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The Effects of Parent and Peer Attachment on Risky Behavior in
First-Year College Students

A thesis submitted in partial fulfillment for the Bachelor's Degree in Psychology

Jamie Callahan

Trinity College

Fall 2010-Spring 2011

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Abstract

National statistics show that there is a marked increase in risky behaviors, such as substance use and risky sex, when students enter college (Youth Risk Behavior Survey, 2009). In order to explain this phenomenon, researchers have explored multiple individual and environmental factors that might explain why some students are at higher risk for engaging in these behaviors. The quality of one's relationship with a parent(s) has emerged as one key predictor of student adjustment (Larose, Bernier, & Tarabulsy, 2005; Larose & Boivin, 1998). Accordingly, in the current study it was hypothesized that the quality of first-year students' relationships with parents and friends (parent and peer attachment) would predict the likelihood of engaging in risky behavior. Since few studies have explored more proximal variables that might explain the relations between attachment and risky behavior, the current study examined whether emotion regulation and self-esteem also predicted engagement in risky behavior. It was hypothesized that lower parent/peer attachment would be associated with difficulties in emotion regulation and in turn, problems with emotion regulation would predict substance use. Also, based on previous research, it was expected that higher levels of attachment would be associated with greater self-esteem and, in turn, higher self-esteem would predict lower rates of risky sexual behavior.

To test these hypotheses, a sample of first-year Trinity students ($N= 69$) completed an online survey with questions about their relationships with parents and peers, emotion regulation strategies, self-esteem, alcohol use and related problems, drug use, and risky sexual behavior. As hypothesized, close relationships with parents and peers were associated with less difficulty with emotion regulation and higher levels of self-esteem, and close relationships with parents predicted a lower intensity of heavy drinking. Contrary to the hypotheses, neither quality of

parent/peer attachment nor emotion regulation predicted alcohol-related problems, and greater attachment to peers predicted more pronounced heavy drinking. Future research should examine other variables besides emotion regulation that might explain the link between parent attachment and heavy drinking. Given that peer attachment was positively associated with intensity of heavy drinking, future research also should examine, in greater detail, the nature of the link between attachment and heavy drinking.

Introduction

Numerous studies have shown that the transition to college is a time during which many young adults show an increase in risky behaviors. For example, one in three college students is diagnosed with alcohol abuse and one in 17 is considered to be alcohol dependent (Weschler et al., 1993-2001). Results from the 2004 Core Institute survey (as cited in Ross & Dejong, 2008) indicate that 45.3% of first-year students nationwide are classified as heavy drinkers. Data from the 2009 National Youth Risk Behavior Survey indicates that over one third of college students reported having sex with six or more partners. Moreover, only 29.6% of sexually active college students reported that they or their partner used a condom the last time they had sexual intercourse, and only 27.9% reported that they or their partner use a condom “most of the time.” Since certain risky behaviors such as those described above seem to become more prevalent during and following the transition to college, it is critical to examine factors that might make some students more likely to engage in these behaviors during this time.

Developmental factors, such as the quality of attachment to one’s caregiver, have been shown to play a significant role in how students adapt to the college environment (Kenny & Rice, 1995) and perhaps, their propensity to engage in risky behaviors. According to Bowlby’s theory of attachment (1969/73/82), the attachment system develops in infancy as an evolutionary strategy for helpless infants to gain a sense of protection. Infants will meet their attachment needs through interactions with primary caregivers. As these behaviors develop, the infant will seek proximity to the primary caregiver in order to establish a sense of security and safety during times of threat or distress. In the absence of threat or distress, the infant will create more distance from the primary caregiver in order to engage in exploratory behavior. According to Bowlby’s

theory, these behaviors tend to be stable throughout life but are most evident during times of physical or psychological distress.

Researchers have regarded the transition to college as a potentially stressful event and one that activates students' attachment systems in many ways. During this transition, young adults often experience their first long-term separation from their parents, friends, and sometimes even romantic partners (Larose, Bernier & Tarabulsky, 2005). In addition, students can be confused as to how they feel about being separated from their parents. While this is often a time where independence becomes more desirable, students may feel a sense of anxiety as well. Upon entering a new environment, students are likely to experience a sense of uncertainty and ambivalence as they are faced with new stressors and responsibilities and can no longer be directly comforted by their parents (Mikulincer & Florian, 1998). While close relationships to caregivers can function as a protective factor for individuals facing important transitions, strained relationships can put them at higher risk for poor social, academic, and emotional adjustment (Larose & Boivin, 1998; Mikulincer & Florian, 1998). Upon the activation of the attachment system during this time of transition, individuals who are less securely attached may be more likely to adopt maladaptive styles of coping with distress, preventing them from adjusting appropriately to their new environment (Larose, Bernier & Tarabulsky, 2005).

Development of Attachment in Childhood

Attachment can be defined as "an enduring affectional bond of substantial intensity" (Armsden & Greenberg, 1987, p. 428) that allows a person to maintain proximity to another individual who is believed to have superior coping abilities (Bowlby, 1998). This phenomenon is most evident during times of distress, when the individual is in need of comfort and caregiving (Bowlby, 1998). According to Bowlby's theory, the early experiences that one has with an

attachment figure will have a profound impact on his or her emotions and behavior later in life. In particular, research has shown that the early development of attachment behavior has a highly significant influence over one's sense of safety, social acceptance, and well-being (Mikulincer & Shaver, 2007).

The attachment system serves two primary functions for the young child (Hazan & Shaver, 1994). Bowlby's (1969/73/82) theory of attachment was formed under the assumption that infants develop behaviors that allow them to acquire or maintain proximity to their primary caregivers. This proximity-seeking behavior offers a sense of security during times of perceived distress, a phenomenon known as "safe haven." According to Bowlby's theory, an additional role of the attachment system is a phenomenon known as secure base. This phenomenon implies that a secure attachment with the primary caregiver will provide the child with confidence that his/her primary caregiver is available for protection and support, which, in turn, allows the child to explore his/her surroundings with a sense of safety. According to this theory, the extent to which the attachment system performs its primary functions will depend on the availability of the attachment figure in times of distress. The degree to which an attachment figure shows sensitivity and responsiveness to one's needs, and provides comfort and support during times of distress is crucial in the development of the attachment system (Bowlby, 1969/73/82).

Ainsworth and her colleagues (1978) developed a system of examining infants' behaviors upon the separation and reunion with their primary caregivers in a "strange situation," whereby infants were placed in an experimental room with their mothers and a set of toys. The mothers were first asked to leave the room, at which point a stranger entered. Shortly after, the stranger left the room and the mother re-entered. Researchers examined four main criteria: (1) how infants reacted to the stress of being left in the room alone, (2) the infants' level of anxiety when

the stranger entered the room, (3) the infants' willingness to explore the strange situation (measured by the degree to which the infants played with the toys), and (4) how quickly they were soothed by their mothers' return. The experimenters then categorized the infants into three different groups of attachment based on their reactions. Ainsworth found that the infants of responsive parents developed secure attachment styles. In the Strange Situation, secure infants were likely to explore freely, exhibit distress when their mothers left the room, and were comforted when their mothers returned (Ainsworth et al., 1978).

The other two categories represent infants considered to be insecurely attached. The infants of unresponsive parents developed anxious-resistant attachment styles, commonly referred to as avoidant. In the Strange Situation, avoidant infants ignored their mothers while they were in the room, did not show distress when they left the room, and showed disinterest upon their return. The infants of inconsistently responsive mothers developed anxious-ambivalent attachment styles, commonly referred to as anxious. In the Strange Situation, anxious infants did not explore their surroundings, showed extreme distress when their mother left the room, and showed ambivalence upon her return. Anxious infants sought comfort from their mothers, while simultaneously showing resistance to their efforts to calm them. Based on the findings from this study, it follows that children who are securely attached are more likely to use their primary caregiver as a secure base. Those who trust that their caregivers are responsive to their needs and can provide them with protection will be more likely to explore their environment confidently and are able to use their caregivers to establish a sense of safety and security in times of distress.

The Significance of Attachment in Young Adulthood

Many studies suggest that these patterns of attachment behavior are consistent throughout life (Bowlby, 1969/73/82; Cooper, Russel & George, 1988; Hazan & Shaver, 1987). Bowlby's theory of the internal working model can help to explain this continuity. According to this theory, early experiences between infant and caregiver are internalized to form a mental representation that serves as a model, not only for future relationships, but also for how one reacts to threatening or distressing situations later in life. Thus, not only do internal representations shape one's behaviors throughout life, but also the expectations that s/he holds for closeness, disclosure, and support. The internal working model has significant implications for understanding the importance of our attachment to early caregivers and the effects of adaptive versus maladaptive attachment systems. Children with attachment figures who are reliable, responsive, and sensitive to their needs will develop representations of themselves as being effective in relationships, whereas children who have unreliable or unresponsive attachment figures will view themselves as ineffective in relationships (Bowlby, 1973).

Because these representations of attachment figures can generalize to many different aspects of life, they are not necessarily activated within the individual's conscious awareness (Bowlby, 1980; Hazan & Shaver, 1987). More often than not, internal working models serve more as a framework through which individuals see themselves and others in relationships and across a variety of different situations. Although internal working models can change due to personal experiences such as tragic life events or loss (Main, Kaplan, & Cassidy, 1985), research shows that, in most cases, internal working models remain stable over time (Bowlby, 1980; Cooper, Shaver, & Collins, 1998; Hazan & Shaver, 1987). Evidence of the stability of internal working models can be seen in the study on attachment performed by Main and colleagues

(1985). These researchers found that children who had been categorized as avoidant at 12 months- and thus had developed an avoidant working model - also exhibited behaviors associated with avoidant attachment at six years of age (e.g. directing attention at toys, difficulty expressing emotions, and lack of coping strategies). On the other hand, children who had been categorized as secure at 12 months- and thus had developed a secure working model- also exhibited behaviors associated with secure attachment at six years of age (e.g. were able to access affect, memory, and plans appropriately).

While internal working models are considered to remain stable over time, there is often a shift from childhood to adulthood regarding who is considered a primary attachment figure. Although children's primary attachment figures are generally parents, adults' attachment systems are more often based on relationships with peers or sexual partners (Hazan & Shaver, 1987). Across this time span, there also tends to be a shift in what one considers his or her attachment relationship to be, and how it is utilized. While children tend to call upon their attachment relationships externally (i.e. through discernible exchanges of comfort and support with caregivers), adults are better able to call upon internal means of receiving comfort from attachment figures (Main, Kaplan, & Cassidy 1985). Adults, in contrast to children, can often feel a sense "felt security" simply from knowing that attachment figures are available (Sroufe & Waters, 1977).

Numerous studies have examined the effects of attachment security on a wide range of behaviors. Researchers have found that those who have been deemed "securely attached" individuals consider themselves to be more competent and efficacious (Cooper, Shaver, & Collins, 1998), and show higher levels of self-esteem (Bartholomew & Horowitz, 1991). They also tend to show superior adjustment and stronger social skills (Mikulincer & Shaver, 2007). In

addition, those who are categorized as secure have been shown to possess more adaptive strategies for coping with negative affect (Cooper, Shaver, & Collins, 1998), and stronger resiliency to life stressors (Bowlby 1998). Because they have internal representations of themselves as being effective and valuable in relationships, secure individuals are more likely to be comfortable with closeness, are appropriately assertive in relationships and communication (Feeney, 1990), and are undaunted by the prospect of rejection (Hazan & Shaver, 1987).

Insecure attachment may manifest itself as either anxious or avoidant in nature. Studies show that insecure individuals may be more likely to endorse abnormal levels of self-esteem; That is, while some may exhibit a very low level of self-esteem, others exhibit an exaggerated sense of self-esteem (Mikulincer & Shaver, 2007). Anxious individuals who have had inconsistently unresponsive caregivers will develop representations of themselves as incompetent in relationships. Moreover, they will constantly worry about rejection and abandonment and will view themselves as being of little value. In contrast, avoidant individuals who have had consistently unresponsive caregivers will be forced to adopt self-reliant attitudes, which will subsequently overinflate their sense of self-worth (Mikulincer & Shaver, 2007). Insecure attachment also may lead to poor social skills, such as an unhealthy dependence on intimacy (Mikulincer & Shaver, 2007), or extreme discomfort with closeness (Hazan & Shaver, 1987; Mikulincer & Shaver, 2007). Through repeated experiences in strained relationships, anxious individuals will learn that they are incompetent in relationships and, thus, will worry excessively over the possibility of abandonment and their partner's approval. For similar reasons, these individuals will be overly eager to engage in relationships and will be more likely to show jealousy. On the other hand, avoidant individuals, who have learned to have complete distrust in relationships, will be more likely to distance themselves from relationships, show

discomfort with closeness, and, thus, are less skilled than their secure counterparts in social situations (Hazan & Shaver, 1987; Mikulincer & Shaver, 2007).

Finally, insecure attachment has been associated with maladaptive coping strategies. In contrast to their adaptive counterparts, these individuals will adopt either hyperactivating or deactivating strategies in order to deal with insecurity and distress (Hazan & Shaver, 1987; Mikulincer & Shaver, 2007). Anxious individuals are likely to employ hyperactivating strategies as multiple interactions with an inconsistently unresponsive caregiver create an internal representation of attachment figure instability. As a result, these individuals will engage in persistent proximity-seeking as a means of attaining love, support, and sense of safety (Cassidy & Kobak, 1988). Moreover, Mikulincer and Shaver (2007) argue that anxious individuals will be highly sensitive to perceived threat and, consequently, display a heightened emotional response. In contrast, avoidant individuals may be more likely to employ deactivating strategies, as multiple interactions with inconsistent and unresponsive caregivers have created an internal representation of attachment figure unavailability. As a result, avoidant individuals are less likely to experience negative emotions because they may restrict access to painful memories or emotions. Moreover, they will distance themselves from others in order to prevent future rejection and subsequent negative emotions (Mikulincer & Shaver, 2007).

Attachment and Emotion Regulation

Emotion regulation can be defined as one's ability to initiate, modulate, and inhibit emotions (Mikulincer & Shaver, 2007). Attachment plays an integral role in the development of one's capacity for emotion regulation, which ultimately determines one's affective state and ability to maintain emotional equanimity (Mikulincer & Shaver, 2007).

Numerous researchers have found that secure individuals show more adaptive or superior emotion regulation capabilities when compared to insecure individuals (Bowlby, 1973/88; Hazan & Shaver, 1987; Mikulincer & Orbach, 1995). According to Bowlby's theory of attachment (1973/88), secure individuals are more confident in their ability to obtain/elicit support from their attachment figure as a means of regulating distress. Moreover, those who have a secure attachment will learn that they are capable of managing negative emotions and that they can overcome difficulties and elicit social support if necessary (Hazan & Shaver, 1987; Cassidy, 1994). Because of this confidence, secure individuals are able to maintain a greater sense of optimism and are more likely to persevere when faced with distressing circumstances (Bowlby, 1973). According to Mikulincer and Orbach (1995), securely attached individuals are better able to access and understand their emotions, and will be more likely to display emotions appropriately toward others. Moreover, when they do access negative memories, the associated negative emotion is less likely to spread throughout his/her cognitive framework (Mikulincer & Nachshon, 1991; Mikulincer & Orbach, 1995). That is, one negative memory will be less likely to elicit the rapid onset of associated negative emotions.

In contrast, insecure individuals have shown less adaptive strategies for emotion regulation. Insecure attachment is associated with hyperactivating and deactivating emotion regulation strategies (Mikulincer & Orbach, 1995; Mikulincer & Shaver, 2007). Those who develop hyperactivating strategies will access negative emotions more readily and are often unable to control the cascade of negative emotions in their memory network. For example, if such an individual were in a situation that evoked a negative emotion, this situation and consequent emotion would very likely conjure up memories of similar situations during which she or he experienced that emotion. On the other hand, those who develop deactivating strategies

have very limited access to negative emotions (Mikulincer & Orbach, 1995; Mikulincer & Shaver, 2007). Based on these theories, it can be assumed that individuals with secure attachments are better able to regulate their emotional reactivity, whereas insecure individuals, who are more likely to engage in hyperactivating and deactivating strategies, will possess less control over their emotional states. Thus, insecure individuals may be more likely to rely on externalizing activities to modify their affect (Golder et al., 2005; Pomezol & Brown, 1977).

Emotion Regulation and Substance Use

As noted above, one of the apparent consequences of insecure attachment is impaired emotion regulation. This is of concern, as impaired emotion regulation has been associated with a greater propensity to engage in risky behaviors such as substance use. In a 2005 study, Golder and colleagues found that individuals with insecure attachments were more likely to engage in risky behaviors such as substance abuse than those with secure attachments. Golder explains this finding by noting that insecurely attached individuals have a diminished capacity for emotion regulation and will be more likely than their securely attached counterparts to engage in externalizing activities in order to regulate their emotions. Cox and Klinger's (1988) motivational model of alcohol use states that one of the central motivations behind alcohol use is the desire for affective changes (Cox & Klinger, 1988). Similarly, Pomezol and Brown's (1977) model of drug use suggests that drug use is often a means of avoiding unpleasant emotions or a strategy for heightening positive experiences. Both drugs and alcohol are considered to be mood-altering substances, meaning they can temporarily improve one's mood, induce relaxation, and reduce feelings of loneliness (Pomezol & Brown, 1977). In short, they provide an alternative means of emotion regulation. As evidenced by these various studies, individuals who are insecurely attached may experience difficulty regulating their emotions and thus, may be more

likely to engage in drug and alcohol use in order to benefit from the substances' mood-altering qualities (Cooper, Russel, & George, 1988).

Attachment and Self- Esteem

The attachment system also has a significant effect on the development of self-esteem. Those who have reliable and responsive attachment figures will be more likely to develop secure working models and learn that they are valuable and worthy of love and care, while individuals with unreliable, unresponsive attachment figures may develop representations of themselves as quite the opposite (Bowlby, 1973). Securely attached individuals are more likely to develop a sense of self-worth and competence (Cooper, Shaver, & Collins, 1998), which helps these individuals to become confident in their personal characteristics (Mikulincer & Shaver, 2007; Cassidy, 1988). In Bartholomew & Horowitz's (1991) model of attachment, individuals with secure attachments reported higher levels of self-esteem (Armsden & Greenberg, 1987). One of the reasons this might be the case is that secure individuals are able to maintain a positive sense of self, despite their awareness of personal flaws (Mikulincer, 1995).

Self-Esteem and Risky Sex

Research has shown that low self-esteem is a predictor for risky sexual behaviors such as unprotected sex (Robinson, Holmbeck, & Paikoff, 2007; Ethiers et al, 2006), having many sexual partners (Robinson, Holmbeck, & Paikoff, 2007), and intercourse at a young age (Ethiers et al, 2006). Interestingly, studies have shown that secure individuals are *more* likely to engage in sexual activity when in a committed relationship (Brennan & Shaver, 1995). However, securely attached individuals report fewer one night stands (Cooper et al., 1998) and fewer negative emotions regarding sexual activity (Tracey et al., 2003) than insecure individuals. In contrast, insecurely attached individuals report engaging in more unwanted sex, experiencing sexual

coercion, and having a greater number of unwanted pregnancies (Davis et al., 2001). Taken together, these findings suggest that insecurely attached individuals not only engage in riskier behavior, but also experience greater negative affect related to this behavior and a host of negative outcomes.

Research has shown that there is a significant association between high levels of self-esteem and safe sexual practices, (Miller, Forehand, & Kotchick, 2000), whereas low self-esteem has been shown to predict risky sexual behavior such as unprotected sex, engagement in sex with risky sexual partners (Ethiers et al., 2006; Miller, Forehand, & Kotchick, 2000), and unwanted pregnancy (Kowaleski-Jones, & Mott, 1998). Charles and Blum (2008) suggest that communication may mediate the relation between self-esteem and risky sexual behavior. This indicates that perhaps individuals with low self-esteem are less able to communicate their expectations or what they may or may not feel comfortable with in a sexual relationship. Gillmore and colleagues (1992) explain this relation further, suggesting that individuals with high levels of self-esteem will be better able to resist the pressures of risky sexual behavior than will those with low self-esteem.

Previous research has provided some insight into the observed associations between insecure attachment, self-esteem, and risky sexual behavior. Specifically, it has been suggested that insecure individuals have lower self-esteem and greater insecurity in their relationships, which leads to a stronger desire for emotional closeness and reassurance from their partner (Hazan & Shaver, 1987; Davis, Shaver & Vernon, 2004). Anxious individuals, who are more prone to self-doubt and feelings of incompetence, are likely to engage in sexual activity in order to satisfy attachment needs that have not been met. Anxious individuals often feel a strong need for reassurance and a sense of security and love. Thus, they may be motivated to engage in

sexual activity out of fear of abandonment or disapproval (Tracey et al., 2003). Due to low self-esteem and lack of confidence in their relationships, anxious individuals are generally less assertive in relationships, and consequently may be more likely to defer to their partner's needs (Brassard, Shaver & Lussier, 2007; Tracey et al., 2003). Therefore, anxious individuals report higher frequencies of unprotected and unwanted sex (Feeney et al., 2000; Gentzler & Kerns, 2004). In contrast, avoidant individuals, who have adopted self-reliant attitudes and sense of distrust in others, will be likely to engage in risky sexual behaviors in order to establish a sense of power and enhance their sense of worth (Shaver & Vernon, 2004; Tracy, Shaver, Albino, & Cooper, 2003). Because avoidant individuals tend to be uncomfortable with closeness and view others as unreliable in relationships, they tend to have less sexual partners than their secure or anxious counterparts. However, for the same reasons, avoidant individuals also may tend to engage in uncommitted, short-term sexual relationships, such as one-night stands (Bartholomew & Horowitz, 1991; Brennan & Shaver, 1995).

The Current Study

The aforementioned review of research indicates that there is a large body of literature exploring the relationship between attachment and risky behaviors in young adults. However, there are still areas of this topic that require more thorough examination. Although previous research has thoroughly examined developmental factors such as attachment and its relation to risky behavior, less is known about the more proximal factors that might motivate risky behavior. This study will build upon the previous research by examining the indirect effect of difficulties with emotion regulation on the relation between parent/peer attachment and substance use and the indirect effect of self-esteem on the relation between parent/peer attachment and risky sexual behavior. By creating a more focused framework, this study will

hopefully lend itself to a clear and concentrated understanding of the influence of attachment on the degree and frequency of risky behaviors in young adults and the way in which self-esteem and emotion regulation may help to explain this relationship.

Many studies have examined risky behaviors in adolescents or have generalized theories about a population with a large variation in age. However, one of the strengths of the current study is that it examines the effects of the attachment system during a critical and presumably distressing time. Many researchers have suggested that the transition to college is a critical time for young adults in terms of adjustment and psychological functioning (Larose & Boivin, 1998; Larose, Bernier, & Tarabulsky, 2005). Because the current study is specific to this age group, one can assume that the participant population will be sharing an experience that will inevitably activate the attachment system and, thus, is optimal in regards to the examination of attachment behaviors.

Another important contribution of the current study is that it will examine the influence of both peer and parent attachment. Many studies have focused on the attachment system in terms of one's experiences with a primary caregiver and the subsequent influence that these experiences have on various aspects of life and relationships. However, this study examines both parent and peer attachment in order to determine how they might affect the degree to which young adults exhibit risky behaviors. Armsden and Greenberg's (1987) study on attachment suggested that parents are more influential than peers in the development of self-esteem, but the relative contributions of these two types of attachment (i.e., parent and peer), respectively, and their associations with risky sexual behavior and substance use largely have not been explored in the literature. While parent attachment has been studied in depth, the role of peer attachment in

emotion regulation, self-esteem, substance use, and risky sexual behavior has received far less attention.

The goal of this study is to examine the relation between attachment with parents and peers and behaviors that are commonly seen in first-year college students, such as drug and alcohol use and risky sex. More specifically, this study pertains to the way in which an individual's attachment style affects his or her self-esteem and ability to regulate emotions, and how the subsequent variation in these two phenomena might help to explain why one would be more or less likely to engage in risky behaviors. This area of study is particularly pertinent in a college setting where substance use and risky sex are prevalent, yet the motivations behind these behaviors are not always clear. Therefore, the extent to which the aforementioned behaviors are motivated by distal factors, such as parent attachment, versus more proximal factors, such as emotion regulation and self-esteem, merits further investigation. Based on previous research, the following hypotheses were proposed:

Predictions

- More securely attached individuals will report fewer difficulties with emotion regulation than less securely attached individuals.
- There will be a positive relation between difficulties with emotion regulation and substance use.
- There will be an indirect effect of emotion regulation on the relation between attachment and problematic substance use.
- More securely attached individuals will report higher levels of self-esteem than less securely attached individuals.

- There will be an inverse relation between self-esteem and engagement in risky sexual behavior.
- There will be an indirect effect of self-esteem on the relation between attachment and risky sexual behavior.

Method

Participants

A total of 69 male ($n = 23$) and female ($n = 46$) first-year students currently enrolled at Trinity College agreed to participate. The mean age for the participants was 18.46 years. Participants reported their race/ethnicity to be the following: 5.8% Asian or Asian American, 4.3% Black or African American, 5.8% Hispanic or Latino, 79.7% were Caucasian, and 4.3% identified as “Other.” Of the entire first-year class, 11.7% participated.

Measures

Demographic Information. First-year students were asked questions about their sex, age, and race/ethnicity.

Parent and peer attachment. The Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987) is a 50-item questionnaire assessing attachment behavior and the nature of participants’ feelings toward attachment figures. The first section of this questionnaire asked participants to reflect on the caregiver who has influenced them most; 85.5% indicated their mother, 13% indicated their father and 1.4% indicated “other”. Twenty-five items assessed (a) a participant’s trust that this attachment figure understands his/her needs (sample items include “when I am angry about something, my parents try to be understanding”), (b) his/her perceptions that the caregiver is sensitive and responsive to his/her needs (sample items include “I have to rely on myself when I have a problem to solve”), and (c) his/her anger toward, or

emotional detachment from, the attachment figures (sample items include “I wish I had different parents”). For each parental attachment item, there was a corresponding peer attachment item comprising a second set of 25 questions. Sample items from each peer attachment subscale include “when we discuss things, my friends consider m point of view,” “my friends are concerned about my well-being,” and “I feel angry with my friends.” Participants indicated how often each statement was true for them on a 5-point scale of *almost never or never* to *almost always or always* (see Appendix A). Items pertaining to anger toward and emotional detachment from parents and peers were reverse scored. Then, all responses to the parent and peer scores were summed to form total parent and peer attachment scores, respectively. The internal consistency reliabilities were excellent for both the parent ($\alpha = .95$) and peer items ($\alpha = .95$).

Emotion regulation. The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 36-item questionnaire that assesses problems with emotion regulation in the following domains: (a) the awareness and understanding of emotions, (b) acceptance of emotions, (c) the ability to engage in goal-directed behavior, and refrain from impulsive behavior, when experiencing negative emotions, and (d) access to emotion regulation strategies perceived as effective. Participants were asked to indicate how often items such as “when I’m upset, I have difficulty controlling my behaviors” applied to them. Responses ranged from *almost never* to *almost always*, (see Appendix B). Numerous items were reverse scored, as instructed by the scale’s authors, and all responses to the DERS items were summed to form a total score where higher scores indicated greater difficulty with emotion regulation. The internal consistency reliability for the DERS was excellent ($\alpha = .93$).

Alcohol consumption. Three items assessed patterns of alcohol consumption. The items were adapted from the *Brief Alcohol Screening and Intervention for College Students (BASICS)*

protocol (Dimeff, et al., 1999). The first item asked “how often in the past month did you drink alcohol?” and was scored on a 6-point scale from *I did not drink at all* to *once a day or more*. The second item was “think of the occasion you drank the most since coming to college. How much did you drink?” This item was scored on an 11-point scale from *no drinks* to *19 or more*. The last item asked “on a given weekend evening since coming to college, how much alcohol do you typically drink?” and was also scored on an 11-point scale from *no drinks* to *19 or more*, (see Appendix C). Responses were summed to form a total score where higher scores indicated higher levels of frequency and quantity in alcohol consumption.

Alcohol Consequences. The Brief Young Adult Alcohol Consequences Questionnaire (BYAACQ; Kahler, Strong, & Read, 2005) is a 24-item measure designed to assess problems experienced as a result of alcohol consumption. Sample items include “I’ve not been able to remember large stretches of time while drinking heavily,” and “I have driven a car when I knew I had too much to drink to drive safely.” Items were scored on a dichotomous scale of “yes” or “no,” indicating whether or not participants had experienced the given consequence (see Appendix D). Responses to the BYAACQ items were summed to form a total score where positive values indicated that the participant had experienced more alcohol-related consequences. The internal consistency reliability for the BYAACQ was good ($\alpha = .85$).

Drug Use. Participants were provided with a list of sixteen drugs (e.g., marijuana, ecstasy) and were asked to indicate how often they had used each drug in the past month (Armeli & Tennen, unpublished measure). Items were scored on a scale from *did not use in the past month* to *20 or more times in the past month* (see Appendix E). Responses were summed to form a total score reflecting both the number of drugs used as well as the frequency with which they were used. Higher scores indicated higher levels of drug use. Because of the low frequency of

reported use, a dichotomous measure reflecting the presence/absence of drug use was also was created.

Sexual Behavior. Seven questions about sexual behavior from the Youth Risk Behavior Survey (National Center for Chronic Disease Prevention and Health Promotion, 2009) and the National Health and Social Life Survey (Laumann, Gagnon, Michael, & Michaels, 1995) were used in the current study. Items assessed whether participants had ever had sexual intercourse, the age at which participants first had sexual intercourse, the number of people with whom participants had ever had intercourse since coming to college, number of sexual encounters without protection against sexually transmitted diseases, as well as histories regarding sexually transmitted diseases and pregnancy. Items were scored on either dichotomous (e.g. *yes* or *no*) or continuous scales (e.g. ranging from *I have had sexual intercourse, but not since entering college* to *6 or more people*), depending on the nature of the question (see Appendix F). In order to retain the variability of participants' responses, a total score was computed by adding together the responses from questions (3), (4), (5), and (6), which inquired about frequencies of risky sexual behavior, with two dichotomous items that indicated whether or not the participant had ever experienced a pregnancy or sexually transmitted disease. Because risky sexual behavior was of interest in the current study and participants reported relatively low rates of risky sexual behavior, a dichotomous variable reflecting the presence/absence of one or more risky sexual behavior was created as well.

Self-esteem. The Rosenberg Self-Esteem Scale (SES; Rosenberg, 1965) is a ten-item measure designed to assess participants' self-perceptions. Participants were shown a series of statements such as "I feel that I have a number of good qualities" and were asked to rate their responses on a 4-point scale from *strongly agree* to *strongly disagree* (see Appendix G).

Responses were summed to form a total score ranging from 10-40, where higher scores represent higher self-esteem. The internal consistency reliability for the SES in the current study was good ($\alpha = .86$).

Procedure

The IPPA was administered during the first week of the fall 2010 semester as part of a previous study on college student transitions. The remaining measures were administered during the fourth week of the spring 2011 semester. All 210 first-year students who participated in the prior survey on college transitions were sent a link to the online survey used in the current study during the fourth week of the 2011 spring semester and the survey was open for three weeks. As described above, the survey included questions regarding participants' ability to regulate emotions, their self-esteem, the frequency and quantity of their alcohol and drug use, and the extent to which they engaged in certain sexual behaviors. The study was approved by the college's Institutional Review Board and students who participated were required to complete online consent forms that described the purpose of the study as well as potential benefits and drawbacks (see Appendix H). Only after completing the consent form were students allowed access to the online survey. To ensure confidentiality, the responses to this survey were coded by participant number rather than by name, and thus, were unidentifiable to the researchers.

Because of the lower than expected response rate ($n=31$ of 210 eligible), the survey was re-opened to the original sample of eligible participants three weeks after the first round of data collection. Ten additional participants completed the survey during this one week period. To further increase participation, Psychology 101 students who had not participated in the fall 2010 survey were offered the opportunity to participate around the same time. Twenty-eight students participated, bringing the final sample to $N=69$. The survey for these 28 students included the

attachment measure, since these students had not participated in the fall 2010 study and thus, did not have data from the IPPA measures. Aside from this revision, all measures remained the same. Participants from the Psychology 101 sample were offered research participation credit, while the 41 other participants were entered into a lottery for one of four \$25 restaurant gift cards.

Data analysis plan. In order to determine whether there was an indirect effect of emotion regulation on the relation between parent and peer attachment and substance use, standard regressions were first run to examine whether parent and peer attachment, respectively, predicted difficulties in emotion regulation. Then multiple regression analyses were used to determine whether difficulties in emotion regulation, parent/peer attachment, and gender predicted the dependent variables related to substance use. Two different dependent variables were examined in distinct multiple regression models: alcohol consequences and intensity of heavy drinking. A logistic regression was used to test whether difficulties in emotion regulation, parent/peer attachment, and gender predicted whether or not a participant endorsed using drugs.

In order to determine whether there was an indirect effect of self-esteem on the relation between parent and peer attachment and risky sexual behavior, standard regressions were first run to examine whether parent and peer attachment, respectively, predicted self-esteem. Because risky sexual behavior was examined as a dichotomous outcome, logistic regression analyses were used with gender, parent/peer attachment, and self-esteem as the predictors. For each dependent variable noted above, analyses were run with both parent and peer attachment in order to examine their effects separately. To determine whether the proposed variable actually exerted an indirect effect on the relations between parent/peer attachment and risky behavior (e.g., alcohol consequences, risky sexual behavior), a test of joint significance was conducted

(Mallinckrodt, Abraham, Wei, & Russel, 2006). The path from attachment to self-esteem or attachment to difficulties with emotion regulation had to be significant, as did the path from self-esteem or difficulties with emotion regulation to the relevant dependent variable, with the independent variable included in the model. A p -value of less than .05 was used to determine whether a finding was statistically significant.

Results

Descriptive Statistics

Descriptive statistics and internal reliability scores for the measures of parent and peer attachment, difficulties with emotion regulation, self-esteem, and alcohol consequences are presented in Table 1. For the IPPA measure, the mean for peer attachment ($M=103.88$, $SD=15.72$) appeared to be somewhat higher than the mean for parent attachment ($M=102.23$, $SD=16.41$). Participants in the current study also reported slightly lower levels of dysfunction in emotion regulation ($M=75.13$, $SD=19.32$) than were found in Gratz and Roemer's previous study, where the mean score was 77.99 among women and 80.66 among men. The mean score for the current sample on the Rosenberg Self-Esteem Scale was 33.45 ($SD=4.88$), which was slightly higher than the national mean score of 31.9 ($SD=4.97$) reported by college students (Rusticus, Hubley, & Zumbo, 2004). Participants in this sample reported an average score of 6.08 on the alcohol consequences questionnaire, which indicates that, on average, students experienced this number of alcohol-related problems in the last year. Finally, 75.4% of students reported at least one episode of drug use in the past month, and 63.8% reported engaging in at least risky sexual behavior since entering college (Table 1).

Correlations

Correlations among the study variables are presented in Table 2. Male gender was found to be significantly and inversely correlated with intensity of drinking ($r=-.41, p<.01$) and drug use ($r=-.28, p<.05$), such that males were more likely to drink with greater intensity and to report drug use. On the other hand, a significant and positive correlation was found between gender and peer attachment indicating that females reported stronger feelings of attachment with peers ($r=.35, p<.01$).

As expected, the strength of the correlation between parent and peer attachment ($r=.42, p<.01$) implies that there is some overlap between the two variables, yet because the value does not approach 1, these two forms of attachment appear to measure distinct constructs. As hypothesized, parent attachment was found to be significantly and inversely correlated with difficulties with emotion regulation ($r=-.47, p<.01$) and positively correlated with self-esteem ($r=.34, p<.01$) meaning stronger feelings of parent attachment were associated with fewer difficulties with emotion regulation and higher levels of self-esteem. However, contrary to my hypotheses, parent attachment was not directly correlated with any of the measured risky behaviors. As I predicted, peer attachment was significantly correlated with both self-esteem ($r=.34, p<.01$) and difficulties with emotion regulation ($r=-.39, p<.01$) such that stronger feelings of peer attachment were associated with higher levels of self-esteem and less difficulty with emotion regulation. However, contrary to my hypotheses, peer attachment was not directly correlated with any of the examined risky behaviors. While it was not addressed in my hypotheses, it is interesting to note that difficulties with emotion regulation and self-esteem were significantly and inversely correlated ($r=-.73, p<.01$).

When examining the correlations among the risky behaviors, I found strong and significant associations among nearly all of the risky behaviors assessed in the study. Frequency of alcohol consumption was significantly correlated with intensity of heavy drinking ($r=.63$, $p<.01$), and risky sexual behavior ($r=.34$, $p<.01$), where higher frequencies of alcohol consumption were associated with greater intensity of heavy drinking and a greater likelihood of engaging in risky sexual behavior. Alcohol consequences also were significantly correlated with frequency of alcohol consumption ($r=.54$, $p<.01$) and intensity of heavy drinking ($r=.56$, $p<.01$). Finally, risky sexual behavior was significantly correlated with intensity of heavy drinking ($r=.43$, $p<.01$), alcohol consequences ($r=.28$, $p<.05$), and drug use ($r=.43$, $p<.01$), where engagement in risky sexual behavior was associated with more intense heavy drinking, the experience of more alcohol consequences, and a higher likelihood of engagement in drug use.

Predicting Substance Use from Attachment and Difficulties with Emotion Regulation

Alcohol consequences. A standard regression examining whether parent attachment predicted emotion regulation difficulties was first conducted and, as predicted, higher parent attachment predicted fewer difficulties with emotion regulation ($\beta = -.47$, $p < .001$) (Table 3a). A multiple regression model was then examined with parent attachment, difficulties with emotion regulation, and gender predicting alcohol consequences. Table 3b presents the results of the multiple regression analysis for alcohol consequences. Contrary to my hypothesis, parent attachment did not significantly predict alcohol consequences ($\beta = -.064$, $p = .64$), nor did difficulties with emotion regulation ($\beta = .16$, $p = .26$) with parent attachment and gender in the model. No evidence for mediation was found, given that the path from emotion regulation to alcohol consequences was nonsignificant (Figure 2).

A standard regression was conducted with peer attachment predicting difficulties with emotion regulation (Table 3c). As hypothesized, higher levels of peer attachment predicted fewer difficulties with emotion regulation ($\beta = -.39, p = .001$). A multiple regression model was then examined with peer attachment, difficulties with emotion regulation, and gender predicting alcohol consequences. Table 3d presents the results of the multiple regression analysis. Contrary to my hypothesis, peer attachment did not significantly predict alcohol consequences ($\beta = .10, p = .48$), nor did difficulties with emotion regulation ($\beta = .22, p = .10$). No evidence for mediation was found, given that the path from emotion regulation to alcohol consequences was nonsignificant (Figure 3).

Intensity of Heavy Drinking. As noted in the above section, the results of a standard regression model predicting difficulties with emotion regulation from parent attachment was significant ($\beta = -.47, p < .001$) (Table 3a). A multiple regression model was then examined with parent attachment, difficulties with emotion regulation, and gender predicting intensity of heavy drinking episodes (Table 4a). As can be seen, parent attachment did not significantly predict heavy drinking ($\beta = -.19, ns$). Additionally, difficulties with emotion regulation predicted intensity of heavy drinking ($\beta = -.26, p < .05$), but not in the hypothesized direction. Finally, gender significantly predicted intensity of heavy drinking ($\beta = -.37, p < .01$) where male gender predicted more intense heavy drinking episodes. Figure 4 shows the result of the regression analyses. Consistent with the correlation findings, parent attachment did not exert a direct effect on intensity of heavy drinking. However, because both paths (parent attachment to difficulty with emotion regulation and difficulty with emotion regulation to intensity of heavy drinking) were significant, there was evidence for an indirect effect of emotion regulation on the relation between peer attachment and intensity of heavy.

A standard regression examining whether peer attachment predicted difficulties with emotion regulation was conducted and, as predicted, peer attachment predicted less difficulty with emotion regulation ($\beta = -.39, p = .001$) (Table 3c). A multiple regression model was then examined with peer attachment, difficulties with emotion regulation, and gender predicting intensity of heavy drinking. As Table 4b shows, peer attachment significantly predicted heavy drinking ($\beta = .27, p < .05$), where higher levels of peer attachment predicted engagement in more intense heavy drinking. Difficulties with emotion regulation did not significantly predict intensity of heavy drinking ($\beta = -.06, ns$). Finally, gender significantly predicted heavy drinking ($\beta = -.51, p < .001$), where male gender was associated with greater alcohol intake on heavy drinking occasions. Figure 5 shows the results of both regression analyses. In contrast to the previous model including parent attachment, there was no indirect effect of difficulties with emotion regulation on the relation between peer attachment and intensity of heavy drinking due to the non significant relation between emotion regulation and heavy drinking.

Drug use. A standard regression examining whether parent attachment predicted difficulties with emotion regulation was first conducted, and, as predicted, it was found that parent attachment predicted difficulties with emotion regulation ($\beta = -.47, p < .001$) (Table 3a). The logistic regression model predicting drug use from difficulties with emotion regulation, parent attachment, and gender did not reach significance; thus, there were no main effects of gender, parent attachment, and difficulties with emotion regulation on drug use. Contrary to my hypothesis, there was no indirect effect of difficulties with emotion regulation on the relation between parent attachment and drug use (Table 3b, Figure 6)

A standard regression examining whether peer attachment predicted difficulties with emotion regulation was then conducted and, as predicted, it was found that peer attachment

predicts less difficulty with emotion regulation ($\beta = -.39, p = .001$) (Table 3c). The logistic regression model predicting drug use from difficulties with emotion regulation, peer attachment, and gender did not reach significance; thus, there was no main effect of gender, peer attachment, and difficulties with emotion regulation on drug use. Furthermore, contrary to my hypothesis, there was no indirect effect of difficulties with emotion regulation on the relation between peer attachment and drug use (Table 5d, Figure 7).

Risky Sexual Behavior. A standard regression examining whether parent attachment predicts self-esteem was first conducted and the findings indicated that, as hypothesized, stronger feelings of parent attachment predicted higher levels of self-esteem ($\beta = .34, p < .01$) (Table 6a). However, the logistic regression model predicting risky sexual behavior from self-esteem, parent attachment, and gender did not reach significance; thus, there was no main effect of gender, parent attachment, and self-esteem on risky sex, nor was there an indirect effect of self-esteem on the relation between parent attachment and risky sex as hypothesized (Table 6b). Figure 8 shows the results of the logistic regression analyses.

A standard regression examining whether peer attachment predicts self-esteem was conducted and, as predicted, it was found that peer attachment predicted self-esteem ($\beta = .34, p < .01$) (Table 6c). However, the logistic regression model predicting risky sexual behavior from self-esteem, peer attachment, and gender did not reach significance; thus, there were no main effects of gender or peer attachment, and there was no indirect effect of self-esteem on the relation between peer attachment and risky sexual behavior (Table 6d). Figure 9 shows the result of the logistic regression analyses.

Discussion

Attachment Predicting Emotion Regulation

My first hypothesis was that more securely attached individuals would exhibit better emotion regulation than less securely attached individuals. Concurrent with my hypothesis, I found that students who reported stronger feelings of attachment to parents exhibited less difficulty with emotion regulation. Likewise, students who reported stronger feelings of attachment to peers also exhibited less difficulty with emotion regulation. Based on previous research, I expected that individuals with stronger feelings of attachment would be more confident that their primary caregiver would be available to provide support, and thus, would be more able to use the support of their primary caregiver to help regulate negative emotions (Bowlby, 1973/88). Furthermore, I felt that individuals with stronger feelings of attachment, who were better able to elicit support from caregivers, would develop a sense of competence in managing negative emotions (Hazan & Shaver, 1987). Together, these findings support my prediction and previous research, indicating that, among first year students, more securely attached individuals will have an increased capacity for emotion regulation than less securely attached individuals.

Emotion Regulation and Substance Use

Based on previous research suggesting that difficulties with emotion regulation are associated with substance use (Golder et al., 2005), I predicted that there would be an inverse relation between emotion regulation and three specific substance use variables, namely alcohol consequences, intensity of heavy drinking, and drug use. In contrast with my hypotheses, I found that emotion regulation was not associated with any of these variables. However, when examining intensity of heavy drinking as predicted by parent attachment, difficulties with

emotion regulation, and gender, difficulties with emotion regulation predicted *lower* intensity of heavy drinking. That is, in contrast to my hypothesis, participants who reported experiencing more difficulty with emotion regulation reported less intensity of heavy drinking episodes. This finding was surprising given that previous research has indicated that individuals who experience greater difficulty with emotion regulation were more likely to use substances as a means of controlling their negative affect (Golder et al., 2005). Past research, however, has not necessarily investigated how difficulties with emotion regulation affect the means through which college students participate in substance use. One could speculate that students will be more likely to engage in substance use, such as alcohol consumption and drug use, when in a social setting. For example, Calkins and Fox (2002) proposed that difficulties with emotion regulation may be associated with social withdrawal or inhibition. While I can only speculate, perhaps one of the reasons that I observed an inverse relation between difficulties with emotion regulation and intensity of heavy drinking is that individuals who experience difficulties regulating their emotions may be more likely to withdraw from social situations. Thus, if these students are not exposed to an environment that encourages alcohol consumption and drug use, they may be less likely to engage in these risky behaviors.

Indirect Effect of Emotion Regulation

My third hypothesis was that there would be an indirect effect of emotion regulation on the relation between attachment and substance use. In contrast with my hypotheses, I found that difficulty with emotion regulation did not have an indirect effect on the relation between parent attachment and alcohol consequences, nor was there an indirect effect of emotion regulation on the relation between peer attachment and alcohol consequences. I also found that there was no indirect effect of difficulty with emotion regulation on the relation between parent attachment

and drug use, or peer attachment and alcohol consequences, respectively. As I mentioned earlier, difficulties with emotion regulation were found to predict lower intensity of heavy drinking. Because alcohol consequences are likely to coincide with engagement in heavy drinking, perhaps this could help to explain why difficulties with emotion regulation did not indirectly affect the relation between attachment and alcohol consequences. Specifically, difficulties with emotion regulation predicts lower intensity of heavy drinking and, thus, alcohol consequences may not be likely to occur.

In contrast to the findings for alcohol consequences, I did find support for some of my predictions related to intensity of heavy drinking. Although there was no direct effect of parent attachment on intensity of heavy drinking, there was evidence of an indirect effect of difficulties with emotion regulation on the relation between parent attachment and intensity of heavy drinking as, both paths in the model (from parent attachment to difficulties with emotion regulation and from difficulties with emotion regulation to intensity of heavy drinking) were significant. There was no evidence of an indirect effect of difficulties with emotion regulation on the relation between parent/peer attachment and drug use. In examining the drug use data, I found that students reported very few instances of drug use. Given these findings, it is possible that students were underreporting their engagement in drug use, which could have made it more difficult to determine if a relation, in fact, exists.

Attachment Self-Esteem and Risky Sexual Behavior

My fourth hypothesis was that more securely attached individuals would report higher levels of self-esteem than less securely attached individuals. Consistent with my hypothesis and with previous research conducted by Cassidy (1988) and Bartholomew and Horowitz (1991), I found that both parent and peer attachment predicted higher levels of self-esteem. I also

predicted that there would be an inverse relation between self-esteem and engagement in risky sex. In contrast with this prediction, I found that, in both the parent and peer models, self-esteem was not a significant predictor of risky sexual behavior. Researchers have shown that individuals with less secure attachments report lower levels of self-esteem (Bartholomew & Horowitz, 1991) in order to gain a sense of closeness or approval, or to enhance one's sense of self-worth (Davis, Follette, Vernon, & Shaver, 2004; Tracey, Shaver, Albino, & Cooper, 2003). Given these findings, I predicted that there would be an indirect effect of self-esteem on the relation between attachment and risky sexual behavior. However the findings from this study were not consistent with my hypothesis, nor were did they support previous research. It is important to note that there was a significant correlation between risky sexual behavior and alcohol consequences, frequency of alcohol consumption, intensity of heavy drinking, and drug use. Therefore, perhaps it would be more valuable to investigate substance use as a predictor of risky sexual behavior.

While I did not form hypotheses regarding these relations, it is interesting to note that the results of the regression models examining heavy drinking suggest that parent and peer attachment may serve different functions. Specifically, parent attachment may serve as a protective factor for risky behavior, whereas peer attachment may serve as a risk factor. After considering this finding, I would speculate that perhaps sociability is an important third factor either mediating or moderating this relation. That is, perhaps one of the reasons that peer attachment seems to be functioning as a risk factor for heavy drinking is that those who report stronger feelings of peer attachment may be more likely to become immersed in the college campus' social environment. Thus, if students are in social environments where substance use is very prevalent, they may subsequently be more likely to engage in heavy drinking behavior.

Finally, the regression models indicated that there was a significant gender effect for heavy drinking in both parent and peer models, such that males were more likely to engage in drinking with a higher intensity. There has been a large body of literature dedicated to the examination of gender differences in alcohol consumption, more specifically, the finding that men, on average, consume more alcohol than women. Myriad explanations have been proposed, including biological, societal, and psychological influences. However, most researchers agree that, although they may differ from one culture to the next, gender differences in alcohol consumption tend to reflect societal norms and cultural perceptions of gender roles (Holmila & Raitasalo, 2004).

Conclusions

Overall, my predictions that there would be indirect effects of emotion regulation and self-esteem on the relations between parent/peer attachment and risky behavior largely were not supported. However, some of the individual findings that emerged from the examination of these models were very important and deserve closer examination and recognition.

One interesting finding was that, although there was no indirect effect of difficulties with emotion regulation on the relation between parent/peer attachment and alcohol consequences, there was an indirect effect of difficulties with emotion regulation on the relation between parent attachment and intensity of heavy drinking. It seemed peculiar that we would see this effect with intensity of heavy drinking but not alcohol consequences, as one would anticipate that the two variables would be correlated and thus, would demonstrate similar associations. However, if it is taken into account that only first-year students participated, then perhaps this relation could be more easily explained. It is possible that students who were reporting the presence or absence of specific alcohol consequences did not yet have time to experience or process the presence of

these consequences. That is, for first-year students, it is possible that the novelty of the social environment in college and subsequent alcohol behaviors could outweigh the perceived consequences, such that students have not yet experienced or acknowledged that consequences of heavy drinking exist. Furthermore, first-year students, who have had less experience with such a social climate may be more inclined to rationalize their behaviors and, thus, deny the presence of alcohol consequences. While this is merely a speculation, it could help to explain why we do not see an indirect effect of difficulties with emotion regulation on the relation between parent attachment and alcohol consequences.

The finding that difficulty with emotion regulation exerted an indirect effect on the relation between parent attachment and intensity of heavy drinking has important implications for the way in which we examine drinking among college students and the importance of relationships between students and their primary caregivers. This finding indicates that students who feel as if they share a close bond with their primary caregivers may develop better emotion regulation strategies. This finding could be very important on college campuses which likely aim to limit the degree to which students engage in risk behavior. While colleges cannot create a strong bond between students and their caregivers that did not previously exist, perhaps there are ways in which the college could facilitate supportive interactions between parents and students. Sroufe & Waters (1977) indicate that adults are better able than children to maintain a sense of “felt security” simply by knowing that their attachment figures are available. While students likely have ample contact with their parents (given the variety of communication devices available to students), it might be helpful for colleges to provide parents with more information about effective ways of supporting their children. Even if parents are in frequent contact with their children, they may not know the best ways to support them or how to engage in

conversation given that the nature of their relationships has changed with physical separation. In providing this information, colleges may be able to increase students' perceptions of "felt security."

The findings from this study supported my prediction that both parent and peer attachment would predict fewer difficulties with emotion regulation and higher self-esteem among college students. While these findings do not necessarily help to make inferences about risky behavior, there are important implications for the examination of psychological functioning among first-year college students. Research has shown that high levels of self-esteem are related to lower levels of stress, better coping skills (Carson et al., 1977), and higher levels of reported happiness. Likewise, emotion regulation has been associated with greater social competence, a greater capacity for coping with stressful events and situations, and better academic performance (Buckner, Mezzacappa, & Beardslee, 2009). My findings, along with the aforementioned research, suggests that students who are better able to maintain strong feelings of attachment to parents and peers will develop higher self-esteem and better emotion regulation strategies. As a result, there may be an increased likelihood that these students exhibit better psychological functioning, as well as potential positive effects such as better academic performance (Fass & Tubman, 2002). These findings imply that college campuses should actively make an effort to advocate supportive and meaningful relations, not only among students and their parents, but also among students and their peers, and perhaps even students and advisors or professors.

Limitations and Future Directions

Although the current study provided interesting findings regarding the relations among attachment, emotion regulation, self-esteem, and risky behavior, there were several limitations that must be mentioned. The main limitation to this study was that it included data from two

separate samples. Because I originally planned to link my data to data that was already provided by a previous study, I was limited to an initial sample of 210 students who had already participated in the previous study. These students had completed the parent/peer attachment questions during the first week of the first semester of school and completed the remaining questions during the fourth week of the second semester. However, I felt that I had not received enough responses from my original sample to make valid inferences from my data, so I decided to revise my survey to include the parent/peer attachment questions and recruited more participants from the Psychology 101 courses at Trinity College. This sample of students completed all of the survey questions during the eighth week of the second semester. Because I had two different groups of participants, my two samples filled out the parent/peer attachment questions at very different times (the first sample answered the questions prospectively, whereas the second sample answered the questions cross-sectionally).

It was notable that I did not find any differences between the two different samples aside from a slight age increase in the second sample (which was to be expected given that they reported their age 6 months after the first sample reported their age). However, it is possible that, because students answered questions regarding parent/peer attachment at different times, they could have been answering the questions differently. That is, students who answered these questions at the very beginning of the school-year may have felt either higher or lower levels of detachment and anxiety regarding the separation from their parents than students who answered the questions later in the year. On the other hand, it is possible that students who answered these questions during the second semester had become more accustomed to living away from home or, conversely, felt an even more pronounced sense of separation. Additionally, students from the first sample may have been more likely to answer questions regarding peer attachment with their

friends from home in mind as they may not have had time to form close friendships at college yet. On the other hand, students from the second sample may have been more likely to answer the peer attachment questions with college friends (or both college and high-school friends) in mind as they had more time to create friendships with other Trinity College students.

Another limitation to this study was the survey design. Because I anticipated that a portion of the participants would deny ever engaging in sexual intercourse, alcohol consumption, and/or drug use, I created a skip pattern that allowed these students to go directly to the next section and skip any questions that pertained to a behavior that they had never engaged in. However, there was an error with the sexual behavior skip pattern in that the self-esteem questions were included on the same page as the sexual behavior questions and, thus, eleven students who had skipped the sexual behavior questions skipped the self-esteem questions as well. After realizing that I had made this error, I identified the students who had missed the ten self-esteem questions and simply re-sent them this portion of the survey. However, only eight of the eleven students responded. Thus, this error led to additional missing data and could have affected the analyses given that the three students who did not respond denied experience with any sexual activity. A similar error occurred in the alcohol consumption portion of the survey where students who indicated that they had never engaged in alcohol consumption inadvertently skipped the questions regarding drug use. This, too, could have inadvertently led to missing data on drug use.

Another critical limitation to this study is that my sample was specific to first-year students at Trinity College. Therefore, it is possible that this sample is biased and does not adequately reflect characteristics of first-year students on a more general level. Because this is a small liberal arts school, it is possible that participants in this study answered some of survey

questions differently than one might see at colleges with different characteristics, such as a large urban school, or a school in a different part of the United States. Additionally, perhaps students from different socioeconomic backgrounds would answer questions regarding parent/peer attachment differently than this group of participants. Research has shown that low SES adolescent mothers are more likely to have children with insecure attachments than high SES mothers (Van Ijzendoorn & Bakermans-Kranenburg, 2010). Thus, a sample with more socioeconomic variation may provide a lower mean score of parent attachment. I also found that there was very little variability in the drug use and risky sexual behavior responses and that few students reported engaging in these behaviors with any regular frequency. I would be interested to see whether students from different schools might show more variability in these measures.

With respect to future research, several avenues could be explored. While my study was based on the assumption that the transition from high school to college may activate the attachment system, I would suggest that future studies investigate the transition out of college. Perhaps this is a time where student might be feeling even larger amounts of stress and anxiety as they search to find employment, apply to graduate schools, and ultimately try to determine what they will do as they enter a life of with increased independence and responsibility.

Additionally, much of the research on risky sexual behavior distinguishes between the motivation behind engaging in risky sexual behavior for anxious and avoidant individuals. While anxious individuals are most often linked to risky sexual behavior with regards to the need for love, approval, and reassurance, researchers propose that avoidant individuals are more likely to engage in risky sexual behavior as a means of exerting power and will engage in more casual, short-term sexual encounters in order to avoid closeness in relationships (Brassard, Shaver, &

Lussier, 2007). Thus, future studies should further investigate motives for sexual behavior and how they related to risky sexual behavior manifest in anxious and avoidant individuals.

Finally, findings from the regression analyses indicated that peer attachment indirectly predicted greater intensity of heavy drinking and that difficulties with emotion regulation directly predicted greater intensity of heavy drinking. Because this is in contrast with my hypotheses as well as previous research, future studies should examine the influence that sociability might have on the relations between peer attachment and intensity of heavy drinking. Additionally, future studies also should examine the potential influence of social withdrawal in the relation between difficulties with emotion regulation and risky behavior.

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Table 1

Descriptive Statistics and Internal Consistency Reliabilities for Study Measures

	<i>M</i>	<i>SD</i>	α	%
Study Measure				
Parent attachment	102.23	16.41	.947	
Peer attachment	103.88	15.72	.954	
Difficulties in Emotion Regulation	75.13	19.32	.934	
Rosenberg self-esteem scale	33.45	4.88	.880	
Alcohol consequences	6.08	4.56	.847	
Any drug use				75.4
Drug use (Composite variable)	1.38	5.39		
Any risky sexual behavior				63.8
Risky sexual behavior (Composite variable)	4.17	5.34		
Intensity of heavy drinking	4.10	2.99		
Alcohol frequency	3.77	3.26		

Note. $N = 66$. Percentages are reported for dichotomous variables.

Table 2

Correlations among study variables

	Variable	1	2	3	4	5	6	7	8	9
1	Gender (Male=0, Female=1)	---								
2	Difficulties in emotion regulation	.07	----							
3	Self-esteem	-.06	-.73**	----						
4	Alcohol Frequency	-.19	-.17	.20	---					
5	Intensity of heaviest drinking episode	-.41**	-.20	.21	.63**	---				
6	Alcohol consequences	-.21	.17	-.11	.54**	.56**	---			
7	Drug use (Continuous measure)	-.28*	.21	-.17	.14	.22	.17	---		
8	Risky sexual behavior (Continuous measure)	-.22	-.05	.06	.34**	.43**	.28*	.43**	---	
9	Parent attachment	.12	-.47**	.34**	-.01	-.16	-.12	-.04	-.06	---
10	Peer attachment	.35**	-.39**	.34**	.08	.12	-.08	-.19	.03	.42**

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

Table 3a

*Standard Regression Analysis Predicting Difficulties in Emotion Regulation from Parent**Attachment*

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	R^2	<i>p</i>
(Constant)	131.79	13.14		10.03	<.001	.22	<.001
Parent Attachment	-.55	.13	-.47	-4.37	<.001		

Note. *N* = 68

Table 3b

*Multiple Regression Analysis Predicting Alcohol Consequences from Parent**Attachment, Gender, and Difficulties with Emotion Regulation*

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	R^2	<i>p</i>
(Constant)	6.49	5.42		1.20	.24	.08	.14
Parent Attachment	-.018	.038	-.064	-.47	.64		
Difficulties in Emotion Regulation	.037	.032	.16	1.14	.26		
Gender (Male=0, Female=1)	-2.01	1.17	-.21	-1.73	.089		

Note. *N* = 68

Table 3c

Standard Regression Analysis Predicting Difficulties in Emotion Regulation from Peer Attachment

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	R^2	<i>p</i>
(Constant)	125.26	14.72		8.51	<.001	.15	.001
Peer Attachment	-.48	.14	-.39	-3.43	.001		

Note. $N = 68$

Table 3d

Multiple Regression Analysis Predicting Alcohol Consequences from Peer Attachment, Gender, and Difficulties with Emotion Regulation

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	<i>R</i> ²	<i>p</i>
(Constant)	1.03	5.46		.19	.85	.092	.10
Peer Attachment	.029	.041	.10	.71	.48		
Difficulties in Emotion Regulation	.052	.031	.22	1.66	.10		
Gender (Male=0, Female=1)	-2.70	1.27	-.28	-2.13	.037		

Note. *N* = 68

Table 4a

Multiple Regression Analysis Predicting Intensity of Recent Heavy Drinking Episode from Parent Attachment, Gender, and Difficulties with Emotion Regulation

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	R^2	<i>p</i>
(Constant)	12.26	3.27		3.76	<.001	.22	.001
Parent Attachment	-.035	.023	-.19	-1.54	.13		
Difficulties in Emotion Regulation	-.040	.019	-.26	-2.06	.043		
Gender (Male=0, Female=1)	-2.32	.70	-.37	-3.31	.002		

Note. $N = 69$

Table 4b

Multiple Regression Analysis Predicting Intensity of Recent Heavy Drinking Episode from Peer Attachment, Gender, and Difficulties with Emotion Regulation

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	<i>R</i> ²	<i>p</i>
(Constant)	1.53	3.26		.47	.64	.26	<.001
Peer Attachment	.052	.025	.27	2.13	.037		
Difficulties in Emotion Regulation	-.009	.019	-.06	-.46	.64		
Gender (Male=0, Female=1)	-3.26	.76	-.51	-4.30	<.001		

Note. *N* = 69

Table 5a

*Logistic Regression Analysis Predicting Drug Use from Difficulties in Emotion**Regulation, Gender, and Parent Attachment*

	χ^2	<i>df</i>	<i>p</i>	<i>B</i>	<i>SE(B)</i>	Wald statistic	<i>df</i>	<i>p</i>	Exp(B), 95% CI
Overall Model	8.75	3	.03						
Predictors									
(Constant)				1.56	3.05	.26	1	.61	
Parent Attachment				-.01	.022	.21	1	.65	.99 (.95, 1.03)
Difficulties in emotion regulation				-.009	.019	.24	1	.63	.99 (.96, 1.03)
Gender (Males=0, Females=1)				-1.70	.63	7.33	1	.007	.18 (.054, .63)

Note. *N* = 64

Table 5b

*Logistic Regression Analysis Predicting Drug Use from Difficulties in Emotion**Regulation, Gender, and Peer Attachment*

	χ^2	<i>df</i>	<i>p</i>	<i>B</i>	<i>SE(B)</i>	Wald statistic	<i>df</i>	<i>p</i>	Exp(B), 95% CI
Overall Model	7.20	3	.066						
Predictors									
(Constant)				.16	3.37	.002	1	.96	
Peer Attachment				.00	.024	.00	1	.1.0	1.0 (.95, 1.05)
Difficulties in emotion regulation				-.005	.02	.058	1	.81	1.0 (.96, 1.04)
Gender (Males=0, Females=1)				-1.63	.69	5.66	1	.017	.20 (.05, .74)

Note. N = 64

Table 6a

Standard Regression Predicting Self-Esteem from Parent Attachment

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	<i>R</i> ²	<i>p</i>
(Constant)	23.08	3.68		6.27	<.001	.11	.006
Parent Attachment	.10	.035	.34	2.85	.006		

Note. *N* = 66

Table 6b

Logistic Regression Analysis Predicting Risky Sexual Behavior with Parent Attachment, Self-Esteem, and Gender as Predictors.

	χ^2	df	p	B	SE(B)	Wald statistic	df	p	Exp(B), 95% CI
Overall Model	.083	3	.99						
Predictors									
(Constant)				.74	2.16	.12	1	.73	
Parent Attachment				.003	.017	.039	1	.84	1.0 (.97, 1.04)
Self-Esteem				-.009	.058	.026	1	.87	.99 (.89, 1.11)
Gender (Males=0, Females=1)				-.12	.57	.051	1	.82	.88 (.22, 2.69)

Note. N = 66

Table 6c

Standard Regression Predicting Self-Esteem from Peer Attachment

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	<i>R</i> ²	<i>p</i>
(Constant)	22.24	3.93		5.67	<.001	.12	.005
Peer Attachment	.11	.037	.34	2.91	.005		

Note. *N* = 65

Table 6d

Logistic Regression Analysis Predicting Risky Sexual Behavior with Peer Attachment, Self-Esteem, and Gender as Predictors

	χ^2	df	p	B	SE(B)	Wald statistic	df	p	Exp(B), 95% CI
Overall Model	2.81	3	.42						
Predictors									
(Constant)				-1.06	2.21	.23	1	.63	
Peer Attachment				.035	.021	2.69	1	.10	1.04 (.99, 1.08)
Self-Esteem				-.044	.062	.51	1	.48	.96 (.85, 1.08)
Gender (Males=0, Females=1)				-.557	.67	.70	1	.40	.57 (.16, 2.11)

Note. N = 65

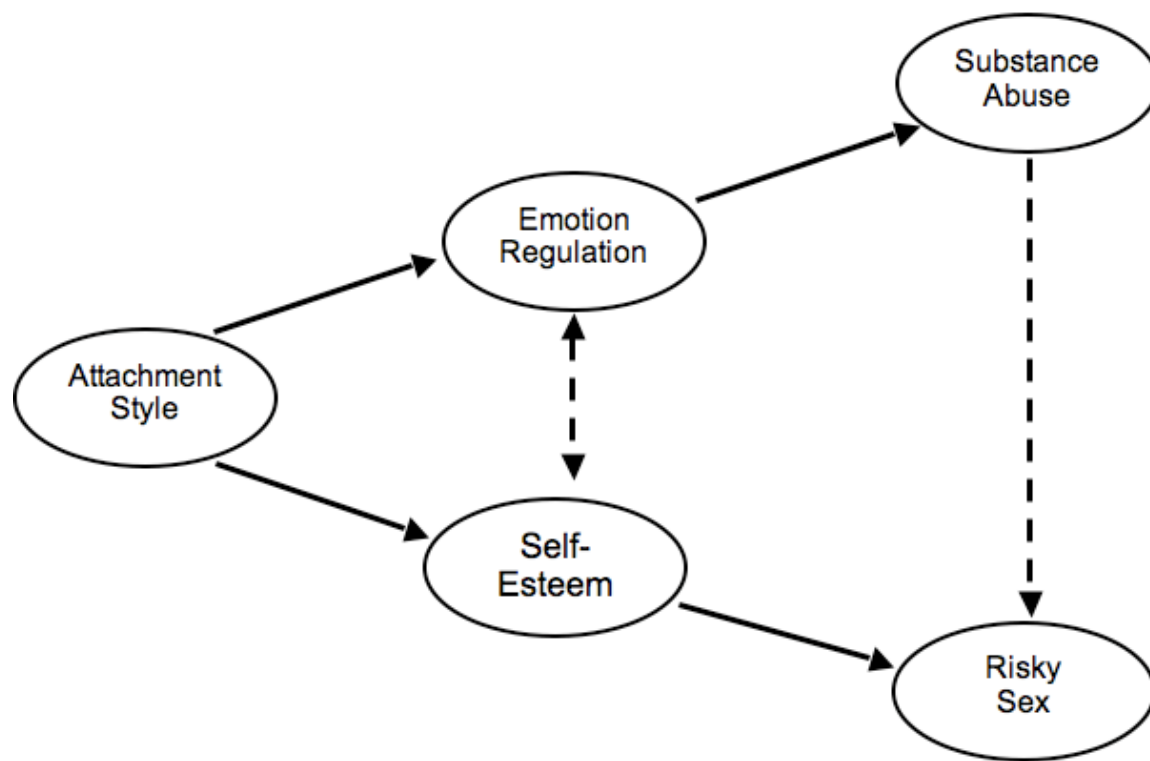


Figure 1. Proposed model of hypotheses

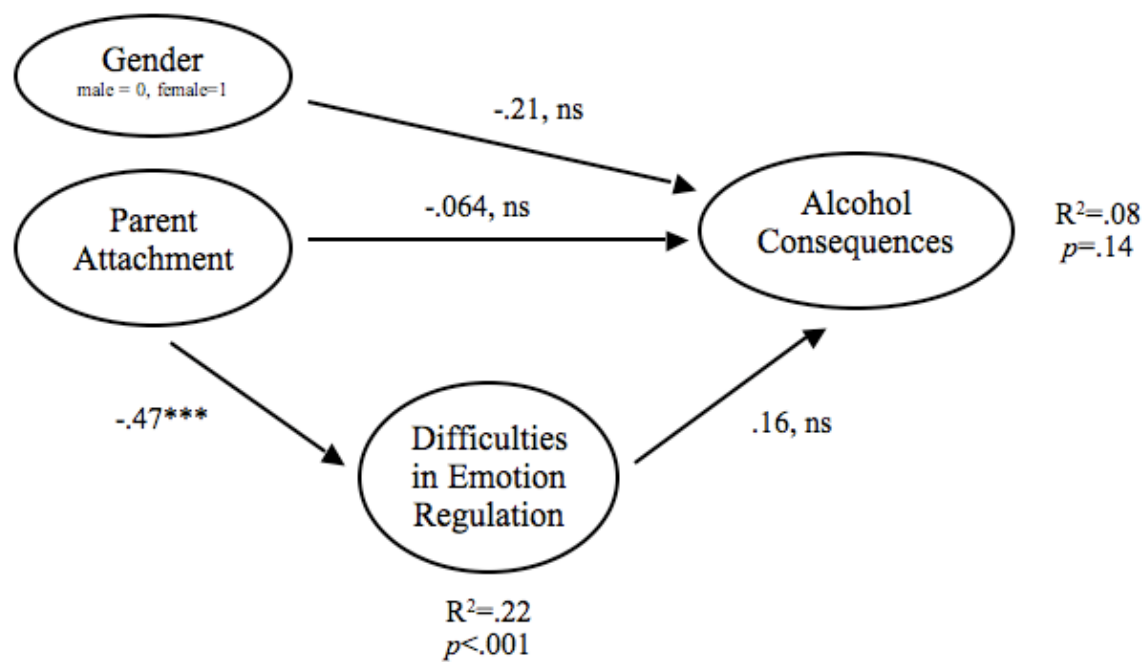


Figure 2. Regression analysis model with parent attachment, difficulties with emotion regulation, and gender predicting alcohol consequences.

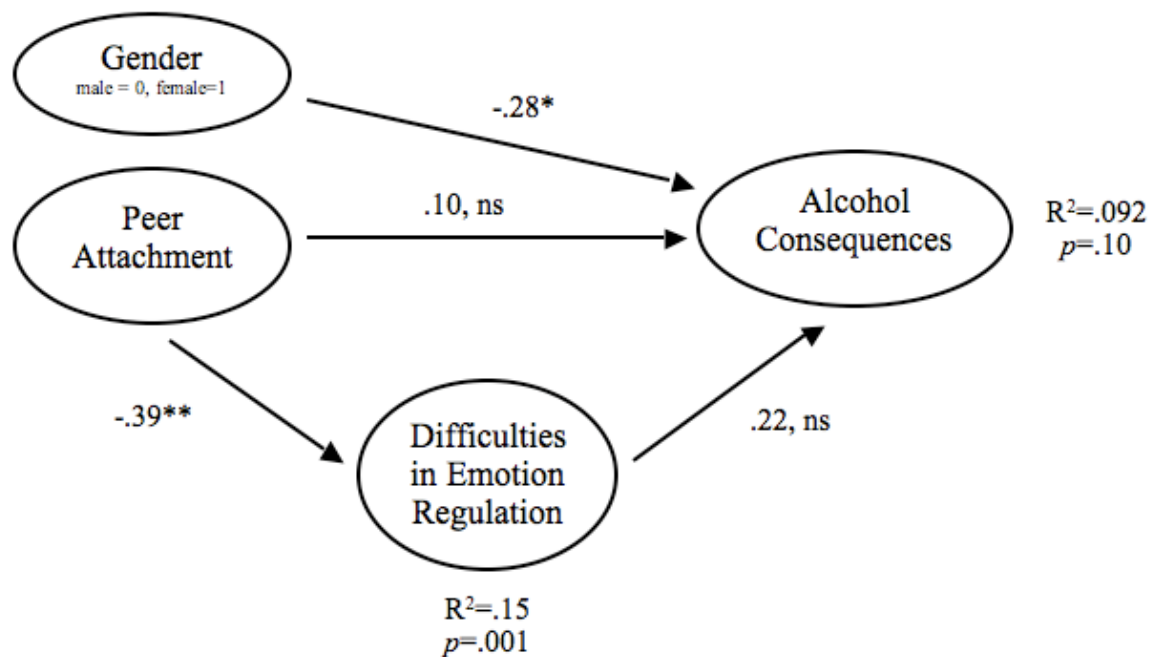


Figure 3. Regression analysis model with peer attachment, difficulties with emotion regulation, and gender predicting alcohol consequences.

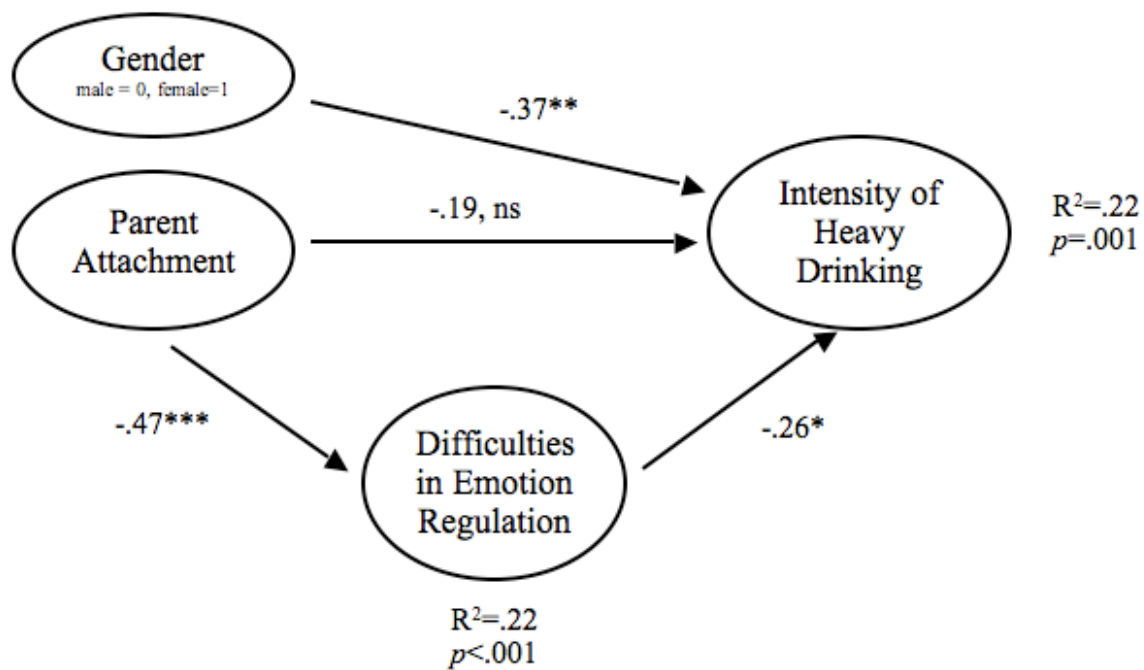


Figure 4. Indirect effect of difficulties with emotion regulation on the relation between parent attachment and intensity of heavy drinking.

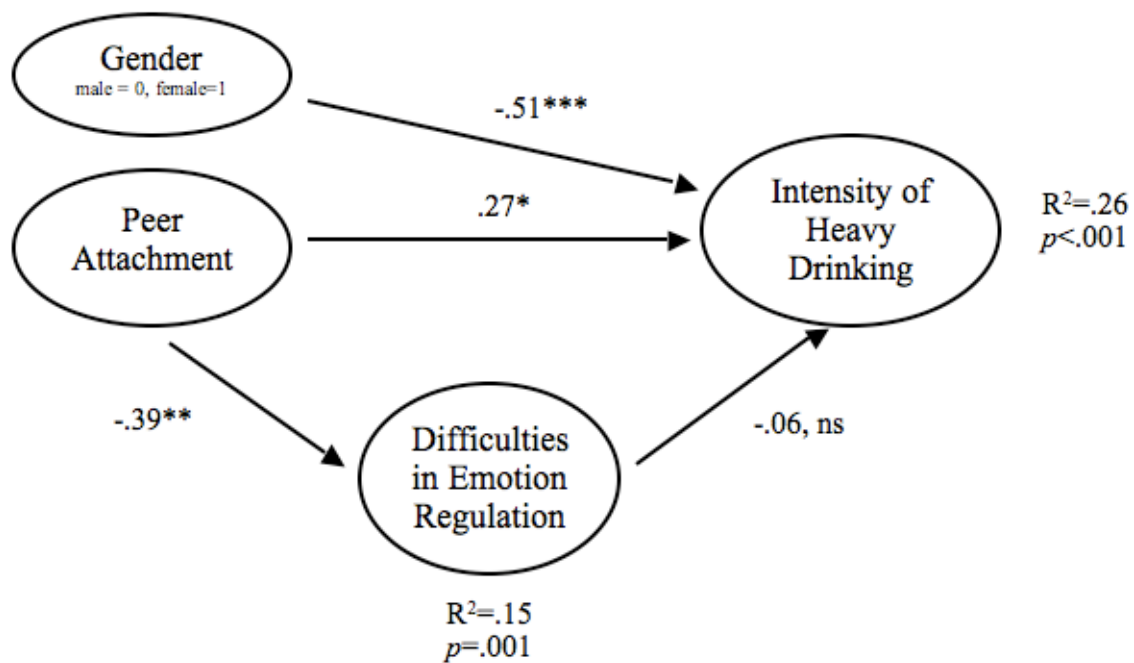


Figure 5. Regression analysis models with peer attachment, difficulties with emotion regulation, and gender predicting intensity of heavy drinking.

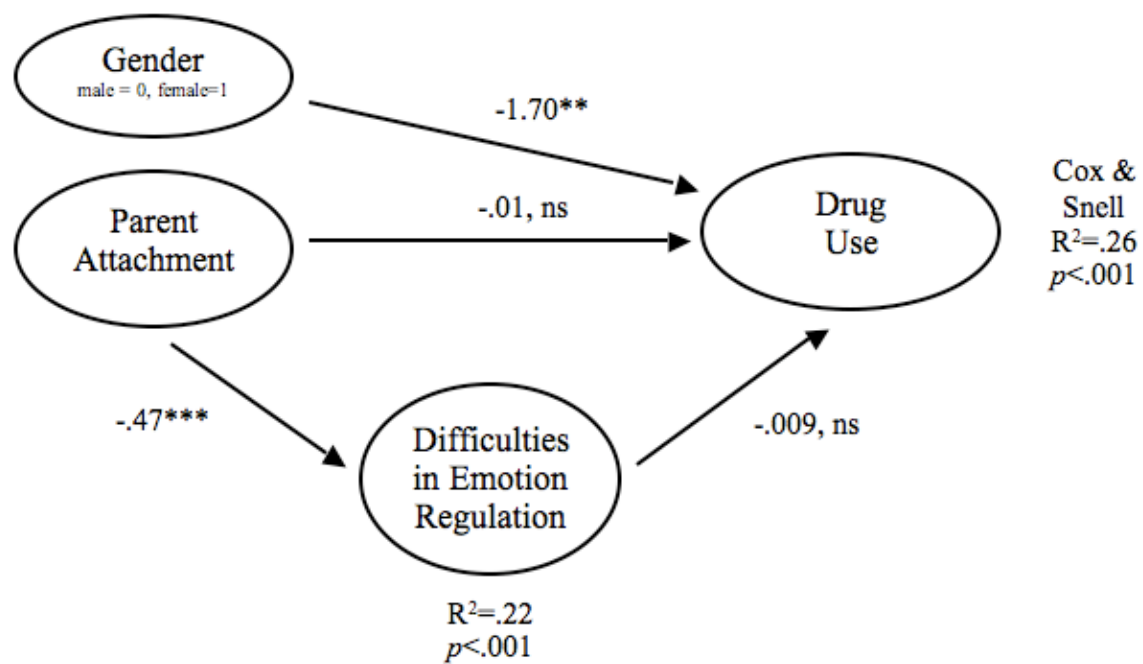


Figure 6. Model depicting both standard and logistic regression analyses with parent attachment, difficulties with emotion regulation, and gender predicting drug use.

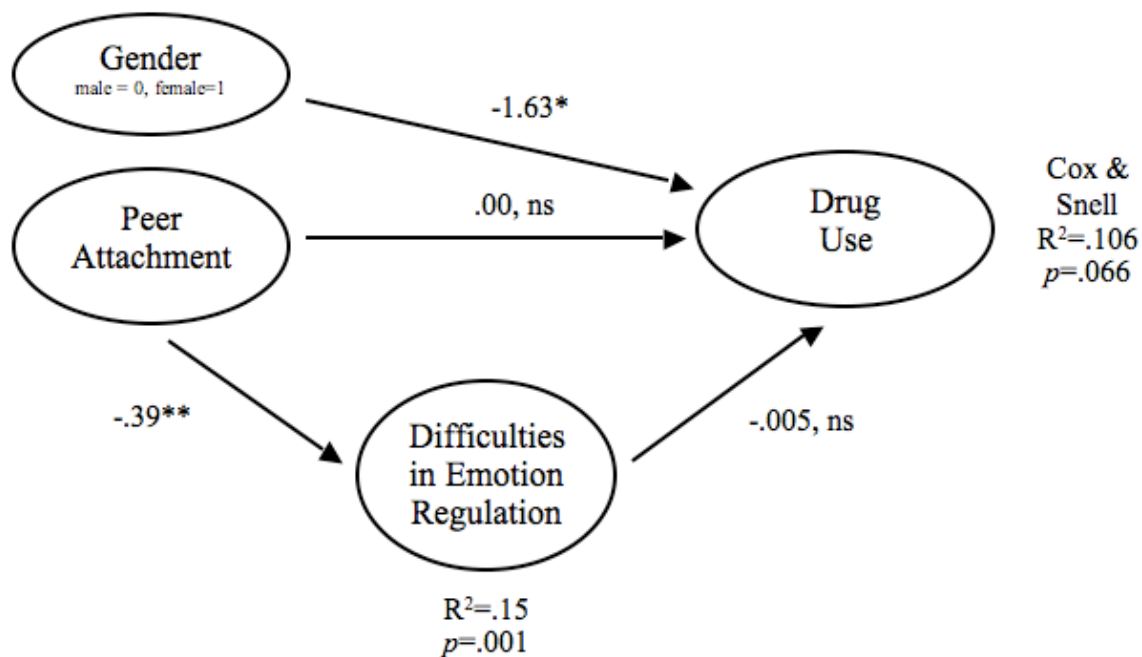


Figure 7. Model depicting both standard and multiple regression analyses with peer attachment, difficulties with emotion regulation, and gender predicting drug use.

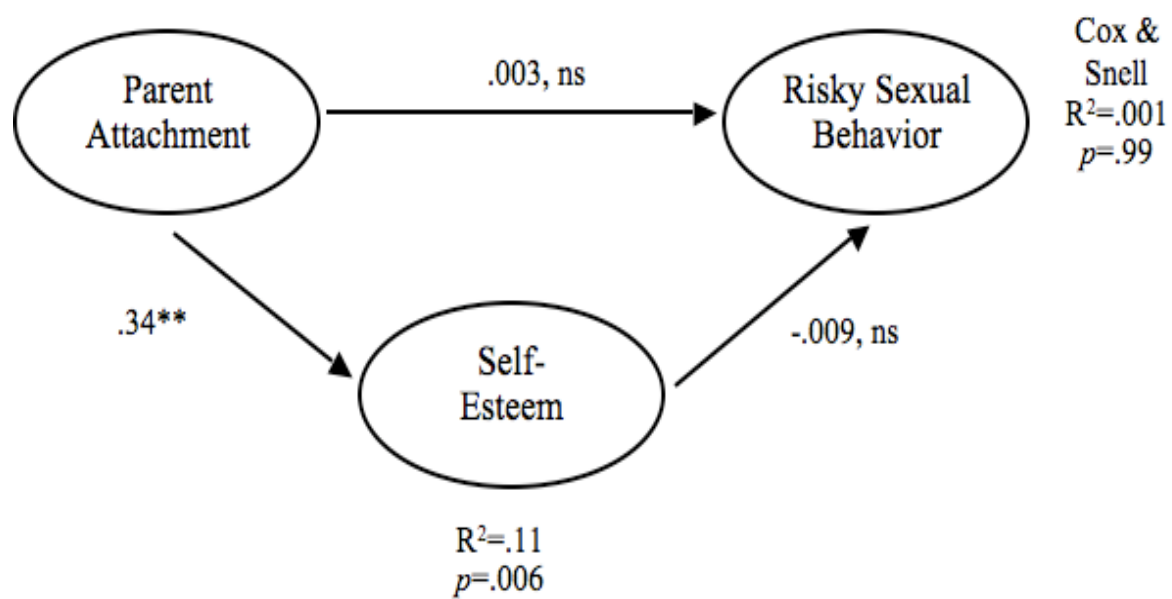


Figure 8. Model depicting both standard and logistic regression analyses with parent attachment and self-esteem predicting risky sexual behavior.

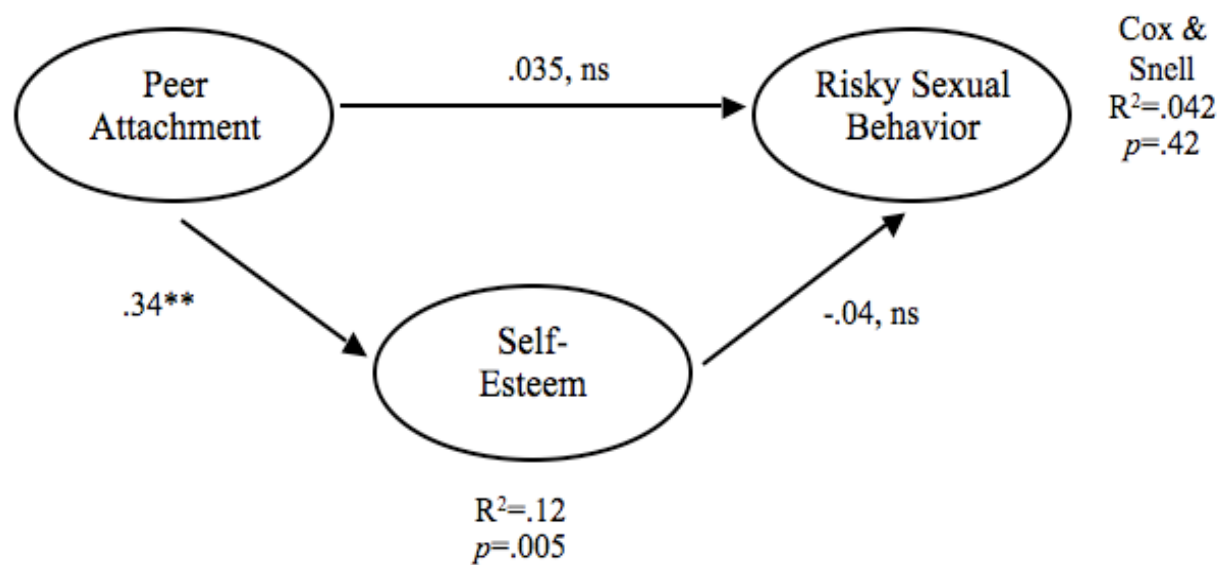


Figure 9. Model depicting both standard and logistic regression analyses with peer attachment and self-esteem predicting risky sexual behavior.

Appendix A

INVENTORY OF PARENT AND PEER ATTACHMENT

This part of the survey asks about your relationships with important people in your life. Please read the directions to both parts carefully.

The following statements ask about your feelings about the person who has served as your primary caretaker during your life. If more than one person served as your primary caretaker, (for example, your mother and father) answer the questions for **the one you feel has most influenced you**.

My primary caretaker has been my:

Mother
Father
Grandmother
Grandfather
Aunt
Uncle
Other (please describe)

Please read each statement and choose the ONE number that tells how true the statement is for you NOW.

Respondents indicate whether the following items are *almost always* or *always true*, *often true*, *sometimes true*, *seldom true*, or *almost never* or *never true*.

Parent Attachment Scale

1. My caretaker respect my feelings.
2. I feel my caretaker does a good job as my caretaker..
3. I wish I had different caretakers.
4. My caretakers accept me as I am.
5. I like to get my caretaker's point of view on things I'm concerned about.
7. I feel it's no use letting my feelings show.
8. My caretaker can tell when I'm upset about something..
9. Talking over my problems with my caretakers make me feel ashamed or foolish.
10. My caretakers expect too much from me.
11. I get upset easily around my caretaker.
12. I get upset a lot more than my caretakers know about.
13. When we discuss things, my caretaker cares about my point of view.
14. My caretakers trust my judgment.
15. My caretakers have their own problems, so I don't bother them with mine.
16. My caretakers help me to understand myself better.
17. I tell my caretakers about my problems and troubles.
18. I feel angry with my caretakers.

19. I don't get much attention from my caretaker.
20. My caretaker helps me talk about my difficulties.
21. My caretakers understand me.
23. When I am angry about something, my caretakers try to be understanding.
24. I trust my caretakers.
25. My caretakers don't understand what I'm going through these days.
26. I can count on my caretakers when I need to get something off my chest.
28. If my caretakers know something is bothering me, they ask me about it.

Peer Attachment Scale

29. I like to get my friends' point of view on things I'm concerned about.
30. My friends sense when I'm upset about something.
31. When we discuss things, my friends consider my point of view.
32. Talking over my problems with my friends makes me feel ashamed or foolish.
33. I wish I had different friends.
34. My friends understand me.
35. My friends encourage me to talk about my difficulties.
36. My friends accept me as I am.
37. I feel the need to be in touch with my friends more often.
38. My friends don't understand what I'm going through these days.
39. I feel alone or apart when I am with my friends.
40. My friends listen to what I have to say.
41. I feel my friends are good friends.
42. My friends are fairly easy to talk to.
43. When I am angry about something, my friends try to be understanding.
44. My friends help me to understand myself better.
45. My friends are concerned about my well-being.
46. I feel angry with my friends.
47. I can count on my friends when I need to get something off my chest.
48. I trust my friends.
49. My friends respect my feelings.
50. I get upset a lot more than my friends know about.
51. It seems as if my friends are irritated with me for no reason.
52. I tell my friends about my problems and troubles.
53. If my friends know something is bothering me, they ask me about it.

Appendix B

DIFFICULTIES IN EMOTION REGULATION SCALE

Following are questions about how you experience emotions and the ways in which your emotions are associated with your behavior.

Respondents indicate how often they experience each situation based on the following choices:

Almost never

Sometimes

About half the time

Most of the time

Almost always

1: Nonacceptance of Emotional Responses (NONACCEPTANCE)

- 29) When I'm upset, I feel guilty for feeling that way.
- 25) When I'm upset, I feel ashamed with myself for feeling that way.
- 15) When I'm upset, I become embarrassed for feeling that way.
- 14) When I'm upset, I become angry with myself for feeling that way.
- 33) When I'm upset, I become irritated with myself for feeling that way.
- 27) When I'm upset, I feel like I am weak.

2: Difficulties Engaging in Goal-Directed Behavior (GOALS)

- 30) When I'm upset, I have difficulty concentrating.
- 22) When I'm upset, I have difficulty focusing on other things.
- 16) When I'm upset, I have difficulty getting work done.
- 38) When I'm upset, I have difficulty thinking about anything else.
- 24) When I'm upset, I can still get things done. (r)

3: Impulse Control Difficulties (IMPULSE)

- 37) When I'm upset, I lose control over my behaviors.
- 31) When I'm upset, I have difficulty controlling my behaviors.
- 17) When I'm upset, I become out of control.
- 23) When I'm upset, I feel out of control.
- 4) I experience my emotions as overwhelming and out of control.
- 28) When I'm upset, I feel like I can remain in control of my behaviors. (r)

4: Lack of Emotional Awareness (AWARENESS)

- 7) I am attentive to my feelings. (r)
- 3) I pay attention to how I feel. (r)
- 12) When I'm upset, I acknowledge my emotions. (r)
- 21) When I'm upset, I believe that my feelings are valid and important. (r)

- 9) I care about what I am feeling. (r)
- 39) When I'm upset, I take time to figure out what I'm really feeling. (r)

5: Limited Access to Emotion Regulation Strategies (STRATEGIES)

- 20) When I'm upset, I believe that I'll end up feeling very depressed.
- 19) When I'm upset, I believe that I will remain that way for a long time.
- 35) When I'm upset, I believe that wallowing in it is all I can do.
- 40) When I'm upset, it takes me a long time to feel better.
- 32) When I'm upset, I believe that there is nothing I can do to make myself feel better.
- 26) When I'm upset, I know that I can find a way to eventually feel better. (r)
- 41) When I'm upset, my emotions feel overwhelming.
- 34) When I'm upset, I start to feel very bad about myself.

6: Lack of Emotional Clarity (CLARITY)

- 6) I have difficulty making sense out of my feelings.
- 5) I have no idea how I am feeling.
- 10) I am confused about how I feel.
- 8) I know exactly how I am feeling. (r)
- 1) I am clear about my feelings. (r)

Note. (r) = reverse-scored item.

Appendix C

FREQUENCY-QUANTITY QUESTIONNAIRE

1. Think of the occasion you drank the most this past month. How much did you drink?
 0. No drinks
 0. 1-2 drinks
 1. 3-4 drinks
 2. 5-6 drinks
 3. 7-8 drinks
 4. 9-10 drinks
 5. 11-12 drinks
 6. 13-14 drinks
 7. 15-16 drinks
 8. 17-18 drinks
 9. 19 or more
2. On a given weekend evening, how much alcohol do you typically drink? Estimate for the past month
 0. No drinks
 1. 1-2 drinks
 2. 3-4 drinks
 3. 5-6 drinks
 4. 7-8 drinks
 5. 9-10 drinks
 6. 11-12 drinks
 7. 13-14 drinks
 8. 15-16 drinks
 9. 17-18 drinks
 10. 19 or more
3. How often in the past month did you drink alcohol?
 0. I do not drink at all
 1. About once a month
 2. Two to three times a month
 3. Three to four times a month
 4. Nearly every day
 5. Once a day or more

Appendix D

THE BRIEF YOUNG ADULT ALCOHOL CONSEQUENCES QUESTIONNAIRE

Please indicate whether the following events have occurred in the PAST YEAR.
(yes/no)

1. While drinking, I have said or done embarrassing things.
2. I have had a hangover (headache, sick stomach) the morning after I had been drinking.
3. I have felt very sick to my stomach or thrown up after drinking.
4. I often have ended up drinking on nights when I had planned not to drink.
5. I have taken foolish risks when I have been drinking.
6. I have passed out from drinking.
7. I have found that I needed larger amounts of alcohol to feel any effect, or that I could no longer get high or drunk on the amount that used to get me high or drunk.
8. When drinking, I have done impulsive things I regretted later.
8. I've not been able to remember large stretches of time while drinking heavily.
10. I have driven a car when I knew I had too much to drink to drive safely.
11. I have not gone to work or missed classes at school because of drinking, a hangover, or illness caused by drinking.
12. My drinking has gotten me into sexual situations I later regretted.
13. I have often found it difficult to limit how much I drink.
14. I have become very rude, obnoxious, or insulting after drinking.
15. I have woken up in an unexpected place after heavy drinking.
16. I have felt badly about myself because of my drinking.
17. I have had less energy or felt tired because of my drinking.
18. The quality of my work or school work has suffered because of my drinking.
19. I have spent too much time drinking.
20. I have neglected my obligations to family, work, or school because of drinking.
21. My drinking has created problems between myself and my boyfriend/girlfriend/spouse, parents, or other near relatives.
22. I have been overweight because of drinking.
23. My physical appearance has been harmed by my drinking
24. I have felt like I needed a drink after I'd gotten up (that is, before breakfast).

Appendix E

BARCS DRUG USE ITEMS

The following questions concern your drug use in the PAST MONTH.

For each question, respondents indicate how many times they have used based on the following response choices:

- 0.) *Did not use in the past month*
 - 1.) *1-2 times in the past month*
 - 2.) *3-5 times in the past month*
 - 3.) *6-9 times in the past month*
 - 4.) *10-19 times in the past month*
 - 5.) *20 or more times in the past month*
-
- 1. Marijuana or hashish
 - 2. Cocaine (crack, “speedball”)
 - 3. LSD
 - 4. Other Hallucinogens
 - 5. Crystal Meth
 - 6. Heroin
 - 7. Opium
 - 8. Inhalants
 - 9. Ecstasy
 - 10. PCP
 - 11. GHB
 - 12. Sleeping medications (not prescribed to you)
 - 13. Sedative/anxiety medication (not prescribed to you)
 - 14. Stimulant medication (not prescribed to you)
 - 15. Steroids
 - 16. Pain medicine

Appendix F

SEXUAL BEHAVIOR ITEMS

1. Have you ever had sexual intercourse?
 - a. Yes
 - b. No
2. How old were you when you had sexual intercourse for the first time?
3. Since beginning college, how many people have you had sexual intercourse with?
 - a. I have had sexual intercourse, but not since entering college
 - b. 1 person
 - c. 2 people
 - d. 3 people
 - e. 4 people
 - f. 5 people
 - g. 6 or more people
4. How many times have you had vaginal intercourse without a condom?
 - a. I have had sexual intercourse, but not since entering college
 - b. 1 person
 - c. 2 people
 - d. 3 people
 - e. 4 people
 - f. 5 people
 - g. 6 or more people
5. How many times have you had vaginal intercourse without protection against pregnancy?
 - a. I have had sexual intercourse, but not since entering college
 - b. 1 person
 - c. 2 people
 - d. 3 people
 - e. 4 people
 - f. 5 people
 - g. 6 or more people
6. How many times have you had sex with someone you don't know well or just met? "Sex" includes oral, anal, and vaginal sex.
 - a. I have had sexual intercourse, but not since entering college
 - b. 1 person
 - c. 2 people
 - d. 3 people
 - e. 4 people
 - f. 5 people
 - g. 6 or more people
7. Have you ever been pregnant or had a partner pregnant?
 - a. Yes
 - b. No
 - c. Don't Know
 - d. I've been pregnant or had a partner pregnant, but not since coming to college

8. Since entering college, have you been told by a doctor that you have one or more of the following: (please insert “yes/no” check boxes next to each item)

- a. Gonorrhea
- b. Syphilis
- c. Herpes
- d. Chlamydia
- e. Genital warts
- f. Human Papilloma Virus (HPV)
- g. Hepatitis
- h. AIDS
- i. HIV
- j. Other

Appendix G

ROSENBERG SELF-ESTEEM SCALE

Below is a list of statements dealing with your general feelings about yourself.

Respondents indicate the degree to which they agree with each statement.

Strongly agree

Agree

Disagree

Strongly disagree

1. On the whole, I am satisfied with myself.
2. At times, I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I certainly feel useless at times.
7. I feel that I'm a person of worth, at least on an equal plane with others.
8. I wish I could have more respect for myself.
9. All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude toward myself.

Appendix H

INFORMED CONSENT

As a first-year student at Trinity, you are invited to participate in a voluntary study examining your relationship style with parents and friends, your emotions and self-concept, your substance use, and your sexual behavior. This study is being conducted by Jamie Callahan, a senior psychology major at Trinity College. A random sample of students who participated in Dr. Laura Holt's "Freshman Fifteen" study is being offered the opportunity to participate. [First-year students enrolled in Psychology 101 are being offered the opportunity to participate].

PROCEDURES

If you participate in this study, you will be asked to complete an online survey via a secure college server, including questions about your ability to regulate emotions, your self-concept, and the frequency and degree to which you use substances and engage in certain sexual behaviors. If there are any questions that you would feel more comfortable not answering, you may skip the question(s). If at any time you would like to withdraw from this study, you may do so by simply closing your web browser.

RISKS/BENEFITS

Because this survey will ask you about your emotions and behaviors involving [your relationships with parents and friends] alcohol use, drug use, sexual behavior, and sexual history, it is possible that you could experience some discomfort when answering some of the questions. If you are a very private person, some of the questions may feel personal. Remember, you may refuse to answer any question or discontinue participation at any time with no risk. If you have specific questions or concerns about your behavior, you are encouraged to contact Trinity's Counseling Center at 860.297.2415 or Trinity Women's Center at 860.297.2408.

By participating in this study, you will help to advance the research on the relationship between parent/friend relationships and behaviors that are commonly seen in first-year students. In addition, participation in this study could allow for self-reflection that might not occur otherwise. If you complete this survey, you will be entered into a drawing for one of four restaurant gift certificates to First and Last or the Sidewalk Cafe, to be conducted in March 2011.

If you are enrolled in a psychology course with a research participation requirement, it is possible that your participation in this survey may be counted towards that requirement. Ask your instructor whether credit for research participation is warranted. If you hope to count your study participation towards your research requirement, you are strongly encouraged to print out, or take a screenshot of the last page (which will not contain any of your responses) as evidence of your participation.

CONFIDENTIALITY

This online survey is hosted on a secure college website, meaning that the information is encrypted as it is entered and, thus, is not likely to be accessible to a third party. The information will be downloaded and maintained on a secure password protected college server in a secure location. This study will link survey responses with some data from the Freshman Fifteen and Freshman Five surveys. The data that you provide is confidential and will be coded by participant number rather than by name. Data will be stored in a secure location and at no time will the researchers (Jamie Callahan, student, and Laura Holt, Ph.D.) be able to link your data with your identity. If the results of this research are published in a scholarly publication and/or reported in a scientific presentation, the identity of all participants will be fully confidential. You will only be contacted by the researchers (via e-mail) if you win one of the drawing prizes.

QUESTIONS/CONCERNS

If you have any questions or concerns, please contact the Principal Investigator, Jamie Callahan, at Jamie.Callahan@trincoll.edu or 603-512-5415. If you would like to receive feedback about the study results, please contact the Principal Investigator after May 13th, 2011. We will provide group results only, not individualized results.

This study has been approved by the Institutional Review Board at Trinity College. If you have questions about your rights as a research participant, or further questions about the study, please feel free to contact the chair of Institutional Review Board, James Hughes, Ph.D. (James.Hughes@trincoll.edu, 860-297-2376).

PARTICIPANT AGREEMENT (they must choose the first option below in order to get to the first page of questions)

I understand the intent and purpose of this research and AGREE to participate

I do NOT AGREE to participation in this study

Appendix I

INFORMED CONSENT FOR PSYCHOLOGY 101 STUDENTS

As a first-year student at Trinity, you are invited to participate in a voluntary study examining your relationship style with parents and friends, your emotions and self-concept, your substance use, and your sexual behavior. This study is being conducted by Jamie Callahan, a senior psychology major at Trinity College. First-year students enrolled in Psychology 101 who did not participate in the Freshman Fifteen survey in Sept. 2010 are being offered the opportunity to participate.

PROCEDURES

If you participate in this study, you will be asked to complete an online survey via a secure college server, including questions about your relationships with parents and friends, how you regulate your emotions, your self-concept, and the frequency and degree to which you use substances and engage in certain sexual behaviors. If there are any questions that you would feel more comfortable not answering, you may skip the question(s). If at any time you would like to withdraw from this study, you may do so by simply closing your web browser.

RISKS/BENEFITS

Because this survey will ask you about your emotions and behaviors involving your relationships with parents and friends, alcohol use, drug use, sexual behavior, and sexual history, it is possible that you could experience some discomfort when answering some of the questions. If you are a very private person, some of the questions may feel personal. Remember, you may refuse to answer any question or discontinue participation at any time with no risk. If you have specific questions or concerns about your behavior, you are encouraged to contact Trinity's Counseling Center at 860.297.2415 or Trinity Women's Center at 860.297.2408.

By participating in this study, you will help to advance the research on the relationship between parent/friend relationships and behaviors that are commonly seen in first-year students. In addition, participation in this study could allow for self-reflection that might not occur otherwise. If you complete this survey, it may count towards your research participation requirement for Psychology 101. Be sure to confirm with your professor that this is the case.

CONFIDENTIALITY

This online survey is maintained on a secure password protected college server in a secure location. The data that you provide is confidential and will be coded by participant number rather than by name. Data will be stored in a secure location and at no time will the researchers (Jamie Callahan, student, and Laura Holt, Ph.D.) be able to link your data with your identity. If the results of this research are published in a scholarly publication and/or reported in a

scientific presentation, the identity of all participants will be fully confidential. Your Psychology 101 instructor will simply be informed as to whether you completed the survey or not.

QUESTIONS/CONCERNS

If you have any questions or concerns, please contact the Principal Investigator, Jamie Callahan, at Jamie.Callahan@trincoll.edu or 603-512-5415. If you would like to receive feedback about the study results, please contact the Principal Investigator after May 13th, 2011. We will provide group results only, not individualized results.

This study has been approved by the Institutional Review Board at Trinity College. If you have questions about your rights as a research participant, or further questions about the study, please feel free to contact the chair of Institutional Review Board, James Hughes, Ph.D. (James.Hughes@trincoll.edu, 860-297-2376).

PARTICIPANT AGREEMENT (they must choose the first option below in order to get to the first page of questions)

I understand the intent and purpose of this research and AGREE to participate

I do NOT AGREE to participation in this study