulation were no longer a significant predictor of sexual risk-taking behavior, $\beta = .08, t(217) = 1.09, p = .274; R^2 = .06$). The R^2 change for this model was .07, demonstrating a 7% reduction in the variance in sexual risk-taking accounted for by difficulties in emotion regulation. This indicates a partial mediation effect where the use of reappraisal reduces the effect of the relationship between emotion regulation difficulties and sexual risk-taking. Despite this change in variance, a Sobel test demonstrated no significant mediation in the model ($z = .07, p = .941$).



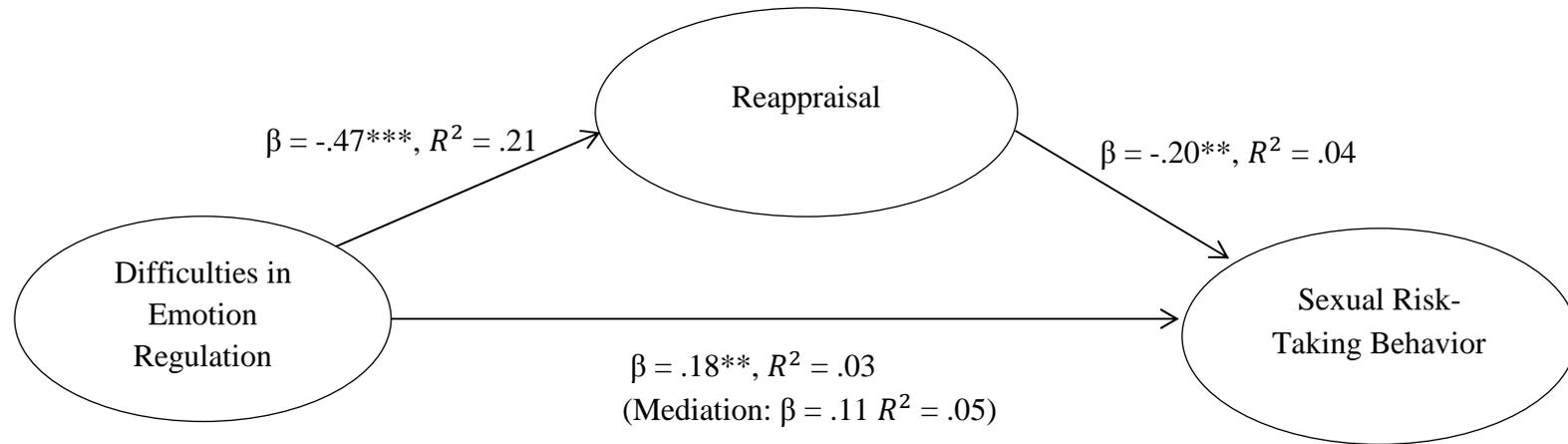
Note. * $p < .05$. ** $p < .01$. *** $p < .001$

Figure 1. Mediation model tested for the effect of suppression on the relationship between difficulties in emotion regulation and sexual risk-taking behavior for the female sample.



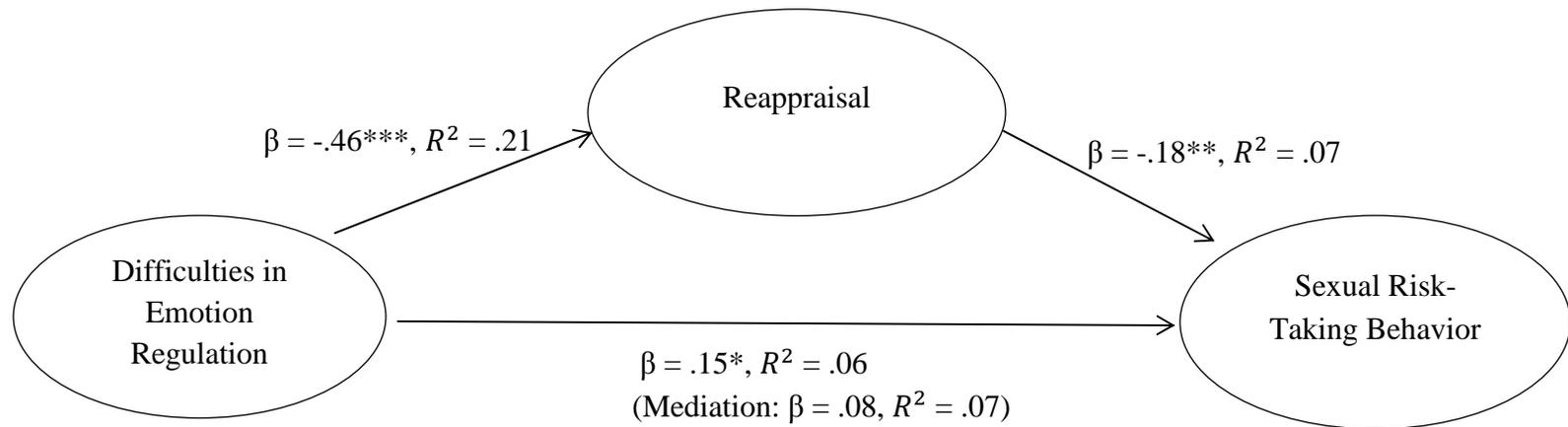
Note. * $p < .05$. ** $p < .01$. *** $p < .001$

Figure 2. Mediation model tested for the effect of suppression on the relationship between difficulties in emotion regulation and sexual risk-taking behavior for the female sample controlling for substance use.



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

Figure 3. Mediation model tested for the effect of reappraisal on the relationship between difficulties in emotion regulation and sexual risk-taking behavior for the female sample.



Note. ** $p < .01$. *** $p < .001$

Figure 4. Mediation model tested for the effect of reappraisal on the relationship between difficulties in emotion regulation and sexual risk-taking behavior for the female sample controlling for substance use.

Chapter 4. Discussion

Sexual risk-taking is a growing problem for college students and an area where there are significant individual differences in behavior. Specifically, males engage in significantly more risky sexual behavior than do females. Contributing factors to risky sexual behavior may be emotion regulation difficulties and the strategies used to regulate one's emotions. Males and females engage in different types of emotion regulation, which has different effects on behavior and which was hypothesized to explain the gender differences in sexual risk-taking. The purpose of this study was to examine the gender differences and relationships between emotion regulation difficulties, emotion regulation strategies, and sexual risk-taking. Specifically, the mediating effect of emotion regulation strategy use on the relationship between emotion regulation difficulties and sexual risk-taking was investigated.

The research questions were examined through a survey-based study of undergraduate students (n=280) aged 18-59 years. Responses to surveys regarding emotion regulation difficulties, emotion regulation strategies, drug use, alcohol use, and sexual risk-taking behaviors were analyzed in the context of the entire sample and separately for the males and females.

Gender Differences in Behavior

There were several gender differences in the measured variables within this study. First, males and females were found to have equivalent levels of overall difficulties in emotion regulation. These findings are consistent with the past research as demonstrated in a meta-analysis by Tamres, Janicki, and Helgeson (2002), which stated that adult males and females do not differ with regard to level of emotion regulation difficulties. One possible explanation for this finding is that despite socialization around the expression of emotion, both genders experience similar levels of emotion and may continue to struggle with emotion regulation

(McRae, Ochsner, Mauss, Gabrieli, & Gross, 2008). It should be noted that the original norming sample for the DERS did not find any gender differences in emotion regulation difficulties (Gratz & Roemer, 2004).

Consistent with the hypothesis that males would engage in more suppression use, this data demonstrated that males engaged in more suppression than did females. This finding supports the past research, which stated that males engaged in more suppression than females did (Gross & John, 2003; Nolen-Hoeksema & Aldao, 2011). One explanation for the gender differences in the use of suppression as an emotion regulation strategy is the differences in socialization of emotion (Chaplin, Cole, & Zahn-Waxler, 2005). An observational study of interactions between 60 children and their parents found that gender differences in parental response to child emotion, most notably that parents attended more to male emotions associated with individual motivation and more to female emotions associated with vulnerability. Within our culture, males are taught that though they may feel sad, for example, exhibiting this emotion via crier is counter to the macho, “in control” way that males are expected to act. Consistent with this, an experimental study of emotion expression in male and female undergraduates following an emotion-eliciting film clip found that there were no differences in the experience of emotion, but that males demonstrated significantly less emotion expression than did females (Kring & Gordon, 1998). Thus, one explanation for this gender difference is that males may be more likely to use suppression, because it inhibits emotion expression, whereas females may be less likely to use suppression due to less need to inhibit emotion expression.

Somewhat surprisingly, this study found that males and females did not engage in significantly different amounts of reappraisal. This finding is consistent with some previous literature. Gross and John (2003), who also examined an undergraduate sample found that while

males used more suppression, there were no gender differences in the use of reappraisal. One possible explanation for this finding is the relationship between higher education achievement and the greater use of reappraisal (Garnefski, Teerds, Kraaij, Legerstee, & van den Kommer, 2004). As this sample was of undergraduate students, their level of education may have meant that the males were more likely to use reappraisal than a less educated male sample. An additional possible explanation for the lack of gender differences in the use of reappraisal within the current study could be the difference in sample size between the genders. In this study, the male sample was significantly smaller and while it reached the size needed for statistical power, the sample may not have been representative of true reappraisal use. An additional explanation for the gender differences is that reappraisal is a strategy that occurs both before the emotion-eliciting event and after, but that it is not a strategy designed to reduce emotion expression. Males may be less likely to use reappraisal as they are more likely to turn to strategies associated with reducing emotion expression in order to present as more stereotypically “male” (Kring & Gordon, 1998).

Also consistent with our expectations, within the current sample males in this sample reported significantly more sexual risk-taking behaviors than did females. This finding is consistent with the previous research, which states that males engage in more risky behaviors overall, including, but not limited to, sexual risk-taking behaviors (Huang, Jacobs, & Derevensky, 2010; Poulson, Eppler, Satterwhite, Weunsch, & Bass, 1998). Within our society, there is a greater level of acceptability when males engage in risky sexual behavior; for example, when males have multiple sex partners they are considered “studs,” but females are considered “whores” or “sluts.” The evaluation associated with the male words is clearly more consistently positive than the evaluation associated with the female words. As such, this difference in level of

acceptability may explain the gender difference in the frequency of risky sex acts (Peterson & Hyde, 2010). It is not a far reach to suggest that these permissive sexual attitudes then lead to more permissive sexual behavior for males. Differences in acceptability of sexual behavior have been demonstrated in a meta-analysis that examined 730 studies of sexual behavior with participants ranging in age from 15-83 (Peterson & Hyde, 2010). This meta-analysis found that males reported significantly more permissive attitudes towards sexual behavior than did females (Peterson & Hyde, 2010). This difference in attitude toward sexual behavior may account for the gender differences found in this study. Another possible explanation is that females are more likely to underreport number of sexual partners (Alexander & Fisher, 2003). Thus, it is possible that the females will underreport their engagement in risky sexual behavior due to self-presentation bias. This may also have impacted the significant gender differences in reported sexual-risk taking behaviors.

Within the current study, the associations between emotion regulation difficulties, suppression, reappraisal, and risky sexual behavior were only significant for the female sample. The gender differences in the associations suggest a difference in the effect of emotion regulation difficulties between each gender. A survey study of depressed and non-depressed individuals found that females who met criteria for clinical depression used suppression at the same rate as both depressed and non-depressed males (Campbell-Sills, Barlow, Brown, & Hofmann, 2006). The researchers hypothesized that the use of suppression may contribute to emotional disorders for females, but not for males. Thus, the effect of emotion regulation may be stronger for females than it is for males, explaining the non-significant associations for the male sample. One additional explanation for this is that the small male sample may have resulted in underpowered analyses and thus non-significant results.

The use of suppression may be associated with greater difficulties for females and not for males, thereby explaining the increase in the use of risky sexual behavior as an emotion regulation strategy for females. In addition, an fMRI study examining the differences in the effects of reappraisal found that males showed a quicker and greater reduction in amygdala activity than females did when asked to use reappraisal as an emotion regulation strategy (McRae, Ochsner, Mauss, Gabrieli, & Gross, 2008). This suggests that males are able to regulate their emotions more easily than are females. Since lower emotion regulation difficulties correlates with less risky behavior, it is possible that the slower emotion regulation process for females will contribute to the significant association between difficulties in emotion regulation and sexual risk-taking for females. This finding is new to the literature; further research examining the gender differences in the effect of emotion regulation strategy use on behavior is warranted.

Although the gender differences within the correlational statistics were not statistically significant, they are worth examining further. It would, again, be worth examining whether the female sample, because it was larger, was more representative than the smaller male sample of the population as a whole. The inconsistency in the alignment of the results with past literature suggests that this sample may not have been representative of the typical male and female use of emotion regulation strategies. This warrants further research on gender differences in the frequency of emotion regulation strategy use.

In sum, the results of the current research indicate that college females may be more likely than college men to engage in sexual behavior as an emotion regulation strategy. This is important to clinicians since increasing the use of different coping strategies may reduce the likelihood of risky sexual behavior in females.

Substance Use

Within the study, there was a significant negative correlation between substance use and risky sexual behavior, which is inconsistent with the literature. Previous research demonstrated a significant association between substance use and less condom use, multiple partners, and casual sex across genders (Huang, Jacobs, & Derevensky, 2010; Poulson, Eppler, Satterwhite, Weunsch, & Bass 1998; Scott-Sheldon, Carey, & Carey, 2010). One explanation for the finding within this study is the idea that substance use and sexual risk-taking may serve similar functions as emotion regulation strategies. For example, in a telephone survey study Cooper, Frone, Russell, & Mudar (1995) found that emotion regulation and coping serve as motivators for substance use in both an adolescent and adult sample. Thus, it is possible that, because both risky sexual behavior and substance use each function as emotion regulation strategies, individuals who are engaging in high levels of substance use will not be engaging in risky sexual behavior to gain the same positive, emotion regulatory effect.

Within the current research, substance use also explained some of the variance in the relations among difficulties in emotion regulation, suppression, and risky sexual behavior. Specifically, within the total sample, these correlations were reduced to non-significant when substance use was controlled for; demonstrating that substance use fully explains the relations among these variables. One possible explanation for this finding is that as people increase their substance use, the need for other emotion regulation strategies may decrease. This hypothesis is supported by research that demonstrated that individuals are less likely to engage in emotion regulation strategies when they are experiencing positive affect or have already regulated their emotions (Brans, Koval, Verduyn, Lim, & Kuppens, 2013).

In addition, separate analyses were conducted to examine whether the proposed mediation effects, for the female sample, changed when substance use was controlled. Within this analysis, substance use did not significantly explain these inter-relationships among the included variables. One possible explanation for this finding is that although females may engage in more sexual risk-taking behavior when using substances as found in previous studies, differences in the use of emotion regulation strategies may depend on their substance use levels. Since substance use appears to be significantly associated with the emotion regulation difficulties, strategy use, and sexual risk-taking behavior, future research should continue to account for substance use when examining sexual risk-taking, emotion regulation difficulties, and strategy use.

Emotion Regulation Difficulties and Strategy Use

In this study, emotion regulation difficulties were significantly correlated with both suppression and reappraisal use. This study found suppression to be positively correlated with emotion regulation difficulties. As such, people who have more difficulty regulating their emotions may be more likely to engage in suppression than are people who have less difficulty regulating their emotions. One explanation for this finding is that individuals who have significant difficulty with emotion regulation may turn to avoiding their emotions, such as through the use of suppression, in order to cope (Ehring & Quack, 2010; Turner, Chapman, & Layden, 2012). Additionally, individuals who use more suppression may have greater difficulty regulating their emotions as the use of suppression is associated with greater physiological activation following emotion experience and greater long-term distress (Liverant, Brown, Barlow, & Roemer, 2008). Liverant, Brown, Barlow, and Roemer (2008) examined the effects of suppression on a sample of 60 individuals with depression and found that individuals who were

asked to suppress their emotions were more likely to report higher levels of depression than individuals who were asked to accept their emotions. Thus, suppression may not effectively reduce negative affect and can contribute to greater difficulty regulating one's emotions.

In the present study, emotion regulation difficulties were found to be negatively correlated with reappraisal strategy use. One possible explanation for this finding is that the use of reappraisal reduces the experience of a negative emotion and thus effectively regulates one's emotion. Past research found that the use of reappraisal not only reduced the experience of a negative emotion, but also did not activate the sympathetic nervous system as strongly as suppression (Gross, 1998b). Additionally, reappraisal is an antecedent-focused emotion regulation strategy meaning that the experience of emotion is reduced prior to the emotion occurring (Gross, 1998a). The emotion experience reduction may mean that the individual not only is effectively regulating their emotions, but that they may perceive themselves as in less distress than if using a response-focused strategy. The findings suggest that reappraisal may be a more effective emotion regulation strategy, as well as a strategy used more frequently by individuals with fewer emotion regulation difficulties. This study expanded upon this finding further, by examining the relationship between emotion regulation difficulties, strategies, and sexual risk-taking.

Emotion Regulation and Sexual Risk-Taking

Within this study, emotion regulation difficulties were positively correlated with sexual risk-taking. These results confirm previous research that found emotion regulation difficulties were positively correlated with sexual risk-taking in a survey study of a sample of women with a history of physical and sexual abuse (Messman-Moore, Walsh & DiLillo, 2010). One explanation for these findings is that sexual risk-taking may serve as an emotion regulation

strategy either through distraction from distress or to suppress the negative emotions. Further, individuals with emotion regulation difficulties may make poor decisions due to their distress (Baumeister, Bratslavsky, Muraven, & Tice, 1998). Sexual risk-taking, specifically with strangers, may serve to regulate emotions for individuals with a history of childhood abuse as demonstrated in a survey study of 1,666 adolescents and young adults (Cooper, Shapiro, & Powers, 1998). This finding suggests that the sample may have engaged in risky sexual behavior as a form of emotion regulation. The current research expands upon these findings by examining effects of emotion regulation difficulties on risky sexual behavior in a non-clinical population of university students with finding similar results. That is, in our sample of non-clinical female undergraduates, emotion regulation difficulties were associated with increased risky sexual behavior. This suggests that sexual behavior may serve as an emotion regulation strategy for both victimized and non-victimized populations.

Within the current data, no significant correlation between suppression and sexual risk-taking behavior was found for either the total sample or the male sample. However, a significant correlation between these constructs was found in the female sample. The findings for the total and male samples are inconsistent with past research, which has demonstrated that avoidance coping is associated with greater sexual risk-taking behaviors in a sample of non-clinical adolescents (Cooper, Wood, Orcutt, & Albino, 2003). One explanation for this inconsistency is that suppression may effectively reduce negative affect for males, and therefore, risky sexual behavior is not used to regulate emotions. It is also possible that the smaller male sample was not representative of the population's risky sexual behavior or emotion regulation strategy use, thus skewing the results. An additional explanation is that with the addition of the variables, the male sample may not have been large enough in order to sufficiently power the analyses.

Reappraisal negatively correlated with sexual risk-taking behavior for the total sample, which was consistent with past research (Magar, Phillips, & Hosie, 2008). This may have occurred because reappraisal effectively reduces negative emotions, as demonstrated in an experimental study of the effect of emotion regulation strategies on emotion following watching a emotion-eliciting film (Gross, 1998b), which reduces the need for sexual behavior to serve as an emotion regulation strategy. In addition, reappraisal may serve to regulate the emotions to a more manageable level so that it does not interfere with decision making around sexual behavior. Further, reappraisal may function to protect the individual from additional distress and moderate the relationship between stressful events and emotional distress (Troy, Wilhelm, Shallcross, & Mauss, 2010). Thus, the use of reappraisal may function to not only protect the individual from distress, but then to reduce the likelihood that the distress is dealt with through risky sexual behavior.

Mediation. The current study was unique in that it examined several mediational models in order to better explain the mechanism by which emotion regulation difficulties lead to risky sexual behavior. Consistent with the hypotheses it was found that emotion regulation difficulty predicted significantly sexual risk-taking in the female sample. This finding is consistent with research that demonstrated that emotion regulation difficulties predict risky sexual behavior among survivors of childhood physical, emotional, and sexual abuse (Arttime & Peterson, 2012; Messman-Moore, Walsh, & DiLillo, 2010). The current study expanded on that finding by examining a non-clinical sample. This finding may reflect that sexual activity, particularly risky sex, serves an affect management function among college females (Messman-Moore, Walsh, & DiLillo, 2010). Specifically, engaging in a pleasurable activity distracts from negative affect, with distraction serving as a type of suppression (Messman-Moore, Walsh, & DiLillo, 2010).

Reappraisal was shown to adversely impact sexual risk-taking indicating that use of any emotion regulation strategy may reduce the likelihood of engaging in sexual risk-taking. The reappraisal findings are consistent with the past research (Hessler & Katz, 2010). These findings may result from the significant correlation between emotion regulation difficulties and sexual risk-taking, as well as the use of sexual behavior to regulate one's emotions (Messman-Moore, Walsh, & DiLillo, 2010; Cooper, Shapiro, & Powers 1998). Effective emotion regulation may improve an individual's affect, thus reducing the need for distressed people to engage in maladaptive behaviors. Another explanation is that previous research has demonstrated that depleted self-regulation abilities leads to poor decision-making (Baumeister, Bratslavsky, Muraven, & Tice, 1998). Thus, while reappraisal functions as an antecedent-based regulation strategy it may require less effort than a response-focused strategy thus requiring less self-regulation strength and reducing poor decision making and decreasing risky sexual behavior.

Inconsistent with past research and the current hypotheses, suppression negatively predicted risky sexual behavior. One explanation is that the use of suppression may have served as an effective emotion regulation function in this sample creating the same effect as hypothesized for reappraisal. Some research has demonstrated that suppression may function as well as reappraisal to reduce emotion experience, which may explain the negative correlation between sexual risk-taking and suppression (Gross & Levenson, 1997). Additionally, much of the data included in the analyses were not normally distributed. It is unclear how this non-normality may have contributed to this atypical finding, as each of the statistical tests conducted assume a normal data distribution.

The use of suppression did not affect the relationship between emotion regulation difficulties and risky sexual behavior, but did increase the statistical association between the two

variables. This might be due to the strong relationship between emotion regulation difficulties and suppression. One possible explanation for this is that suppression may have acted as a suppressor variable in these analyses. A suppressor variable is a variable that substantially improves the prediction of a criterion when added to a mediation analysis (Conger, 1974). In this case, suppression acted as a suppressor variable and unsuppressed the relation allowing for the beta weight of the relationship between emotion regulation difficulties and risky sexual behavior to increase. Additionally, the issue of multicollinearity was explored as it may have been that suppression and emotion regulation difficulties were predicting the same construct, however, the correlations between the two variables was not great enough to account for the mediation effect. One additional explanation for this finding is that the previous studies examined distressed populations with a history of victimization, whereas this study was of a non-clinical population (Artime & Peterson, 2012; Messman-Moore, Walsh, & DiLillo, 2010; Walsh, DiLillo, & Messman-Moore, 2012; Wayment & Aronson, 2007). It may be that suppression was not used as frequently in this population leading to the unusual finding of an increased beta weight in the mediation. Further research on the relationship between difficulties in emotion regulation and suppression is warranted to further understand the lack of mediation.

Implications

Upon examining the ramifications of the current findings, it is important to consider both clinical, or intervention, consequences and empirical, or methodological, considerations.

Treatment. Clinically, these findings suggest that addressing emotion regulation difficulties with clients who engage in risky sexual behavior may be beneficial in reducing the frequency of this problematic behavior. Since only reappraisal reduced the size of the association between difficulties in emotion regulation and risky sexual behavior, it may be beneficial to encourage

and build the use of reappraisal within a client. Suppression increased the relationship between emotion regulation difficulties and risky sexual behavior, suggesting that suppression may be a maladaptive strategy when clinically addressing this behavior. Thus, in these cases clinicians should consider the client's use of suppression and work towards managing the use of suppression. As noted in the literature review, reappraisal and suppression are categorized as antecedent-focused and response-focused emotion regulation strategies. The results of this study suggest that antecedent-focused strategies may be more effective for reducing emotion regulation difficulties than response-focused strategies. Thus, treatment should focus on strategies that address the emotion eliciting stimuli before the emotion occurs rather than trying to effect the expression of emotion once it has occurred.

The results of this study also indicate that different types of treatment should be considered. In the context of cognitive therapy, the use of reappraisal closely aligns with cognitive reframing, whereas suppression aligns with thought stopping. Thus, therapists should encourage their clients to engage in the use of cognitive reframing more frequently than the use of thought stopping if they struggle with regulating their emotions. In addition, the use of cognitive reframing may assist in reducing the likelihood of sexual risk-taking. Further, the third wave behavioral therapies, such as Acceptance and Commitment Therapy and Dialectical Behavior Therapy, should be considered as treatment options when focusing on the relationship between emotion regulation and sexual risk-taking. Specifically, the focus on increasing emotion tolerance and acceptance may decrease emotion dysregulation. The use of defusion, or reevaluating thoughts as the function of language and as mind chatter, in Acceptance and Commitment Therapy can be considered a form of reappraisal or an antecedent-focused strategy. Thus, increasing the practice of defusion in clients may decrease sexual risk-taking behavior that is associated with emotion

regulation difficulties. Specifically, defusion encourages the individual to not fight against their emotions or thoughts, an act of suppression, but to accept them. In addition, emotion acceptance increases the individual's acceptance of their emotions before the emotions occur and reframes the emotions as tolerable. Thus, this type of treatment focuses on antecedent-based strategies, which have been shown to be effective at reducing both emotion regulation difficulties and risky sexual behavior.

Gender differences noted here should also be taken into account when considering clinical work due to the lack of significance for the relationships between emotion regulation and sexual risk-taking for males. Although males engaged in significantly more suppression than females, the use of suppression was not associated with risky sexual behavior for males. Thus, when addressing risky sexual behavior modifying the client's emotion regulation strategy use may only be effect for female clients. However, since this is a preliminary finding further research is needed to understand this gender difference due to the small male sample, which may not accurately reflect the population.

As noted in the literature review, reappraisal and suppression are categorized as antecedent-focused and response-focused emotion regulation strategies. The results of this study suggest that antecedent-focused strategies may be more effective for reducing emotion regulation difficulties than response-focused strategies. Thus, treatment should focus on strategies that address the emotion eliciting stimuli before the emotion occurs rather than trying to effect the expression of emotion once it has occurred.

Antecedent-focused emotion regulation strategies include situation selection, situation modification, attention deployment, and cognitive change (Gross, 1998b). Of the five emotion

regulation strategies above, only response modulation is categorized as a response-focused strategy (Gross, 1998b).

In addition, substance use correlated with risky sexual behavior. Substance use also accounted for a significant amount of the variance in the relationships between sexual risk-taking and emotion regulation. Therefore, substance use should continue to be addressed when addressing risky sexual behavior in a clinical setting. It is important to note that the direction of the relationship between emotion regulation difficulties and substance use was not examined in this study and warrants further investigation prior to being used in treatment.

Research. As this is the first study examining whether emotion regulation strategy use mediated the relationship between emotion regulation difficulties and risky sexual behavior, further research is warranted. It remains unclear if use of other emotion regulation strategies, such as rumination or problem solving, reduces the frequency of risky sexual behavior or emotion regulation difficulties. It also remains unclear if this effect is specific to these two strategies or if it is specific to the two areas of antecedent-focused or response-focused strategy use. In addition, this study did not examine whether or how each facet of emotion regulation difficulty related to sexual risk. Future research should examine this to parse out both the effect of different emotion regulation difficulties on sexual risk-taking, and the effect of strategy use on those associations.

As noted above, while none of the gender differences were statistically significant, they are still worth addressing in future research, as the findings were not consistent with previous research. Previous research suggested that reappraisal is less effortful for males than it is for females. A fMRI study of cognitive reappraisal in both men and women found less prefrontal activity and faster down regulation of amygdala activity in males than in females, despite no

gender differences in the self-report of strategy use (McRae, Ochsner, Mauss, Gabrieli, & Gross, 2008). This particular study suggested that due to the lack of difference in self-report, but apparent differences in brain response, self-report measures may not accurately reflect gender differences (McRae, Ochsner, Mauss, Gabrieli, & Gross, 2008). Further research into the gender differences in the response to different emotion regulation strategies is warranted, as the self-report measures may not have allowed this study to examine them effectively.

The substance use findings of this study warrant further research as they were not consistent with previous research. The negative correlation between substance use and risky sexual behavior may be due to the differences in using these two behaviors as emotion regulation strategies. However, due to the past research, which has demonstrated a significant link between risky sexual behavior and substance use (Huang, Jacobs, & Derevensky, 2010), additional research should be conducted examining this relationship. One explanation for this difference is that the previous study examined these behaviors in a national sample of college athletes, whereas this study's sample was a Midwestern sample that did not assess for athlete status. Previous research has demonstrated that college athletes are more likely to engage in risky behaviors, than non-athlete college students (Huang, Jacobs, & Derevensky, 2010).

The current study did not examine the effect individual differences, such as ethnicity, or relationship status, on emotion regulation and sexual risk-taking. The current study did not examine ethnic differences despite some research demonstrating differences in sexual risk-taking based on ethnicity (Ratliff-Crain, Donald, & Dalton, 1999). Specifically, Hispanic individuals report a greater number of partners than other ethnicities, while Asian-Americans report fewer partners (Ratliff-Crain, Donald, & Donald, 1999). One other difference that was not accounted for in this study was that of relationship status. Researchers demonstrated that individuals with

higher levels emotion regulation difficulties are more likely to engage in risky sex with a stranger than with a consistent partner, therefore it would be important to examine relationship status as a variable (Cooper, Shapiro, & Powers, 1998). To better understand these differences, further research is warranted.

Limitations

Several limitations of this study may have contributed to the overall results of the study and suggest future directions for research. One limitation was the use of a newer sexual risk-taking measure. This measure has only been used in a few studies as it was published in 2009 (Fulton, Markus, & Payne, 2010). The use of a newer measure means that these findings may be beneficial to future research using this measure. However, the newness of the measure limits the comparison between this and previous literature. This measure was selected due the validation on college students and the scoring method, which limits the effect of outliers on the data. While this is a strength of the measure for this study, the generalizability of these findings to other population groups remains limited.

A second limitation of this study relates to sample demographics. The number of female participants was significantly greater than the number of male participants. This sampling imbalance may have influenced the presence and magnitude of gender differences noted with the data. In addition, this was an undergraduate sample from a Midwest university with specific demographics related to socioeconomic status, which may have influenced the outcome. Socioeconomic status was not examined and thus, not controlled for. Therefore, if future research included a broader sample with a different ethnicity profile and age groups, it may provide more generalizable results.

A third limitation of this study was that only two emotion regulation strategies were examined. While these two strategies may be seen as broad categories that encompass several strategies, future research should examine acceptance, avoidance, problem solving, and rumination, and other strategies (Aldao, Nolen-Hoeksema, & Schweizer, 2010). In addition, the examination of the relationships between the individual subscales of the DERS, strategy use, and risky sexual behaviors should be conducted. Each facet of emotion regulation difficulties may be related to differences in sexual risk-taking behavior providing a greater understanding of how to approach reducing risky sexual behavior.

Finally, an overarching limitation to this study was the significantly non-normal data distribution for many of the variables within all of the statistical analyses run assumed normality of data. Thus, the results may have been inconsistent with past research due to the violation of statistical assumptions.

Conclusion

This research leaves several questions that are unanswered. The disparity between the number of female and male participants necessitates a replication of this study with a greater number of male participants in order to better understand the effect of gender on the relationships between emotion regulation and sexual risk-taking. In addition, the gender differences in the effect of suppression and reappraisal on sexual risk-taking behavior were not statistically significant. Further research on differences in the effect of emotion regulation strategies on males and females is needed, since previous research has not found any significant differences (Gross & Levenson, 1993). This study did not examine the different effects as a function of race or ethnicity, either for the total sample or for each gender on the relationships between emotion regulation and sexual risk-taking. Therefore, a future study may investigate the gender

differences in the effect of suppression and reappraisal on future, or intentional, sexual behavior. In addition, possible mediating factors for the relationship between emotion regulation difficulties and sexual risk-taking should be further examined to expand our understanding of risky sexual behavior and to plan effective interventions.

The overall results speak to the importance of examining individual differences in both sexual behavior and emotion regulation strategy use. With additional research, the contributors to risky sexual behavior for both genders may be better understood. Further, understanding sexual risk-taking behaviors may allow for appropriate intervention to reduce the high health costs of these behaviors.

References

- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*(2), 217-237.
- Alexander, M. G., & Fisher, T. D. (2003). Truth and consequences: Using the bogus pipeline to examine sex differences in self-reported sexuality. *Journal of Sex Research, 40*(1), 27-35.
- Artime, T. M., & Peterson, Z. D. (2012). The relationships among childhood maltreatment, emotion regulation, and sexual risk-taking in men from urban STD clinics. *Journal of Aggression, Maltreatment & Trauma, 21*(3), 277–299.
- Baumeister, R. F. (2002). Ego depletion and self-control failure: An energy model of the self's executive function. *Self and Identity, 1*(2), 129-136.
- Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource?. *Journal of Personality and Social Psychology, 74*, 1252-1265.
- Bell, N. J., O'Neal, K. K., Feng, D., & Schoenrock, C. J. (1999). Gender and sexual risk. *Sex Roles, 41*(5-6), 313-332.
- Berking, M., Margraf, M., Ebert, D., Wupperman, P., Hofmann, S. G., & Junghanns, K. (2011). Deficits in emotion-regulation skills predict alcohol use during and after cognitive-behavioral therapy for alcohol dependence. *Journal of Consulting and Clinical Psychology, 79*(3), 307–18.
- Biswas, B., & Vaughn, M. G. (2011). Really troubled girls: Gender differences in risky sexual behavior and its correlates in a sample of juvenile offenders. *Children and Youth Services Review, 33*(11), 2386-2391.
- Brans, K., Koval, P., Verduyn, P., Lim, Y. L., & Kuppens, P. (2013). The regulation of negative and positive affect in daily life. *Emotion, 13*, 926-939.

- Chaplin, T. M., Cole, P. M., & Zahn-Waxler, C. (2005). Parental socialization of emotion expression: gender differences and relations to child adjustment. *Emotion, 5*(1), 80.
- Cisler, J. M., Olantunji, B. O., Feldner, M. T., & Forsyth, J. P. (2010). Emotion regulation and the anxiety disorders: An integrative review. *Journal of Psychopathology and Behavioral Assessment, 32*(1), 68-82.
- Cole, P. M., Michel, M. K., & Teti, L. O. D. (1994). The development of emotion regulation and dysregulation: A clinical perspective. *Monographs for the Society for Research in Child Development, 59*(2-3), 73-102.
- Cooper, M. L. (2002). Alcohol use and risky sexual behavior among college students and youth: Evaluating the evidence. *Journal of Studies on Alcohol and Drugs, 14*(1), 101.
- Cooper, M. L., Frone, M. R., Russell, M., & Mudar, P. (1995). Drinking to regulate positive and negative emotions: a motivational model of alcohol use. *Journal of Personality and Social Psychology, 69*(5), 990.
- Cooper, M. L., & Orcutt, H. K. (1997). Drinking and sexual experience on first dates among adolescents. *Journal of abnormal psychology, 106*(2), 191.
- Cooper, M. L., Wood, P. K., Orcutt, H. K., & Albino, A. (2003). Personality and the predisposition to engage in risky or problem behaviors during adolescence. *Journal of Personality and Social Psychology, 84*(2), 390-410.
- Ehring, T., & Quack, D. (2010). Emotion regulation difficulties in trauma survivors: the role of trauma type and PTSD symptom severity. *Behavior Therapy, 41*(4), 587-598.
- EMU institutional profile. (2013). Retrieved from <http://www.emich.edu/profile/>

- Evans, J. L., Hahn, J. A., Page-Shafer, K., Lum, P. J., Stein, E. S., Davidson, P. J., & Moss, A. R. (2003). Gender differences in sexual and injection risk behavior among active young injection drug users in San Francisco (the UFO Study). *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, *80*(1), 137–46.
- Finer, L. B., & Zolna, M. R. (2011). Unintended pregnancy in the United States: Incidence and disparities, 2006. *Contraception*, *84*(5), 478-485.
- Flynn, J. J., Hollenstein, T., & Mackey, A. (2010). The effect of suppressing and not accepting emotions on depressive symptoms: Is suppression different for men and women? *Personality and Individual Differences*, *49*(6), 582–586.
- Fox, H. C., Axelrod, S. R., Paliwal, P., Sleeper, J., & Sinha, R. (2007). Difficulties in emotion regulation and impulse control during cocaine abstinence. *Drug and Alcohol Dependence*, *89*(2), 298-301.
- Garnefski, N., Teerds, J., Kraaij, V., Legerstee, J., & Van den Kommer, T. (2004). Cognitive emotion regulation strategies and depressive symptoms: Differences between males and females. *Personality and Individual Differences*, *36*(2), 267–276.
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*, *26*(1), 41-54.
- Gratz, K. L., Rosenthal, M. Z., Tull, M. T., Lejuez, C. W., & Gunderson, J. G. (2006). An experimental investigation of emotion regulation difficulties in borderline personality disorder. *Journal of Abnormal Psychology*, *115*(4), 850.

- Gratz, K. L., & Tull, M. T. (2010). The relationship between emotion regulation difficulties and deliberate self-harm among inpatients with substance use disorders. *Cognitive Therapy and Research, 34*(6), 544–553.
- Graves, K. L. (1995). Risky sexual behavior and alcohol use among young adults: Results from a national survey. *American Journal of Health Promotion, 10*(1), 27-36.
- Graves, K. L., & Leigh, B. C. (1995). The relationship of substance use to sexual activity among young adults in the United States. *Family Planning Perspectives, 18*-33.
- Grello, C. M., Welsh, D. P., & Harper, M. S. (2006). No strings attached: The nature of casual sex in college students. *Journal of Sex Research, 43*(3), 255-267.
- Gross, J. J. (1998a). Antecedent-and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology, 74*, 224-237.
- Gross, J. J. (1998b). The emerging field of emotion regulation: An integrative review. *Review of General Psychology, 2*(3), 271.
- Gross, J. J. (1999). Emotion regulation: Past, present, future. *Cognition and Emotion, 13*(5), 551-573.
- Gross, J. J. (2002). Emotion regulation: Affective, cognitive, and social consequences. *Psychophysiology, 39*(3), 281–91.
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*(2), 348–362.
- Gross, J. J., & Levenson, R. W. (1993). Emotional suppression: Physiology, self-report, and expressive behavior. *Journal of Personality and Social Psychology, 64*, 970-970.

- Gross, J. J., & Levenson, R. W. (1997). Hiding feelings: The acute effects of inhibiting negative and positive emotion. *Journal of Abnormal Psychology, 106*, 95-103.
- Gross, J. J., & Munoz, R. F. (1995). Emotion regulation and mental health. *Clinical Psychology: Science and Practice, 2*(2), 151-164.
- Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. *Handbook of Emotion Regulation, 3*, 24.
- Haga, S. M., Kraft, P., & Corby, E.K. (2007). Emotion regulation: Antecedents and well-being outcomes of cognitive reappraisal and expressive suppression in cross-cultural samples. *Journal of Happiness Studies, 10*(3), 271–291.
- Herold, E. S., & Mewhinney, D. A. K. (1993). Gender differences in casual sex and AIDS prevention: A survey of dating bars. *Journal of Sex Research, 30*(1), 36-42.
- Hessler, D., & Katz, L. F. (2010). Brief report: Associations between emotional competence and adolescent risky behavior. *Journal of Adolescence, 33*(1), 241.
- Hines, A. M., & Caetano, R. (1998). Alcohol and AIDS-related sexual behavior among Hispanics: Acculturation and gender differences. *AIDS Education and Prevention, 10*, 533-547 .
- Hittner, J. B., & Kennington, L. E. (2008). Normative perceptions, substance use, age of substance use initiation, and gender and predictors of HIV-risky sexual behavior in a college student sample. *Journal of Applied Biobehavioral Research, 13*(2), 96-101.
- Hittner, J. B., & Kryzanowski, J. J. (2010). Residential status moderates the association between gender and risky sexual behavior. *Journal of Health Psychology, 15*(4), 634-640.
- Huang, J. H., Jacobs, D. F., & Derevensky, J. L. (2010). Sexual risk-taking behaviors, gambling, and heavy drinking among U.S. College athletes. *Archives of Sexual Behavior, 39*(3), 706–13.

Incidence, prevalence, and cost of sexually transmitted infections in the United States. (2013).

Retrieved from <http://www.cdc.gov/std/stats/STI-Estimates-Fact-Sheet-Feb-2013.pdf>

Kashdan, T. B., & Steger, M. F. (2006). Expanding the topography of social anxiety an experience-sampling assessment of positive emotions, positive events, and emotion suppression. *Psychological Science, 17*(2), 120-128.

Kingston, J., Clarke, S., Ritchie, T., & Remington, B. (2011). Developing and validating the “composite measure of problem behaviors.” *Journal of Clinical Psychology, 67*(7), 736-751.

Kring, A. M., & Gordon, A. H. (1998). Sex differences in emotion: expression, experience, and physiology. *Journal of Personality and Social Psychology, 74*(3), 686.

Kring, A. M., Smith, D. A., & Neale, J. M. (1994). Individual differences in dispositional expressiveness: development and validation of the Emotional Expressivity Scale. *Journal of Personality and Social Psychology, 66*(5), 934.

Liverant, G. I., Brown, T. A., Barlow, D. H., & Roemer, L. (2008). Emotion regulation in unipolar depression: The effects of acceptance and suppression of subjective emotional experience on the intensity and duration of sadness and negative affect. *Behaviour Research and Therapy, 46*(11), 1201-1209

Magar, E. C. E., Phillips, L. H., & Hosie, J.A. (2008). Self-regulation and risk-taking.

Personality and Individual Differences, 45(2), 153–159.

Martin, R. C., & Dahlen, E. R. (2005). Cognitive emotion regulation in the prediction of depression, anxiety, stress, and anger. *Personality and Individual Differences, 39*(7), 1249-1260.

McRae, K., Ochsner, K. N., Mauss, I. B., Gabrieli, J. J. D., & Gross, J. J. (2008). Gender differences in emotion regulation: An fMRI study of cognitive reappraisal. *Group Processes and Intergroup Relations, 11*(2), 143–162.

- Melka, S. E., Lancaster, S. L., Bryant, A. R., & Rodriguez, B. F. (2011). Confirmatory factor and measurement invariance analyses of the emotion regulation questionnaire. *Journal of Clinical Psychology, 67*(12), 1283-1293.
- Messman-Moore, T. L., Walsh, K. L., & DiLillo, D. (2010). Emotion regulation difficulties and risky sexual behavior in revictimization. *Child Abuse and Neglect, 4*(12), 967–76.
- Muraven, M., Tice, D. M., & Baumeister, R. F. (1998). Self-control as limited resource: Regulatory depletion patterns. *Journal of Personality and Social Psychology, 74*, 774-789.
- Neumann, A., van Lier, P. A., Gratz, K. L., & Koot, H. M. (2009). Multidimensional assessment of emotion regulation difficulties in adolescents using the difficulties in emotion regulation scale. *Assessment, 17*, 138-149.
- Nolen-Hoeksema, S. (2012). Emotion regulation and psychopathology: The role of gender. *Annual Review of Clinical Psychology, 8*, 161–87.
- Nolen-Hoeksema, S., & Aldao, A. (2011). Gender and age differences in emotion regulation strategies and their relationship to depressive symptoms. *Personality and Individual Differences, 51*(6), 704–708.
- Orcutt, H. K., Cooper, M. L., & Garcia, M. (2005). Use of sexual intercourse to reduce negative affect as a prospective mediator of sexual revictimization. *Journal of Traumatic Stress, 18*(6), 729-739.
- Petersen, J. L., & Hyde, J. S. (2010). A meta-analytic review of research on gender differences in sexuality, 1993–2007. *Psychological Bulletin, 136*(1), 21.
- Poulson, R. L., Eppler, M. A., Satterwhite, T. N., Wuensch, K. L., & Bass, L. A. (1998). Alcohol consumption, strength of religious beliefs, and risky sexual behavior in college students. *Journal of American College Health, 46*(5), 227–32.

- Raffaelli, M., & Crockett, L. J. (2003). Sexual risk taking in adolescence: The role of self-regulation and attraction to risk. *Developmental Psychology, 39* (6), 1036-1046.
- Ratliff-Crain, J., Donald, K. M., & Dalton, J. (1999). Knowledge, beliefs, poor norms, and past behaviors as correlates of risky sexual behaviors among college students. *Psychology & Health, 14*(4), 625-641.
- Rees, D. I., Argys, L. M., & Averett, S. L. (2001). New evidence on the relationship between substance use and adolescent sexual behavior. *Journal of Health Economics, 20*(5), 835-845.
- Richards, J. M., & Gross, J. J. (2000). Emotion regulation and memory: The cognitive costs of keeping one's cool. *Journal of Personality and Social Psychology, 79*(3), 410-424.
- Rippere, V. (1977). What's the thing to do when you're feeling depressed: A pilot study. *Behaviour Research and Therapy, 15*(2), 185-191.
- Salsman, N. L., & Linehan, M. M. (2012). An investigation of the relationships among negative affect, difficulties in emotion regulation, and features of Borderline Personality Disorder. *Journal of Psychopathology and Behavioral Assessment, 34*(2), 260-267.
- Scott-Sheldon, L. A. J., Carey, M. P., & Carey, K. B. (2010). Alcohol and risky sexual behavior among heavy drinking college students. *AIDS and Behavior, 14*(4), 845-853.
- Shearer, C. L., Hosterman, S. J., Gillen, M. M., & Lefkowitz, E. S. (2005). Are traditional gender role attitudes associated with risky sexual behavior and condom-related beliefs? *Sex Roles, 52*(5-6), 311-324.
- Simons, L. G., Burt, C. H., & Peterson, F. R. (2009). The effect of religion on risky sexual behavior among college students. *Deviant Behavior, 30*(5), 467-485.
- Smith, C. D., & Brown, J. M. (1998). Sexual Behaviors, Extroversion, and Alcohol Use among College Students. *Journal of Alcohol and Drug education, 44*(1), 70-79.

- Tamres, L. K., Janicki, D., & Helgeson, V. S. (2002). Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. *Personality and Social Psychology Review, 6*(1), 2-30.
- Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. *Monographs of the Society for Research in Child Development, 59*(2-3), 25-52.
- Tice, D. M., Bratslavsky, E., & Baumeister, R. F. (2001). Emotional distress regulation takes precedence over impulse control: If you feel bad, do it! *Journal of Personality and Social Psychology, 80*(1), 53–67.
- Troy, A. S., Wilhelm, F. H., Shallcross, A. J., & Mauss, I. B. (2010). Seeing the silver lining: cognitive reappraisal ability moderates the relationship between stress and depressive symptoms. *Emotion, 10*(6), 783.
- Tull, M. T., Weiss, N. H., Adams, C. E., & Gratz, K. L. (2012). The contribution of emotion regulation difficulties to risky sexual behavior within a sample of patients in residential substance abuse treatment. *Addictive Behaviors, 37*(10), 1084-1092.
- Turchik, J. A., & Garske, J. P. (2009). Measurement of sexual risk-taking among college students. *Archives of Sexual Behavior, 38*(6), 936–48.
- Turner, B. J., Chapman, A. L., & Layden, B. K. (2012). Intrapersonal and interpersonal functions of non-suicidal self-injury: Associations with emotional and social functioning. *Suicide and Life-Threatening Behavior, 42*(1), 36-55.
- van Middendorp, H., Lumley, M. A., Jacobs, J. W., van Doornen, L. J., Bijlsma, J. W., & Geenen, R. (2008). Emotions and emotional approach and avoidance strategies in fibromyalgia. *Journal of Psychosomatic Research, 64*(2), 159-168.
- Walden, T. A., & Smith, M. C. (1997). Emotion regulation. *Motivation and Emotion, 21*(1), 7-25.

- Walsh, K., DiLillo, D., & Messman-Moore, T. L. (2012). Lifetime sexual victimization and poor risk perception does emotion regulation difficulties account for the links? *Journal of Interpersonal Violence, 27*(15), 3054-3071
- Winfield, E. B., & Whaley, A. L. (2005). Relationship status, psychological orientation, and sexual risk-taking in a heterosexual African American college sample. *Journal of Black Psychology, 31*(2), 189-204.
- Zaleski, E. H., & Schiaffino, K. M. (2000). Religiosity and sexual risk-taking behavior during the transition to college. *Journal of Adolescence, 23*(2), 223–7.
- Zlomke, K. R., & Hahn, K. S. (2010). Cognitive emotion regulation strategies: Gender differences and associations to worry. *Personality and Individual Differences, 48*(4), 408–413.

Appendix A
EASTERN MICHIGAN UNIVERSITY

AN INVESTIGATION OF EMOTIONS AND SEXUAL BEHAVIOR

WHAT: A research study examining emotions and sexual behavior.

WHO: University students, ages 18 and older.

FORMAT: The study consists of several online surveys that will take around 20 minutes to complete. The surveys will consist of questions inquiring about sexual behavior, emotions, and emotional behavior. Your confidentiality while participating in this research study is very important. If you wish to receive extra credit you will be asked to provide your name and class information. This information will be housed in a separate database and not connected to your survey answers. The study is found on the SONA website for Eastern Michigan University. If you would like a direct link, the study is also found on an online survey site called SurveyMonkey. Just enter the following addresses into your internet browser (SurveyMonkey address provided on the back of tear-offs).

<http://emich.sona-systems.com/>; or <https://www.surveymonkey.com/s/GJW7JS9>

RISKS: There are no foreseeable risks although some may experience mild psychological discomfort with a few of the items on the measures. One of the measures will ask explicit questions about your sexual behavior in the past six months. Should you wish to stop participating, or withdraw from participating, you may do so at any time without penalty. If you feel a need to talk to someone about how you feel, please call Counseling and Psychological Services at 734-487-1118.

BENEFIT: You are unlikely to get any direct benefit from taking part in the study. However, the knowledge that we obtain from your participation will help us understand the contributors to sexual behavior among college students.

Student participants will be awarded credits on the Eastern Michigan University SONA system which may be applied to any applicable classes.

CONTACT: If you would like additional information on the study, please contact Dr. Natalie Dove at ndove@emich.edu or Monica Lackups at mlackups@emich.edu. **This study was approved by the Eastern Michigan University Human Subjects Review Committee for the following date:**

Appendix B

Dear Participant:

You are invited to participate in a research study that is investigating emotion and sexual behavior. The purpose of this project is to better understand the relationship between emotions and sexual behaviors among college students. The results of this study will help researchers better understand the causes of sexual behavior among college students.

Your participation will involve completing three surveys with questions about sexual behavior, emotions and emotional behavior. You will be asked for explicit information about your sexual behavior in the last six months. Each survey is expected to take between 5-10 minutes to complete. In addition, your participation will involve completing a short demographic survey that asks questions about your age, gender, and ethnicity. In total, your participation will take approximately 20 minutes.

Participation in this study is voluntary. There are no foreseeable risks although some may experience psychological reactions to a few of the items on the measures. Should you wish to stop participating, or withdraw from participating, you may do so at any time without penalty. However, if you feel a need to talk to someone about how you feel, let us know and we will make arrangements for you to see a professional helper. If you need information about psychological support, contact the Eastern Michigan University Psychology Clinic, located at 611 West Cross Street, Telephone No.: 734-487-4987. Should you wish to speak to someone directly about the study, you may contact the principal investigator, Monica Lackups, at mlackups@emich.edu, or Dr. Natalie Dove, at ndove@emich.edu.

You may be eligible to receive participation/extra credit for your psychology class in exchange for your participation. If you would like to be considered for extra credit in exchange

for your participation, please provide your contact information when prompted at the end of the study. Your contact information will be housed in a separate database and will not be tied to your survey responses in any way. You are unlikely to get any direct benefit from taking part in the study. However, the knowledge that we obtain from your participation will help us understand the possible causes of sexual behavior. The results of the study, which will be de-identified so that no identifying information is provided, will be presented in relevant psychology journals and conferences. If you are interested in the results of the study, let us know, and we will send you a copy.

Your confidentiality while participating in this research study is very important. Rest assured that there will not be any way for someone to know what answers you gave.

This research protocol and informed consent document has been reviewed and approved by the Eastern Michigan University Human Subjects Review Committee for use from _____ to _____ (date). If you have questions about the approval process, please contact Dr. Alissa Huth-Bocks (phone: 734-487-0112 or email: ahuthboc@emich.edu).

_____ Click here to indicate that you are 18 or older, understand the terms of this research, and agree to participate in the study.

Appendix C

Difficulties in Emotion Regulation Scale

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

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

1. I am clear about my feelings

1-----2-----3-----4-----5

2. I pay attention to how I feel

1-----2-----3-----4-----5

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

1-----2-----3-----4-----5

4. I have no idea how I am feeling

1-----2-----3-----4-----5

5. I have difficulty making sense out of my feelings

1-----2-----3-----4-----5

6. I am attentive to my feelings

1-----2-----3-----4-----5

7. I know exactly how I am feeling

1-----2-----3-----4-----5

8. I care about what I am feeling

1-----2-----3-----4-----5

9. I am confused about how I feel

1-----2-----3-----4-----5

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

1-----2-----3-----4-----5

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

1-----2-----3-----4-----5

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

1-----2-----3-----4-----5

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

1-----2-----3-----4-----5

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

1-----2-----3-----4-----5

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

1-----2-----3-----4-----5

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

1-----2-----3-----4-----5

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

1-----2-----3-----4-----5

18. When I'm upset, I have difficulty focusing on other things

1-----2-----3-----4-----5

19. When I'm upset, I feel out of control

1-----2-----3-----4-----5

20. When I'm upset, I can still get things done

1-----2-----3-----4-----5

21. When I'm upset, I feel ashamed with myself for feeling that way

1-----2-----3-----4-----5

22. When I'm upset, I know that I can find a way to eventually feel better

1-----2-----3-----4-----5

23. When I'm upset, I feel like I am weak

1-----2-----3-----4-----5

24. When I'm upset, I feel like I can remain in control of my behaviors

1-----2-----3-----4-----5

25. When I'm upset, I feel guilty for feeling that way

1-----2-----3-----4-----5

26. When I'm upset, I have difficulty concentrating

1-----2-----3-----4-----5

27. When I'm upset, I have difficulty controlling my behaviors

1-----2-----3-----4-----5

28. When I'm upset, I believe that there is nothing I can do to make myself feel better

1-----2-----3-----4-----5

29. When I'm upset, I become irritated with myself for feeling that way

1-----2-----3-----4-----5

30. When I'm upset, I start to feel very bad about myself

1-----2-----3-----4-----5

31. When I'm upset, I believe that wallowing in it is all I can do

1-----2-----3-----4-----5

32. When I'm upset, I lost control over my behaviors

1-----2-----3-----4-----5

33. When I'm upset, I have difficulty thinking about anything else

1-----2-----3-----4-----5

34. When I'm upset, I take time to figure out what I'm really feeling

1-----2-----3-----4-----5

35. When I'm upset, it takes me a long time to feel better

1-----2-----3-----4-----5

36. When I'm upset, my emotions feel overwhelming

1-----2-----3-----4-----5

Appendix D

Emotion Regulation Questionnaire

We would like to ask you some questions about your emotional life, particularly how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale.

1- Strongly disagree

2-

3-

4- Neutral

5-

6-

7- Strongly agree

1. When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about.

1-----2-----3-----4-----5-----6-----7

2. I keep my emotions to myself.

1-----2-----3-----4-----5-----6-----7

3. When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about.

1-----2-----3-----4-----5-----6-----7

4. When I am feeling positive emotions, I am careful not to express them.

1-----2-----3-----4-----5-----6-----7

5. When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm.

1-----2-----3-----4-----5-----6-----7

6. I control my emotions by not expressing them.

1-----2-----3-----4-----5-----6-----7

7. When I want to feel more positive emotion, I change the way I'm thinking about the situation.

1-----2-----3-----4-----5-----6-----7

8. I control my emotions by changing the way I think about the situation I'm in.

1-----2-----3-----4-----5-----6-----7

9. When I'm feeling negative emotions, I make sure not to express them.

1-----2-----3-----4-----5-----6-----7

10. When I feel less negative emotion, I change the way I'm thinking about the situation.

1-----2-----3-----4-----5-----6-----7

Appendix E

Sexual Risk Survey

Instructions: Please read the following statements and record the number that is true for you over the past 6 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 time the behavior happened per week or per 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, the number 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 your 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. Please consider only the last 6 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” but not had sex with someone you didn’t know or didn’t know well?

4. How many times have you had an unexpected and unanticipated sexual experience?

5. 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 8–23, if you have never had sex (oral, anal, or vaginal), please put a “0” on each blank.

6. How many partners have you had sex with?

7. 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.

8. How many times have you had vaginal intercourse without protection against pregnancy?

- 9. How many times have you given or received fellatio (oral sex on a man) without a condom?**

- 10. 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)?**

- 11. How many people have you had sex with that you know but are not involved in any sort of relationship with (i.e., “friends with benefits”, “fuck buddies”)?**

- 12. How many times have you had sex with someone you don’t know well or just met?**

- 13. How many times have you or your partner used alcohol or drugs before or during sex?**

14. 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?

15. How many times (that you know of) have you had sex with someone who has had many sexual partners?

16. 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?

17. How many partners have you had sex with that you didn't trust?

18. 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 F

Sexual Risk Survey Scoring

Standard
Scores

	1		2		3		4	
	Frequency of Behavior	Percent of Sample	Frequency of Behavior	Percent of Sample	Frequency of Behavior	Percent of Sample	Frequency of Behavior	Percent of Sample
Item 1	1	49.47	2-3	31.05	4-10	16.80	11-20	2.60
Item 2	1	40.90	2-3	29.00	4-6	20.45	7-12	9.09
Item 3	1	40.78	2-3	35.52	4-10	19.73	11-50	3.90
Item 4	1	49.20	3-4	23.77	5-10	12.38	11-20	4.19
Item 5	1	53.69	2	29.41	3-4	20.16	5-15	6.74
Item 6	1	38.49	2-3	26.54	4-7	21.23	7-45	13.74
Item 7	1-6	39.72	7-25	30.13	30-90	16.43	100-400	13.72
Item 8	1-4	37.89	5-15	28.42	16-50	18.94	51-300	14.75
Item 9	1-7	42.61	8-20	31.81	21-90	15.90	90-300	9.65

Item 10	1-5	40.68	6-20	32.41	21-100	22.44	101-300	3.40
Item 11	1-2	60.17	3-5	23.89	6-13	10.61	14-24	5.30
Item 12	1	36.84	2	25.64	3-4	17.94	5-74	17.94
Item 13	1-4	43.47	5-18	30.43	19- 51	18.56	52-100	6.50
Item 14	1-2	51.60	3-5	28.08	6-20	14.60	21-100	3.30
Item 15	1-2	51.60	3-5	28.08	6-20	14.60	21-100	3.30
Item 16	1	41.90	2-3	35.23	4-10	17.14	11-26	5.70
Item 17	1	38.82	2	28.23	3- 6	21.17	7-10	11.70
Item 18	1	43.20	2-3	34.56	4-11	17.28	12-20	4.90

Appendix G

Composite Measure of Problem Behaviors

The following questions ask about your drug and alcohol use. For each item, please answer using the following scale.

1- Very like me

2-

3-

4-

5-

6- Very unlike me

1. It's like me to be excited by the opportunity of taking drugs (this includes cannabis).

1-----2-----3-----4-----5-----6

2. It's like me to sometimes actively seek out drugs for personal use (this includes cannabis).

1-----2-----3-----4-----5-----6

3. It's like me to say no to drugs (this includes cannabis)

1-----2-----3-----4-----5-----6

4. It's like me to sometimes feel that I need to take drugs (this includes cannabis).

1-----2-----3-----4-----5-----6

5. It's like me to generally have no interest in taking drugs (this includes cannabis).

1-----2-----3-----4-----5-----6

6. It's like me to sometimes think that I might have a drugs problem (this includes cannabis).

1-----2-----3-----4-----5-----6

7. It's like me to sometimes consume more than 6 drinks in one evening.

1-----2-----3-----4-----5-----6

8. It's like me to drink a lot more alcohol than I initially intended.

1-----2-----3-----4-----5-----6

9. It's like me to feel excitement and/or tension in anticipation of getting drunk.

1-----2-----3-----4-----5-----6

10. It's like me to go out with friends who are drinking, but opt to stay sober.

1-----2-----3-----4-----5-----6

11. It's like me to sometimes feel that I need an alcoholic drink.

1-----2-----3-----4-----5-----6

Appendix H**Demographics**

1. **What is your age?**
2. Please specify your ethnicity.
 - White
 - Hispanic or Latino
 - Black or African American
 - Native American or American Indian
 - Asian/Pacific Islander
 - Other
3. What is your year in college?
 - Freshman
 - Sophomore
 - Junior
 - Senior
 - Graduate student
4. What is your relationship status?
 - Single
 - In a relationship
 - Married
 - Other; Please specify