# THE IMPACT OF ATTACHMENT ON SEXUAL RISK TAKING, ATTITUDES AND TRAUMA IN ADOLESCENCE: A STUDY OF NEW YORK INNER CITY YOUTH

by

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A Dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy.
City College of New York, City University of New York

2012

This manuscript has been read and accepted for the
Graduate Faculty in Clinical Psychology in satisfaction of the
dissertation requirement for the degree of Doctor of Philosophy.

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## Abstract

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by
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The present study examines how attachment impacts sexual behavior, attitudes and sexual risk taking among Latino American and African American adolescents on the Lower East Side of New York City. This population was chosen because inner city teens are at particular risk of HIV/STD infection and because past research suggests a high prevalence of sexual risk among inner city youth. The current study is a secondary analysis of an established study at the Hunter College Center for Urban and Community Health investigating adolescent sexual risk in the context of HIV/AIDS. Participants in this study were 120 Latino and African American adolescent residents of the Lower East Side of Manhattan who completed questions about their sexual and risk taking behavior and knowledge of STDs using a computer-administered battery.

The overall purpose of this study is to examine the relationships between these high-risk adolescents' sexual behavior in the context of their attachment organization, sexual attitudes and values, and risk behavior. The study predicted that the way a teenager feels comfortable being intimate with others in the world would have an impact of how he perceives himself as a sexual being.

The goal of this study of adolescent sexual behavior using an inner city multi-racial sample was to examine the extent to which insecure attachment and trauma were predictive of

sexual risk taking. Investigators accomplished this by examining key variables that were hypothesized to play a role in sexual risk taking behavior. Study results provided some support for the hypotheses and revealed several valuable findings. Results revealed that attachment insecurity was significantly related to sexual risk behavior. Moreover, it was determined that adolescents with higher avoidant attachment were more likely to have had sex and engaged in sexual risk behavior. Adolescents with high attachment anxiety were also more likely to participate in risky sexual behavior. The relationship between attachment organization and these risk behaviors were in part but not significantly mediated by PTSD symptoms. These findings are discussed in relations to implications for understanding attachment in adolescent non-white samples as well as public health and clinical practices for adolescents in urban settings.

## Acknowledgements

I am incredibly indebted to the entire City College of New York clinical psychology doctoral program including professors, adjunct supervisors, fellow graduate students and clinic staff for their invaluable contributions to my education and training over the past six years. I will forever be proud to have trained at City and to have then taken my training to Cambridge, MA and Cambridge Hospital.

This dissertation would not have been possible without Dr. Beatrice J. Krauss, her research at the Hunter College Center for Community and Urban Health and the teens that bravely participated in her study. Without these teen's candor and vulnerable testimonials, my dissertation would not have been possible. I am also forever indebted to Dr. Krauss' mentorship, unwavering belief in me, and generous training from 2003-2006. It was Dr. Krauss who first gave me the opportunity to conduct a semi-structured interview- clinical and research skills that I have used as the platform of my clinical interviewing skills to this day. Working with Dr. Krauss was also my first introduction to CUNY, an institution I have been proud to call home for the better part of a decade.

I would also like to thank Dr. Denise Hien for her mentorship and supervision of this dissertation over the past two and a half years. Without her quiet support and structure, I would have never finished this project so quickly. I would also like to thank my statistical consultant, Dr. Sarai Batchelder. She gave me the assistance and guidance I needed to turn this dataset into a dissertation.

I would like to express my deep gratitude to certain professors and supervisors that have inspired this dissertation. First, I want to thank Dr. Diana Diamond. It was her work in attachment and sexuality and our clinical conversations over a two-year supervision that lead me

to this dissertation project. I would also like thank professors whose teaching of psychoanalytic theory and practice has gave me the foundation that my professional career will stand on: Drs. Steve Tuber, Elliot Jurist, Paul Wachtel, Robert Grossmark and Mary Kim Brewster. My time at City would have not been compete without the supervision of Dr. Monica Creelman and Dr. Diana Punales both of whom believed in me as a clinician before I did. Additionally, I would also like to thank Dr. Karlen Lyons-Ruth at Cambridge Hospital for her guidance around my dissertation and her own leadership in the research area of attachment. Finally, I would like to thank Dr. Lissa Weinstein for not only being a reader on this dissertation, but a guide throughout my graduate training at City. I would also like to extend a special thank you to my colleagues and dear friends Neta Tal and Zoe Berko who filled these past six years with laughter and connection and through the developmental milestones along the way: babies, marriages, moves to and from Brooklyn, internship, dissertation and every part of life in between.

And last but most importantly, I need to thank my parents, Ralph and Miriam Freidin, my brother, Jesse Freidin, and especially my partner, Suzanne Bonfiglio Baumann, who tolerated, embraced and supported me through the many developmental milestones over the last six years of my graduate training. I dedicate this dissertation to them.

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## Introduction

As part of the course of normal adolescent development, the onset of puberty brings sexuality into the forefront of teen's consciousness. In a nationally representative study of sexually active adolescents ages 12-21, 70-85% reported having engaged in a casual sexual experience within the last year (Grello, Welsh, Harper, & Dickson, 2003). Motivated by a biological need for both physical gratification and emotional intimacy, adolescents are drawn towards experimenting with sexual behavior both within the context of an ongoing romantic relationship as well as in casual sexual encounters (Garcia & Rieber, 2009; Manning, Giordano & Longmore, 2006). These experiences seem to help teens fulfill budding needs for partner intimacy (Garcia & Rieber, 2009). However, many teens are sexually active often before being ready to make healthy choices about this behavior thus putting them at risk for both experiencing, promoting relational aggression and for contraction of sexually transmitted disease.

To better understand the public health implications of adolescent sexual behavior, it is important to investigate those underlying factors that lead certain behaviors in adolescents toward greater risk (Savin-Williams, 2004). Indeed, public health implications can be improved by further investigating not only the risk involved in the sexual act, but the motivational and relational aspects of teenage sexual behavior. A good relationship with one's caregivers that builds trust and communication can be a protective factor against STIs and other high-risk sexual behaviors in teens (DiClemente et al., 2001; Crosby et al., 2003), providing the foundation for later healthy attachments. One way to conceptualize adolescent sexual behavior as a relational experience is through the lens of attachment theory.

Attachment theory, originally posited by Bowlby (1973) and operationalized by Ainsworth, Blehar, Waters & Wall (1978), examined psychological processes in children in relation to caregivers and safety. In 1987, Hazan and Shaver proposed that attachment theory be extended to the realm of adolescent and adult romantic and sexual relationships. Research has shown that attachment style in adults has been linked to many aspects of romantic relationships, sexuality and sexual behavior patterns. Overall, secure adults show more positive relationship outcomes while insecure adults tend to report more negative and more maladaptive relationship outcomes (Gentzler & Kerns, 2004). Securely attached adults have been found to have long, stable relationships characterized by trust, friendship, and positive emotions (Collins & Read, 1990; Hazan & Shaver, 1987) as well as experience more positive affect and satisfaction in relationships (Hazan & Shaver, 1987). Avoidant adults tend to be relatively uninterested in romantic relationships (Shaver & Brennan, 1992) and end relationships more often (Hazan & Shaver, 1987; Kirkpatrick & Davis, 1994; Shaver & Brennan, 1992). Anxious adults have been found to be over-invested in romantic partners and suffer from jealousy (Collins, 1996; Hazan & Shaver, 1987).

Attachment has been shown to affect the ways that sexual behavior and intimacy are experienced and enjoyed. Secure attachment has been related to enjoyment of a variety of sexual activities, including mutual initiation of sexual activity and enjoyment of physical contact, usually in the context of a long-term relationship (Hazan, Zeifman, and Middleton, 1994). Securely attached adults have been found to report fewer "one night stands" than insecure adults (Cooper, Shaver & Collins, 1998). Avoidant individuals also report being more likely to have sex with a stranger than their securely attached peers (Cooper, Shaver, Collins, 1998) though they show less self-confidence in sexual relationships and difficulty communicating about sexual

behaviors, protection and contraception with partners (Feeney, Peterson, Gallios & Terry, 2000). Avoidant adults tend to either shy away from sexual activity or seek it in situations with reduced intimacy or emotion (Brennan & Shaver, 1995; Gentzler & Kerns, 2004). Feeney, Noller, & Patty (1993) found that avoidance was positively associated in adulthood with more accepting attitudes toward casual sex.

Most studies on attachment and sexual behavior have focused on adult samples; adolescent sexual behavior in the context of attachment has been much less explored. Tracy, Shaver, Albino and Cooper (2003) found that avoidantly attached adolescents had fewer sexual experiences while anxiously attached female adolescents reported more sexual experiences and securely attached male adolescents had the most experiences. Anxious adolescents were more likely to report having sex for fear of rejection (Tracy, et al., 2003) and are influenced by peer pressure in sexual situations (Cooper, Shaver, Collins, 1998). Avoidantly attached college students were found more likely to report not yet having had sexual intercourse or having sexual intercourse before the age of 15 than their securely and anxiously attached peers (Gentzler & Kerns, 2004).

Further, of the studies on attachment and sex in younger samples, studies have to date focused on college-bound older adolescents (Gentzler & Kerns, 2004; Tracy, Shaver & Cooper, 2003). Because of the developmental milestones, change and growth throughout this critical decade, there is a need to examine sexual behavior and attachment in samples of early and middle adolescents.

The current project aims to build upon previous studies in adolescent attachment and sexual behavior in a younger sample of inner city non-white teens. Examining this phenomenon in an inner city population with high exposure to STIs and HIV hopes to be a contribution to the body of research on attachment with implications for public health. This is especially important

in the Lower East Side of Manhattan: a geographic location where STI and HIV prevalence is one of the highest in the country. Findings might point to specific interventions for mental health providers when reaching out to inner city youth in at a vulnerable time in their development. Because this is a community highly exposed to not only HIV but also community violence, secondary analyses will examine the adolescent's experiences of PTSD symptoms to assess whether this has an impact on both attachment (Mikulincer, Hoersch, Eilati & Kolter, 1999) and sexual behavior. Given the public health needs of this population, the purpose of this research is to determine if there is a relationship between attachment, sexual behavior, attitudes toward sexual relationships and risk taking in a sample of African American and Latino American adolescents living in the lower east side of Manhattan.

The purpose of this research is to examine how attachment impacts sexual behavior and risk in inner city adolescents. In the literature review, the investigator will begin with the examination of sexual risk in adolescence, specifically STD/HIV risk and teen dating violence. Developmental theory of adolescent intimacy is then discussed to provide a platform from which to compare risk-taking behaviors of adolescents and other age groups. The second section examines basic attachment theory, and how it affects the specific sampled being studied. Theory of adolescent attachment and attachment with Latino and African American family systems are examined. The final section addresses the dynamic theory and research on attachment and sexuality, starting with the large body of literature on attachment and adult sexuality and moving into the lesser-examined arena of attachment and adolescent sexuality.

**Adolescent Sexual Risk**

Though sexual desire and behavior is an important part of normal adolescent development, sexual peer interactions put teens at risk for sexually transmitted diseases,

pregnancy and unwanted sexual experiences. Many teens begin to experiment with sexual behavior by middle adolescence: studies have found over 50 percent of teenage subjects reported having had a sexual encounter by age 17 (Warren et al., 1997; Manning, Giordano & Longmore, 2006). To better understand the public health implications of adolescent sexual behavior, it is important to investigate those underlying factors that lead certain behaviors in adolescents toward greater risk (Savin-Williams, 2004). Cases of sexually transmitted infections, including HIV, have been found to be the most frequently reported new diseases in the United States (Centers for Disease Control, 2007). Young people and adolescents are one of the age groups to be at the highest risk of contracting an STI. Indeed, 50% of HIV infections occur in people under 25 years old, and sexual contact is the most common way young people transmit the disease (CDC, 2000). Data shows that 16% of reported AIDS cases originated from HIV contracted during the ages of 10 to 19 years of age (Centers for Disease Control, 2007).

Sexual risk has found to be greater for inner city youth of color. Indeed, research has shown that African Americans initiate sexual intercourse at younger ages and report more sexual partners than their Caucasian peers (Centers for Disease Control and Prevention, 2003). Studies have indicated that rates of STI/HIV are highest among African American women not because of prevalence of high-risk sexual behavior but because of high seroprevelence of HIV in the population increasing the probability that any sexual act will include transmission (Aral et al., 2008; Halfors et al., 2007). Research indicating prevalence of sexual risk with certain race/ethnicities can be confounded with socio/economic factors (DiClemente et al., 2008). Socio-economic factors such as poor social and medical services in low income neighborhoods, family stressors related to low socio/economic status and stressful living environments with violence, poverty and poor monitoring can lead to increased sexual risk (DiClemente et al., 2008;

Aral et al., 2008; Small & Luster, 1994). Additionally, "residential segregation by race" in the United States increases the chance that in a high-risk neighborhood, adolescents have an increased chance of contacting the disease even if they do not engage in high risk sexual behaviors due to probability of coming into contact with sexually transmitted diseases (Aral et al., 2008).

Individual mental health factors affect adolescents' risk for contracting a sexually transmitted disease. Characteristics such as low self esteem (DiClemente et al., 2008); depression (Shrier et al., 2002), history of sexual abuse (Small & Luster, 1994); and lack of hope for the future (Small & Luster, 1994) have been predicted to put adolescents at greater risk for contracting STIs and HIV. Indeed, sexual activity and risk taking behavior has been seen as a coping mechanism or diversion against depressed affect (Shrier et al., 2002). Similarly, significant psychological distress was linked to high-risk sexual behaviors and higher risk of STIs and HIV, as well as increased sexual activity with non-monogamous partners (DiClemente et al., 2001).

Also included under the umbrella of sexual risk is physical safety. Indeed, sexual peer interactions can put teens at risk for violence and coercion. Rates of dating violence among adolescent girls in the United States have been found to be between 9-39% with higher rates found among Black female adolescents (Wingood et al., 2001; Foshee, 1996). For example, Wingood et al. (2001) found 18.4% of African American adolescent females reported a history of dating violence. Further, higher rates of sexual violence have been found among girls from urban settings compared to suburb and rural settings (Silverman, Raj & Clements, 2004). Public health implications can be improved by better understanding not only the risk involved in the sexual act, but the motivational and relational aspect of teenage sexual behavior.

On the other hand, family support and connection has been shown to be a buffer against adolescent sexual risk. Communication and closeness between teens and caregivers has been shown to reduce sexual risk while infrequent parental monitoring has been linked to increased risk (DiClemente et al., 2001; Li et al., 2000; Crosby et al., 2003). In addition, teens' comfort with partners when in sexually active relationships affects sexual risk (DiClemente et al., 2008, Crosby et al., 2003). Indeed, often adolescents learn how to make positive decisions about peer intimacy and sex from positive early experiences with safe caregivers, usually with family.

**Adolescent Intimacy**

The present study grows from a line of public health research that historically focuses solely on risk and risk management (Savin-Williams, 2004). However, healthy development must not be overlooked, especially in a study that aims to integrate the relational and dynamic aspects of adolescent behavior. It is important to examine how teens enter a developmental stage in life where they desire closeness with peers, both sexual and otherwise. Thus, to better understand how to address the needs of adolescents who are sexually active, it is first essential to examine the theories and research that bear upon healthy adolescent intimacy.

Contemporary researchers have found that intimacy during adolescence to have positive effects on mental health and social functioning (Buhrmester, 1990). In contrast, adolescents that struggle to self-disclose with peers and to achieve intimacy are likely to develop fewer friendships that go beyond a superficial level (Burhemester, 1989). During adolescence, youth experience social interactions that are infused with loyalty and intimacy and play with how to trust friends and use self-disclosure to find closeness with peers (Steinberg, 2001). Over the course of a teen's development, adolescents go from a desire for physical closeness with a parent

to desire an increase in adult forms of intimacy such as self-disclosure with peers and verbal sharing of feelings (Buhrmester & Furman, 1987).

The maturation from childhood into adolescence requires a moving away from early connections to primary caregivers and towards connections with peers not unlike the toddler who at an earlier time crawls away from parent in rapprochement (Mahler, 1963). Such is the likeness of these two developmental stages that Peter Blos (1967) termed adolescence the "second individuation process," comparing it to the first individuation process that occurs at the toddler stage of development. Both of these developmental stages, he says, are times of "heightened vulnerability of the personality organization," (p. 163).

In the second individuation, the adolescent is "shedding family dependency" and moving into the adult world (Blos, 1967, p. 163). With it, the adolescent carries the experience of childhood and the corresponding patterning of attachment to family and caregiver. Blos (1967) postulated that the decisions and risks teens take in their developmentally appropriate experimentation are "traumatic ruptures from family" (p. 167). Indeed, the changes in adolescence experienced during the individuation and separation from primary caregiver not only make room for the teen to experiment, but in effect guide the pathway for this experimentation.

Harry Stack Sullivan (1953) was one of the first theorists to propose an account of the development of intimacy in adolescence. He proposed that for the young person, intimacy creates the critical experience of validation of personal worth and reciprocal mutuality. Sullivan proposed that companionship that is first experienced with the primary caregiver partially shifts to the peer during school signaling the development of intimacy in the adolescent (Sullivan, 1953, Buhrmester & Furman, 1987).

Erik Erikson (1968) also saw intimacy as a developmental capacity intricately tied to the identity formation of the adolescent years. Indeed, Erikson (1968) states, "only when identity formation is well on its way that true intimacy… is possible," (p. 135). For many adolescents, the strong sense of individual identity has not been formed, and thus intimacy with others, both sexual and otherwise, can be elusive. Erikson (1968) continues, "the youth who is not sure of his identity shies away from interpersonal intimacy or throws himself into acts of intimacy which are "promiscuous" without true fusion or real self-abandon," (p. 135). The capacity for intimacy involves the ability to comprehend another person as valued and to invite another person into your private world. The safety that is needed to be truly intimate is akin to secure attachment, which lets the person feel safe enough to be close to others without threat of abandonment. When one does not have to be primarily concerned with protecting himself in one way or another (insecure attachment), he is more open to intimacy.

**Attachment Theory**

Attachment theory is another lens with which to examine how adolescents form intimate relationships with peers. Indeed, attachment theory is a way at looking at how people grow to trust one another. One domain in which facets of trust and closeness manifest themselves is in the sexual realm where feelings come quickly to the surface. Before examining how attachment impacts the sexual experiences of the teens in the current study, it will be important to consider how attachment organization might be influenced by age and culture. First, how attachment changes and manifests during the developmental years of adolescence will be examined. For the population participants in the current study—Latino/a and African American inner city teens, many may have grown up with extended and multi-generational systems of caregiving, suggesting that attachment constructs may differ from those teens who have been raised in a

nuclear family. Therefore, it will then be important to examine the literature on attachment organization in relation to cultural differences and family structures.

Over the past four decades, attachment theory has emerged as an influential model for understanding personality development (Ainsworth & Bowlby, 1991). According to the theory, children are taught to internalize general relationship patterns early in life through interactions with primary caregivers that are then generalized throughout the lifespan. John Bowlby (1973) conceptualized the infant as motivated toward the primary caregiver as a secure base that protects, a base from which the infant can explore the dangerous world and return for comfort when needed. Attachment theory was adapted by Mary Ainsworth (1978), who studied under Bowlby, to further illuminate infant-adult relationships. It has since been used to understand adult-adult relationships (Waters & Cummings, 2000).

As early as 1958, John Bowlby criticized psychoanalytic drive theory of infancy that prioritized the infant's oral needs above social needs. Bowlby (1958), on the other hand, felt that these interpersonal needs warranted equal importance in the survival of the infant. Deviating from drive theory, Bowlby (1973) saw infancy, from an evolutionary perspective, as the time in the lifecycle when humans are physically unable to protect themselves from danger or thrive without care. Termed attachment, this innate system is activated in the infant to protect him from danger by creating a behavioral motivation for him to seek safety with a supportive other. The attachment system is activated when the infant experiences actual or symbolic threats of danger and is not near an attachment figure. The infant is then driven to seek safety and proximity to this figure (Mikulincer & Shaver, 2007).

Though originating in infancy, the attachment system has been theorized to continue into childhood and onwards into adulthood. Even when we can protect ourselves from the onset of

real or imagined danger, we seek out the proximity of supportive others when distressed (Mikulincer & Shaver, 2007). This attachment patterning, continuing through the lifespan, is therefore optimal when the person in need can feel *secure* that he will receive support and response to protection in a predictable manner (Mikulincer & Shaver, 2007). If this is not the case, the protection and support is unpredictable and uncertain which leaves the person in need with the lesson that "turning to others when threatened" is not always an "effective means of coping," (Mikulincer & Shaver, 2007, p. 53).

Attachment patterning can thus affect a person's felt security in the world. Bowlby (1973) proposed that when a person can feel safe in the world, he is optimally able to develop the tools in which to explore his environment. Through this safe exploration, he can find a world that "facilitates relaxed and confident engagement in non-attachment activities," (Mikulincer & Shaver, 2007, p. 53). On the other hand, when a person has not had the opportunities to rely on supportive attachment figures in the face of perceived and real danger in life, he internalizes this experience and attachment models can become negative and "secondary strategies of affect regulation come into play," (Mikulincer & Shaver, 2007, p. 54). Thus the world in turn may not feel safe enough to explore.

Stemming from her collaboration with Bowlby, Ainsworth and her colleagues (Ainsworth, 1973; Ainsworth, Blehar, Waters & Wall, 1978) developed a system for organizing differences in infant attachment examining mother-infant dyads. By observing how infants responded when they were separated from their attachment figures in the Strange Situation, Ainsworth was able to see that some infants, labeled *secure* were able to be soothed from the distress upon the reunion with mother. Other infants, labeled *insecure* demonstrated different responses to the reunion. She observed two sets of *insecure* responses. The first insecure group,

labeled *avoidant*, showed infants who seemed undisturbed by the separation and unresponsive to the reunion. The second insecure group, labeled *anxious-ambivalent* showed infants who cried persistently at the separation yet seemed angry and distraught upon the reunion.

**Attachment in Adolescence**

Though attachment continues throughout the lifespan, the undercurrent of attachment is particularly critical in adolescence, a time of where individuals begin to recognize one's self in relation to intimate friendships and romantic relationships. Indeed, Ainsworth (1989) states:

> "It seems that another major shift takes place with the onset of adolescence, ushered in by hormonal changes. This development leads that young person to begin a search for a partnership with an age peer, usually of the opposite sex—a relationship in which reproductive and caregiving systems, as well as the attachment system, are involved." (Ainsworth, 1989, p. 710)

This attachment shift is one of the most important developmental experiences of a lifetime. Just as in infancy, these attachment experiences in adolescence lay the groundwork for one's relational experiences with others, whether romantic, sexual or plutonic, well into adulthood.

Waters and Cummings (2000) suggest that the attachment development between caregiver and offspring is a dynamic and changing process extending from infancy to adolescence. These initial experiences provide the backdrop for later longer lasting romantic relationships that activate both the attachment and sexual systems (Waters and Cummings, 2000). During early adolescence, Koback et al. (2007) posit that teens hold onto attachment bonds with caregivers while testing peers out as possible sources of safety and support. As they age, most teens increasingly move away from parents as primary attachment figures and begin to rely more on peers for support and connection (Hazan & Zeifman, 1994). Studies in adolescent attachment have found that by late adolescence, teens may find a romantic partner or friend as a

primary attachment figure (Freeman & Brown, 2001) and prefer romantic partners, especially those that endure over time, to friends for primary attachment figures, (Trinke & Bartholomew, 1997; Fraley & Davis, 1997).

While attachment theory posits that children seek safety from parents, not all parents are available to provide this protection. When parents are not readily available for protection and monitoring, adolescents are motivated to seek this elsewhere. Lack of parental availability and monitoring has shown to increase likelihood that teens will turn prematurely to attachment needs. When teens seek this out prematurely and without the safety of the home attachment, they risk getting involved in risky behaviors (Galambos, Barker, & Almeida, 2003). Indeed, adolescents with less perceived parental monitoring have been found more likely to engage in sexually risky and substance abusing behaviors (Di Clemente et al., 2001). Teens who engaged in discussion about sexuality with parents were found more likely to have attitudes that correlated with their parents' attitudes about sex (Fisher, 1986b). With the sexual system intertwined with the attachment system, many teens can engage in risky sexual behavior as a means of seeking alternate attachment figures.

**Cultural Differences in Attachment Theory**

While attachment theory (Bowlby, 1968) speaks to a universal, omni-cultural phenomenon of the child and caregiver relationship, attachment classifications and measurement (Ainsworth, 1985) follow from a specifically Euro-American parenting emphasis on autonomy. Thus, there is a risk to misunderstand cultural differences in family structure and parenting styles when measuring attachment (Jackson, 1993).

Cultural identity and SES have been found to affect attachment classifications. Specifically, non-white, lower SES samples have produced larger proportions of insecure

attachments than middle-class European-American samples in research studies (Fracasso et al., 1994). Instability in the lives of families with low SES has been found to be disruptive to the process of attachment between child and caregiver (van Ijzendoorn & Kroonenberg, 1988). Based on research on SES and attachment, low-income Latino-American infants have been predicted at risk for insecure attachments (Fracasso et al., 1994). Fracasso et al. (1994) studied low-income Puerto Rican and Dominican families in New York City and found greater rates of insecure attachment as compared to middle class European-American samples.

Despite Ainsworth's (1985) finding through her original research in Uganda that attachment patterning may be affected by cultural differences, studies in attachment classification have biased the scoring system with a specific style of parenting predominant in Western middle class families (Carlson & Harwood, 2003). Controversy has arisen over cross-national studies that question the validity of the attachment paradigm and classifications for diverse cultures (van Ijzendoorn, 1990). Diverse cultures, especially African American and Hispanic cultures, have been included in attachment studies with a seemingly implicit assumption that the attachment assessment classifications created for middle class Euro-Americans are valid cross-culturally (Jackson, 1993).

Nevertheless, attachment has been measured using many culturally different samples, often yielding somewhat different results (Jackson, 1993). In cultures that emphasize interdependence between child and caretaker over independence, these cultural differences in care giving resulted in more avoidant attachment classifications (Carlson, Harwood, 2003). This increase in avoidant attachments may be attributed to ways in which the Puerto Rican children respond to stress, ways that emphasize interdependence that is consistent with cultural norms but different from Euro-American values of independence (Carlson & Harwood, 2003). Carlson &

Harwood (2003) also associated higher rates of avoidant attachment classifications in Puerto Rican dyads as compared to Euro-American dyads in the Strange Situation to a culturally normative parenting style that incorporates more physical control and structure into caregiving. However, Carlson and Harwood (2003) suggest that these parenting differences lead to similar rates of securely attached children if adjusted for culturally specific definitions of sensitive caregiving.

Similarly, studies of African American infants have been shown to yield higher percentages of insecure attachments using the Strange Situation (Jackson, 1993). This was originally attributed to mother absence and substitute caregivers (Ainsworth et al., 1978; Jackson, 1993) rather than a reconceptualization based on different family makeup and caregiving organization. Carlson and Harwood's (2003) and Jackson's (1993) findings of higher rates of avoidant attachments are in line with studies by Fracasso, Busch-Rossnagel and Fisher (1994). A unique difference between Euro-American middle class families and African-American and Latino-American families is the caregiving structures. Multiple and intergenerational caregivers, shared caregiving among multiple adults and extended family systems are defining features that often separate diverse cultures from Euro-American middle class caregiving schemata (Jackson, 1993).

Infant attachment has been historically categorized and assessed using the Strange Situation (Ainsworth et al., 1978). These original studies recruited all Caucasian samples from two-parent families in which the mother was the primary care provider. The quality of attachment, as put forth by Ainsworth et al. (1978), is based on the infant response when separated from the mother and left with a stranger. It is expected that the infant will explore her environment when the mother is present, become anxious when they are separated and be

pleased upon mother‘s return. However, infants who have multiple caregivers may not fit this pattern and appear to be insecurely attached because they may not fear strangers (Jackson, 1996).

That being said, the formation of human bonds, irrespective of measurement or classification issues, is not disputed in all cultures. Several studies have used attachment theory as the underlying framework when investigating high-risk behavior during adolescence in ethnically diverse samples (Williams & Kelly, 2005; Arbona & Power, 2003). Studies utilizing attachment classifications should be aware of the potential differences when examining one or more diverse cultures.

**Attachment and Sexuality**

Having examined how attachment might affect the age and cultural identity of the teens in this sample, it is important to move into the main focus of the present study and examine how attachment might influence how teens are drawn toward healthy or unhealthy experiences of sexual behavior and intimacy. Since attachment security has been predicted to facilitate a person’s sense of security to explore the unknown, attachment therefore can be understood in the context of intimacy, sexuality and sexual behavior (Mikulincer and Shaver, 2007). However, the interconnection between the attachment and the sexual systems has been a platform for decades of argument and theoretical discussion. Bowlby (1969/82) originally proposed that attachment and sexuality were separate but overlapping behavioral systems. Whereas Bowlby viewed attachment as an evolutionary process, psychoanalytic thinkers connected infant sexuality to the exploratory need to understand the intrapsychic world in relation to self and primary objects (Diamond, Blatt & Litchberg, 2007).

Specifically, Anna Freud (1960) disputed certain aspects of Bowlby’s view that attachment is separate from the experience of sexual pleasure and only related to affectional

bonding. Freud agreed with Bowlby that the biological tie of mother to child leads to behavioral patterning, i.e. attachment (Freud, A., 1960, Diamond et al., 2007). She was also a believer in the power of attachment, stating that the "mother is not chosen for attachment by virtue of her having given birth to the infant but by virtue of her ministering to the infant's needs," (Freud, A., 1960, p. 54). Yet, different from Bowlby, Freud (1960) believed that pleasure and sexuality were necessary for attachment bonding to form and for infant to cathect toward the mother. She thought that the attachment system and infantile sexuality were "comparable and competing forces in intrapsychic life," (Diamond et al. 2007, p. 4). Her concept intertwining sexuality and attachment from as early as infancy posed stark contrast to Bowlby's conceptualizations; he viewed sexuality in terms of reproduction ignoring pleasure and intimacy (Diamond et al., 2007).

Contemporary researchers and theorists continue to debate the connection between attachment and sexuality. Birnbaum, Reis, Mikulincer, Gillath & Orpaz, (2006) suggest that optimal interdependence between affection and sexual desire exists somewhere in between intricately linked and functionally separate, especially in adults whose primary relationships often include both a sexual aspect and an attachment element.

Eagle (2007) proposes that the relationship between attachment and sexuality hinges on the "ability to shift from early parental figure to current partner as his or her primary attachment figure," (p. 38). Eagle (2007) proposes that insecurely attached individuals are more likely to transfer early attachment patterns to current sexual partners. This seems to be especially possible with adolescents, whose life experiences are closer to the childhood experiences of being parented and who do not yet possess the ability to rework old attachment patterns into new adult attachment reworkings.

Mikulincer and Shaver (2007) propose that the sexual system is more likely to be activated when a person feel safe enough to explore pleasure and lose himself in the experience rather than concerning himself with safety. If the latter is the focus, the exploration of sexuality becomes thwarted.

According to Mikulincer and Shaver (2007), the securely attached individual might have more chance to explore desire and dedicate psychic energy to understanding his sexual needs. Anxiously attached people, concerned about rejection and disapproval from attachment figures, may struggle to experience personal pleasure and the "letting go" of sexual freedom (Mikulincer & Shaver, 2007, p. 60). They may also be drawn toward engaging in sexual activities as a means of garnering support, approval and security (Mikulincer & Shaver, 2007). An avoidantly-attached individual on the other hand would be expected to stray away from relational danger in the realm of sexual intimacy because their attachment systems have been oriented toward avoidance of relying on potentially hurtful attachment figures. The avoidantly-attached individual may only enter into short-term sexual relationships, to avoid the long-term reliance of an attachment figure that he sees as potentially rejecting. Mikulincer and Shaver (2007) propose, "avoidant people's sexuality may be focused on their own narcissistic need combined with dismissal of, or blindness to, a partner's sexual needs and preferences," (p. 60).

**Adult Sexuality, Intimacy and Attachment**

Having glimpsed at some of the psychodynamic theory on attachment and sexuality, the investigation will now examine the empirical findings on the subject. To date, the vast majority of research looking at differences in attachment classifications, sexual behavior and intimacy has been conducted with adult samples. Reviewing this research will illuminate how attachment and sexuality might similarly and differently affect an adolescent population.

While theorists and psychoanalysts have debated their associations, researchers have attempted to empirically test the interplay between the attachment and sexual systems for three decades. Hazan and Shaver (1987) were the first to behaviorally measure the interconnections between attachment and sexuality. In an adult population, they measured attachment schemata using Ainsworth et al.'s (1978) observations. They created a simple self-report measure of attachment style that asked adolescent and adult respondents which of three descriptions of feelings and behavior in romantic relationships was most similar to their own.

The three descriptions, labeled secure, anxious, and avoidant, were extrapolated from Ainsworth et al.'s (1978) classifications of the three major patterns of infant-caregiver attachment. Since that original study, many researchers have examined intimacy, sexuality and sexual behavior in light of attachment classifications. In 1991, Bartholomew and Horowitz, using Bowlby's (1973) concept that people develop working models of how they view self and others, designed a different instrument comprised of a four category model along the attachment dimensions of anxiety and avoidance: secure (low anxiety, low avoidance); preoccupied (high anxiety, low avoidance); dismissing (low anxiety, high avoidance); and fearful (high anxiety, high avoidance).

Securely attached adults, who are less reliant on attachment figures for emotion modulation and reassurance, can more easily form attachment relationships based on mutual pleasure, trust and intimacy (Davis, Shaver & Vernon, 2004). Indeed, securely attached people have been found to be more likely to have stable long relationships with support, positive emotions, warmth and sexual satisfaction (Collins & Read, 1990; Hazan & Shaver, 1987; Kirkpatrick & Davis, 1994; Mikulincer & Florian, 1995, Bogaert &S adava, 2002) and report a preference for sexual activity in committed relationships (Mikulincer & Shaver, 2003). Secure

adults have been found to have greater comfort with the use of touch in expressing affection and sexuality (Hazan, Ziefman & Middleton, 1994).

Avoidant adults have been found to be less interested in romantic relationships and less likely to fall in love (Shaver & Brennan, 1992). Avoidant adults have also been found to end relationships more often than secure adults (Hazan & Shaver, 1987; Shaver & Brennan, 1992) and grieve less following a breakup (Simpson, 1990). They have been found to be more likely to have relationships with less intimacy, trust and satisfaction (Collins & Read, 1990; Hazan & Shaver, 1987; Kirkpatrick & Davis, 1994) and reduced desire for relational interdependence (Bartholomew & Horowitz, 1991). Fraley, Davis, and Shaver (1998) found that avoidance was related negatively to holding hands, mutual gazing, cuddling, feeling comfortable when held, and verbally expressing love. Hazan, Zeifman, and Middleton (1994) found that avoidant attachment patterns were related to dislike of the affectionate and intimate aspects of sexuality.

Avoidant adults tend to either shy away from sexual activity or seek it in situations with reduced intimacy or emotion (Brennan & Shaver, 1995; Gentzler & Kerns, 2004). Feeney, Noller, & Patty (1993) found that avoidance was positively associated in adulthood with more accepting attitudes toward casual sex. Avoidant individuals also seem less likely to enjoy affection during sexual activity such as cuddling and intimate sexual positions (Brennan, Wu & Love, 1998) and more likely to experience aversive sexual experiences and lack of pleasurable feelings during sex (Birnbaum, Reis, Mikulincer, Gillath & Orpaz, 2006). Avoidant attachment has been related to a manipulative use of sex (Davis, Shaver, Vernon, 2004). Avoidance was also related to a loss of passion over time in a committed relationship (Davis, Shaver, Vernon, 2004).

In contrast, individuals with anxious attachment styles have been found to have a hyper-activated attachment system that can lead to controlling behaviors in relationships as well as obsessive and intrusive behavior in romantic relationship, concern about rejection and abandonment, emotional ups and downs and jealousy (Collins & Read, 1990; Hazan & Shaver, 1987). Anxiously attached individuals also report experiencing doubt about being loved during sexual activity and, in seeking sex to confirm love, they often report dissatisfaction with the experience (Birnbaum, Reis, Mikulincer, Gillath & Orpaz, 2006). Anxious adults are also likely to use sex as a means confirm intimacy or assurance about a relationship and maintain passion over time in a relationship and have been found to prefer holding and non-orgasmic behaviors over solely sexual activity (Davis, Shaver & Vernon, 2004; Hazan, Middleton, Ziefman, 1994). Anxious attachment also predicted less report of safer sex including reduced condom usage, and fewer discussions of HIV and AIDS, among older adolescents (Bogaert & Sadava, 2000; Feeney et al. 1999).

Depending on the definition and type of attachment, there has been a range in the degree to which attachment can be viewed as a significant factor in adult sexuality. Indeed, when adults are motivated toward sex to fulfill attachment needs such as safety, reassurance, emotion regulation, rather than for pleasure and intimacy, adults with insecure attachment would have a greater demand for getting these needs met. Therefore, it follows that insecure attachments, anxious and avoidant, have greater negative implications on sexual health.

**Adolescent Sexuality, Intimacy and Attachment**

The area of adolescent sexuality in light of attachment remains comparatively unexplored to date yet vital to this area of research (Diamond et al., 2007). While most studies to date have examined attachment and sexuality in adult populations, examining how attachment interacts

with the sexual system is critical in adolescence, a time when youth often expand their social and peer interactions outside of the family (Feeney et al., 2000). Indeed, nascent and initial experiences of sexuality are often some of the most salient of a lifetime and thus influenced by the changing attachment structure of this developmental period. These first experiences lay the groundwork for the development of adult sexuality that continues to explore self in relation to others. Both attachment and sexuality integrate "internal working models" of self in relation to others that grow and mature over the course of life (Diamond et al., 2007).

Like securely attached adults, securely attached adolescents have an easier time trusting partners and therefore getting close to sexual mates in way that avoids risk. Securely attached adolescents reported fewer one-night stands than their insecurely attached peers (Cooper, Shaver and Collins, 1998). Securely attached teens also reported the most enjoyments with sexual and dating experiences, were less likely to display or experience sexual aggression (Tracy, Shaver, Albino & Cooper, 2003), and were comfortable in communicating about sex with partners (Feeney et al., 2000). Interestingly, secure adolescents reported equal dating experiences to their anxiously attached peers, but more participation in romantic relationships (Tracy et al., 2003).

Avoidantly attached teens can often be overwhelmed by intimacy and therefore make sexual choices to avoid closeness that can put them at risk. Avoidantly attached teens seem to seek ways to limit intimacy, either by not engaging in sexual intercourse or gravitating towards casual sexual encounters that exist outside of intimate, romantic relationships or with a stranger (Cooper, Shaver & Collins, 1998; Gallois & Terry, 2000; Gentzler & Kerns, 2004; Tracy, Shaver, Albino & Cooper, 2003). In a study of suburban Caucasian teens, Tracy et al. (2003) found avoidant teens to not only be less experienced with intercourse, but report less non-coital behaviors. Though not found to be as sexually experienced (Tracy et al., 2003; Cooper et al.,

1998), avoidant adolescents were most likely to be involved in sexual aggression. Insecure adolescents, both avoidant and anxious, have greater difficulty discussing safe sex and sexual preferences with partners and were more likely to engage in unsafe sexual practices and drink in order to cope with social situations and negative moods (Feeney et al., 2000).

Having a greater drive to meet attachment needs through over-reliance on a partner, anxiously attached teens can make sexual choices to get close to mates that also put them at risk. Anxious adolescents report being motivated toward sex by a desire to lose their virginity rather than to form intimate bonds with another person (Tracy et al., 2003). Anxious teens report being in love more frequently than peers (Tracy et al., 2003) yet struggle to openly communicate with partners about safer sex and STD/HIV (Feeney et al., 2000). Anxiety has also been related to an increase in sexual behaviors yet a decreased use of safer sex behaviors and a lower perception of risk (Feeney et al., 2000). Further, attachment anxiety was associated with earlier age at first intercourse and greater unplanned pregnancies among adolescent girls (Cooper et al., 1998; Gentzler & Kerns, 2004).

**Trauma and attachment**

Trauma has been found to have an impact on attachment classifications. Mikulincer, Shaver & Hoersch (2006) proposed that insecure attachment organization can act as a risk factor for handling stress, both relational and otherwise, because it reduces the individual's resources to cope, plan, and protect. Avoidantly attached individuals may be at risk for blocking the experience of stressful experiences, leaving them unresolved and at risk of not learning and finding resilience from the experience (Mikulincer et al., 2006). Anxious individuals for whom stress will be hyper-activating, may also be at risk for handling stressful situations by

approaching them with a helplessness and vulnerability that will also hinder the processing of the emotional experience (Mikulincer et al., 2006, p. 8).

Although the relationship between attachment and sexuality is the primary analysis of this project, the impact of traumatic stress, as measured by PTSD, on attachment will also be examined. This is important to include in the analysis because experiences of trauma can adversely affect how trusting individuals can feel in intimate settings. Indeed, if the experience of a traumatic distress indicates a breakdown in ability to self-regulate, then the experience of severe trauma can impact how an individual feels safe in the world, and thus impact the individual's ability to protect himself and others in the face of danger (van der Kolk, 2008).

**The current study: statement of hypotheses**

According to the literature, adolescents are one of the most vulnerable populations for contracting HIV and STIs. Young people under 22 are one of the fastest growing groups of persons who acquire STIs (Office of National AIDS Policy, 1996). While adolescents are generally at high risk relative to other age groups, the National Commission on AIDS has identified inner-city youth of color as the adolescent subpopulation most at risk. Aral (2001) states, "the burden of [US] sexually transmitted infections falls disproportionately on the young, the poor, minorities, and women." Since the 1980s, the age at which U.S. teenagers begin having sex has decreased. It is estimated that in the year 2006, 27.2% of 15 years old are sexually active (CDC, 2006). Early age of sexual debut and engaging in sexual practices in high prevalence populations have been found to be additional risk factors for contracting STDs and such risk factors are directly associated with this inner city sample (Aral, 2001). Further, youth of color are at higher risk. The 2007 Youth Risk Behavior Survey, a CDC study of youth in all 50 states,

found that 65% of Black, 52% Hispanic and 43.7% White currently sexually active high school students had not used a condom during last sexual intercourse (CDC, 2007)

Thus, the overall purpose of this study is to examine multiple and systemic factors that impact adolescents' decisions to engage in sexual behavior in a high-risk minority inner city sample. This will be done by examining the relationships between adolescents' attachment classifications, sexual attitudes and values, and sexual risk behavior. It is proposed that the way a teenager feels comfortable being intimate with others in the world will have an impact of how he perceives himself as a sexual being. These findings have public health implications for adolescents in urban settings.

Hypothesis I will examine the relationship between attachment and adolescent comfort in sexual relationships. Hypothesis II will examine the relationship between attachment and adolescent sexual risk taking behaviors. Hypothesis III will examine the relationship between choices in sexual behavior and symptoms of trauma. Finally, Hypothesis IV will examine the multivariate relationship between attachment, significant sexual risk factors, significant relational comfort variables, and significant trauma symptoms.

Rationale for Hypothesis I. Adolescents' mental health also has implications for their sexual risk, especially for youth of color living in communities with multiple socio-economic and socio-cultural stressors. DiClemente et al. (2001) found that adolescents reporting psychological distress at baseline to be more likely than peers to have engaged in risky sexual behavior after six months including having contracted an STD, engaged in non-monogamous sex and reported not using contraception. Further, researchers have found that youth who engage in sexual risk-taking behaviors are motivated by general psychological distress, but also by insecure attachment needs (Davis, Shaver, Vernon, 2004). Examining attachment styles is an important

lens through which clinicians and researchers can identify how adolescents seek closeness with caregivers and intimate partners. Therefore, the first hypothesis will examine the relationship between attachment styles and adolescent attitudes and values of sexual relationships.

Specifically, the first hypothesis will explore the relationship between attachment style and adolescent comfort with relationships. This will be done by examining a normed adult attachment instrument (the *Relationship Scales Questionnaire, RSQ)* with an instrument that tap adolescents' attitudes and openness towards partner relationships, communication and sex (*Relational Comfort Scale*).

Hypothesis I predicts that teens who score higher on attachment anxiety (as measured by the RSQ) will be motivated to have sex in order to: keep a boyfriend or girlfriend, gain respect, feel a part of the crowd, and have a sense of belonging (as measured by the Relational Comfort Scale). Teens who score high on attachment anxiety (as measured by the RSQ) are also predicted to feel that the negative ramifications of having sex would be: losing respect from friends, having parents get angry, getting a bad reputation, losing self-respect (as measured by the Relational Comfort Scale). Teens who score higher on attachment avoidance (as measured by the RSQ) will be motivated to have sex in order to: get revenge and find sexual pleasure (as measured by the Relational Comfort Scale). Teens who score high on attachment avoidance (as measured by the RSQ) are also predicted to feel that the negative ramifications of having sex would be: losing a partner and having parents getting angry (as measured by the Relational Comfort Scale). Finally, it is predicted that both attachment anxiety and avoidance would be associated with Relational Comfort Scale total score.

Rationale for Hypothesis II. Given that adolescents' risk is best examined through their history of sexual behavior, the logical next step is to examine the impact of adolescent

attachment style on sexual risk. Securely attached adolescents have been found to engage in fewer sexual risk taking behaviors (Cooper, Shaver and Collins, 1998), reported the most enjoyments with sexual experiences and were less likely to display or experience sexual aggression than their insecurely attached peers (Tracy, Shaver, Albino & Cooper, 2003). Therefore, the second hypothesis will explore the relationship between adolescent's attachment organization and adolescent sexual risk defined by risk taking sexual experiences.

Specifically, the second hypothesis will examine relationships between attachment style and adolescent sexual behavior. This will be done by examining the normed instrument of adult attachment, the *Relationship Scales Questionnaire* to the 6-item Sexual Risk Questionnaire derived from the original study's larger Sexual History Questionnaire (see Methods Section for further explanation).

Hypothesis II predicts that anxiety and avoidance (as measured by the Relationships Scales Questionnaire) would lead to higher risky sexual behaviors (as measured by the Sexual Risk Score). Specifically, less anxious and avoidant teens (as measured by the RSQ) will report higher use of protection. In contrast, it is predicted that highly anxious and highly avoidant teens would report less use of protection. Further, it is predicted that avoidant teens would seek ways to limit intimacy, either by not having had sexual experiences or having higher risk sexual behavior. In other words, teens high on avoidant attachment are predicted to be lower on non-risky safe sex behaviors than their peers. It is also predicted that anxious teens, in a need to be close, will have a higher number of sexual experiences and a lower perception of risk due a drive to please their partners.

Rationale for Hypothesis III. The above hypotheses work to establish that adolescents act differently when they feel safe in relationships and in their environment. This hypothesis builds

upon the previous hypotheses by taking into consideration trauma. Indeed, if the experience of a traumatic distress indicates a breakdown in ability to self-regulate, then the experience of trauma can impact how an individual feels safe in the world, and thus impact his ability to protect himself and others in the face of danger (van der Kolk, 2008). Mikulincer, Shaver & Hoersch (2006) proposed that insecure attachment organization can act as a risk factor for handling stress, both relational and otherwise, because it reduces the individual's resources to cope, plan, and protect.

The third hypothesis builds on the assumption that adolescents act differently when they feel safe in relationships and their environment by predicting that adolescents' comfort both sexually and in relationships will be influenced by experiences of stress. The third hypothesis predicts that sexual risk taking behaviors will be related to PTSD. This will be done by examining the relationship of the 6-item Sexual Risk Questionnaire to the *Los Angeles Symptom Checklist* (LASC), a 43-item self-report measure of post-traumatic stress disorder and associated features and the LASC PTSD Scale, a 17-item subscale comprised of items that relate to DSM-IV symptoms of PTSD (King, King, Leskin & Foy, 1995). Specifically, Hypothesis III predicts that Sexual Risk Scores will be positively correlated with scores on LASC and LASC PTSD. It is also predicted that Relational Comfort Scores would be negatively associated with LASC and LASC PTSD scores.

Rationale for Hypothesis IV. Since attachment, sexual attitudes and values, and sexual risk behaviors are influenced by many life experiences and aspects at the family, community and systemic levels, it will be important to look at the impact of these contributing factors in a single model. Hutton et al. (2001) found that PTSD correlated with higher rates of receptive anal sex and other risky sexual behaviors. Life challenges, whether on an individual, family or

community level, can have more adverse affects on people with insecure attachment organizations due to a difficulty regulating affect and accessing inner resources necessary to cope in the face of distress (Bowlby, 1973; Shaver & Hazan, 1993). Therefore, the final hypothesis will examine the degree to which salient individual, and community level variables will impact the extent that attachment and attitudes and values about sexuality have upon the related sexual risk outcomes.

Specifically, the fourth hypothesis predicts that attachment will be associated with sexual risk outcomes, but that this relationship will be mediated by trauma. The fourth hypothesis creates a model that includes a multivariate, mediational approach to examine the relationships in Hypotheses I, II and III. Attachment will be measured using the *Relationship Scales Questionnaire*, sexual attitudes and values will be measured using *Relational Comfort Scale*, sexual behavior will measured by the *Sexual Risk* instrument and trauma exposure will be measured using the *Los Angeles Symptom Checklist*.

# Method

## Sample

Archival data was used for the study, collected from the Adolescent HIV Risk – Social Settings and Prevention Issues (R01 MH62975). The Adolescent Risk project was funded by the National Institute for Mental Health under Principal Investigator Dr. Beatrice J. Krauss, Professor at Hunter College and Director of the Hunter College Center for Community and Urban Health. The data are questionnaires completed by 120 adolescents who reside in the Lower East Side of Manhattan. The participants were African American and Latino youth ages 12-22. 74 males and 54 females completed the computer-generated questionnaires. Older (18-22) and younger (13-17) adolescents, were randomly street-intercept quota sampled to represent approximately equal proportions of males and females, proportionately represent African-American (1/3) and Latino/a (2/3) youth, who have and have not been in settings where they were aware sex was taking place among youth, that is, were exposed to or participated in peer sexual activity.

Since the prevalence and geographic concentration of youth meeting study entry criteria was unknown, a two-step recruitment procedure was used (CDC AIDS Community Demonstration Projects Research Group, 1999; Krauss et al., 2000). In previous studies on the LES, the neighborhood had been divided into 30 4-city-block areas of approximately equal geographic size. Half of a large riverside park, for example, counts as one of these areas, and four contiguous city blocks count as another. Outreach Workers visited these 30 4-block areas according to a random algorithm, where three factors -- time of day (morning, afternoon or evening), day of week (Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday), and area (#1 through #30) -- were each randomly assigned. Outreach Workers approached every

nth *non-minor youth* (a figure that is randomly changed daily within a range of 3-7) appearing *to be age-eligible, that is 18-22*, *and every nth adult appearing to be over 30 and thus the potential parent of a 13-17 year old.* Initial recruitment results in estimates of the prevalence of eligible youth in each area. In step 2, the selection algorithm was adjusted to reflect the proportional concentration of eligible youth by geographic area, yielding higher recruitment efficiency and a map of where eligible youth are concentrated.

Although labor-intensive at the outset, this form of sampling was selected for several reasons. Respondent-driven or incentive-based chain referral – the most obvious choice for a sampling strategy – depends upon a "gregarious" relationship (Heckathorn, 1997) along the respondent chain and thus oversamples potential partners or friends, resulting in non-independence of responses.

**Procedure**

Data were collected using computer questionnaires that the participants filled out in the research project's storefront on the Lower East Side. The method of collection of sensitive sexual data using private computer-administered questionnaires was an asset in this project. Other studies in attachment and sexual behavior (Gentzler & Kerns, 2004) report limitations due to self-report and interviewer-administered questionnaires and recommend computer-administered questionnaires for questions about sexual behavior. Gribble et al. (2000) found that respondents reported higher drug use using Telephone audio computer-assisted self-interviewing (T-ACASI) than when interviewed by human interviewers. Privacy of self-administered questionnaires decreases stigma of reporting bias that these interviews have been found to engender especially when they are conducted in person (Gribble et al., 2000).

**Measures**

**Demographics.** A smaller 10-item demographic questionnaire was selected from the original study's 33-item questionnaire. Items selected for this study included questions about the participant's race, gender, age and education level. See Table 1 for the full instrument.

**Relationship Scales Questionnaire.** The RSQ (Griffin & Bartholomew, 1994), a measure of adult attachment style, asks participants to self-report their feelings about relationships with other people. The RSQ has been used to assess attachment style in relation to sexual behavior (Feeney, Peterson, Gallios & Terry, 2000). The RSQ is a measure of adult attachment style that uses a 5-point response format (1 = not at all like me; 5 = very much like me). The 30-item questionnaire was developed from Hazan and Shaver's (1987) and Bartholomew and Horowitz's (1991) categorical measures of attachment with additional measures developed from Collins and Read (1990). Developed out of this amalgamation of attachment instruments Griffin and Bartholomew (1994) developed four categories of attachment: secure, preoccupied, dismissing and fearful. The measure has shown good internal consistency with a Cronbach's alpha of .80. This measure is offered in the public domain.

According to the Griffin and Bartholomew (1994b) scoring method scores for each attachment dimension are calculated by taking the mean of the scores for those items representing that attachment dimension. There are four items for the preoccupied and fearful categories, and five items for the dismissing and secure categories. The category with the highest score is considered the individual's best-fitting categorical attachment style (Griffin & Bartholomew, 1994b). However, recent research suggests that instead of finding a categorical measure of attachment, utilizing this measure to examine the underlying dimensions of

attachment is more informative (Griffin & Bartholomew, 1994b). Therefore, the current study utilized the dimensional measurement of attachment instead of the categorical measurement.

Because the internal consistency of the four subscales is frequently rather low (Consedine & Magai, 2003), Bartholomew suggests using a factor analysis to establish the dimensional scales for any given dataset. First, an attempt was made to use the scales outlined by Bartholomew (Kurdek, 2002). However, this method did not produce very reliable scales. Therefore, a factor analysis was done forcing two factors, using equamax rotation, removing items that did not load .4 or higher on either factor and derived two scales: Anxiety and Avoidance. These two factors resulted in internally consistent scales (.896 and .906). The factor analysis indicated that for this study, the Anxiety Items were: 3, 4, 5, 8, 9, 11, 14, 15, 16, 18, 21, 23, 25, 27, 28, 30 and the Avoidance Items were: 1, 2, 5, 7, 10 reverse, 12, 13, 17, 19, 20, 24, 26. Item 5 loaded on both dimensions, and the items that were originally reversed according to Griffin and Bartholomew (1994b) were not, according to the findings of the factor analysis.

There is a trend toward dimensional over categorical measurements of attachment (Collins, 1996; Brennan, Clark & Shaver, 1998; Fraley & Waller, 1998). Mikulincer et al. (2001) have claimed that most people have multiple attachment schemas, in which congruent and incongruent attachment-related thoughts and memories may coexist with a global attachment style. See Appendix A for the instrument used.

**Relational Comfort.** This questionnaire was created from condensing two larger instruments from the SASS study, Gains and Losses and Values. The Relational Comfort score was comprised of 32 responses from two different questionnaires: Gains and Losses and Values. The Gains and Losses questionnaire asked participants the following questions: 1) what do you think you personally gained from having sex and 2) what do you think you have personally lost

from having sex? From these questions, the following 16 responses were chosen as being related to the participant's relational comfort: Gain 1) keeping a boyfriend or girlfriend; Gain 2) feeling wanted; Gain 3) being one of the crowd; Gain 4) finding pleasure; Gain 5) getting respect; Gain 6) feeling close to my partner; Gain 7) getting new friends; Gain 8) getting revenge; Loss 1) having parents get angry; Loss 2) losing respect from friends; Loss 3) losing respect from others; Loss 4) Losing a boyfriend or girlfriend; Loss 5) losing self-respect; Loss 6) getting a bad reputation; Loss 7) having a fight; Loss 8) losing friends. The Values questionnaire asked participants to choose what values they would choose for a romantic relationship, for themselves, for a partner. From these questions, the following 16 responses were chosen as being related to the participant's relational comfort: Values 1) From a relationship I would seek a sense of belonging; Values 2) From a relationship I would seek commitment to one another; Values 3) From a relationship I would seek freedom to see other people; Values 4) From a relationship I would seek friendship; Values 5) From a relationship I would seek respect; Values 6) From a relationship I would seek to enjoy each others company; Values 7) From a relationship I would seek understanding; Values 8) From a relationship I would seek sexual fulfillment; Values 9) From a relationship I would seek comfort; Values 10) for myself, I seek to have a sense of belonging; Values 11) For myself, I seek to help other people; Values 12) for myself, I seek to have a family; Values 13) for myself, I seek to have a stable romantic relationship; Values 14) I desire a partner who wants a family; Values 15) I desire a partner who is family oriented; Values 16) I desire a partner who wants a serious relationship. See Appendix B for the instrument used.

**Sexual Risk.** A smaller 6-item *Sexual Risk* questionnaire was selected from the original study's 106-item *Sexual History* questionnaire. The *Sexual Risk* questionnaire has been created to look closely at the participant's responses to 6 high-risk activities. These items are the

following: 1) In the last 6 months, how many times have you had unprotected vaginal sex? 2) In the last 6 months, how many times have you had unprotected anal sex? 3) The last time you had sex, did you drink alcohol? 4) The last time you had sex, did you use marijuana? 5) Have you ever contracted an STI? 6) Were you ever sure you were pregnant/made a girl pregnant? These items were chosen based on recent research on sexual risk (DiClemente et al., 2010; Rose et al., 2009; Houck et al., 2010). Each item was given a score of 0 (not endorsed) or 1 (endorsed). For participants who never had sex a score of -1 was given thus the total scores ranged from -1 to 6 for this questionnaire. See Appendix C for the instrument used.

**Los Angeles Symptom Checklist**. The LASC (King, King, Leskin & Foy, 1995) is a 43-item self-report measure of post-traumatic stress disorder and associated features. The LASC is the National Institute of Mental Health's recommended assessment of Post Traumatic Stress Disorder (PTSD) and partial PTSD (PTSS). The LASC scoring maps directly onto the DSM IV TR criteria for PTSD and PTSS. The LASC is a 43-item self-report measure of PTSD and associated features. The LASC does not key to any specific trauma and inquires about the presence of problems in the past month. The 17 DSM-IV symptoms of PTSD are embedded among other items that assess more general psychological distress. Items are rated on a 5-point scale ranging from 0 ("no problem") to 4 ("extreme problem"). A preliminary diagnosis of PTSD can be derived by using DSM-IV criteria with a symptom counting toward diagnosis if it is rated at 2 or higher. A sum of all 43 items provides an index of global assessment of distress and adjustment problems that may be a consequence of trauma exposure (National Center for PTSD, 2010).

Responses to the LASC showed that there were four extreme outlier in the data—those with total LASC scores greater than 88 (i.e. 88, 93, 95, 99). Those responses were examined

visually (looking across their data in the SPSS file) and found no obvious problem with these subjects. So, the highest four values were recoded to sequential values after the highest non-outlier value which was 72. So the outliers were recoded to 73, 74, 75, and 76. The skew and kurtosis values were then about 1, indicating sufficient normality. See Appendix D for the instrument used.

# Results

This chapter will present the results of the current study. First, descriptive information will be given about the demographics of the sample. Then summary statistics of all measures will be presented including frequencies, means, standard deviations, skew and kurtosis. Following this, the relationship between the demographic and outcome variables will be examined in order to determine whether covariates are needed in multivariate analyses. Finally, hypotheses will be tested.

## Demographic characteristics of the sample

Preliminary analyses included descriptive statistics of participant characteristics. Frequency distributions for demographic variables including education, race, ethnicity and sexual behavior are presented in Table 1. One hundred and twenty eight adolescents who identified as Latino and African American participated in the study and were recruited from the Lower East Side of Manhattan. Of the 128 participants, there were 74 (57.8%) males and 54 (42.2%) females. The age range was 13 to 22 with a mean age of 18.49 ($SD$ = 2.28). Most participants (94%) were born in New York City.

Of the 128 participants, 87 (68%) were currently attending school and forty participants (31%) reported completing high school or higher (see Table 1). Eighty-two participants (64%) reported that English was their primary language. Of the 128 participants, 86 (67%) identified as belonging to one ethnic background and 42 (33%) identified as belonging to more than one ethnic backgrounds. The majority identified as Puerto Rican (61%) and African American (36%), (see Table 1). Because each participant could select multiple ethnicities, a three-category race variable was calculated from the multiple ethnicities reported by the participants. The three

categories were African American, Hispanic and other. Participants that identified themselves as African American and no other ethnicity were labeled African American. If participants selected any identity from Latin America (Puerto Rican, Dominican, Cuban, Colombian, Mexican, Other Latin American), including those that also selected African American as second ethnicity identity, were labeled as Hispanic. Other was used when a participant identified as African Caribbean or other.

**Outliers and Missing Values**

The data was screened for missing information and coding errors. All measures had less than 5% missing data. Missing data was filled in using a method that weighs the statistical changes of a person scoring a specific response based on the frequency of the responses of the participants that did respond to that item. Six (4.6%) out of the 128 participants refused to answer the LASC. Two out of the 128 participants refused to answer specific items on the RSQ (Item 25, 27 had 2 participants refuse to answer; Items 26 and 28-31 had one participant refuse to answer). These data were filled in using the method described above.

**Summary Statistics**

For the current study, measures of interest were the Relationship Scales Questionnaire (RSQ), the Los Angeles Symptom Checklist (LASC), the investigator-created Relational Comfort and Sexual Risk Scales. Means, standard deviations, skew, and kurtosis statistics for each of the measures can be found in Table 2. The two RSQ subscales, the LASC PTSD Scale, the Sexual Risk Scale and the Relational Comfort Scale were all normally distributed. The LASC Total Score was slightly kurtotic due to 4 outliers. The transformed LASC Total score had skew of 1.64 and kurtosis of 3.16, indicating sufficient normality. The LASC means were unexpectedly lower than those obtained in a sample of demographically similar adolescents

(M=16.19, SD=12.57; M= 37.90, SD=28.21) for the PTSD and Total Score respectively (Foy et al., 1997). The RSQ was scored along the two dimensions of avoidant and anxious. It was not scored categorically because the creator of the scale, Kim Bartholomew, suggests that this is not done. Nevertheless, other researchers (Feeney et al., 2002) have used categorical measurements for the RSQ. As of this writing, there are no adolescent norms for the RSQ when scored along these two dimensions (see Table 2.).

**Reliability**

Cronbach's Alpha was computed for the two RSQ Scales and indicate that the items have relatively high internal consistency. The RSQ Avoidance Scale had a Cronbach's Alpha of .846 and the RSQ Anxiety Scale had a Cronbach's Alpha of .896. A Cronbach's Alpha of .93 for the LASC suggests that the items have relatively high internal consistency. Relational Comfort Scale had an alpha of .69 and the Sexual Risk Scale had an alpha of .23.

**Relationship of demographic variables to outcome measures**

Independent sample *t*-tests, one-way analyses of variance (ANOVA), Chi Square analyses, Spearman rhos, and Pearson Correlations were used to examine potential associations among demographic variables (gender, race, education and age) and the dependent variables: Attachment (RSQ, both Avoidance and Anxiety Scales); LASC (both Total and LASC PTSD Scale), Relational Comfort Scale, and Sexual Risk Scale.

Independent sample *t*-test results show no significant differences between genders on LASC, RSQ Avoidance or Sexual Risk Scale or Relational Comfort Scale (see Table 3). However, independent sample *t*-tests showed that females scored significantly higher on the RSQ Anxiety Scale than males (see Table 3).

ANOVA results revealed no significant effect of race on the RSQ, LASC or Sexual Risk Scale. However, there was an association between race and the Relational Comfort Scale (see Table 4). Pearson correlations showed no significant association between age and the RSQ, LASC, Sexual Risk Scale and Relational Comfort (see Table 5). Sexual Risk was not related to age when those who haven't had sex are excluded as well as included (see Table 5).

Spearman's rho results revealed no significant association of education on the RSQ, LASC PTSD and LASC Total or Relational Comfort Scale (see Table 6). Sexual Risk was not related to education when those who haven't had sex are excluded (see Table 6). However, when whose who have not have sex are included, the two variables are related but appear to be related to younger and less education participants not yet having sex (see Table 6).

In summary, gender was associated with RQS Anxiety and therefore will be used as a covariate in analyses involving RSQ Anxiety as a dependent variable.

**Non-Hypothesized Relationships among Independent Variables**

Pearson correlations were run to determine the relationship between RSQ and LASC. Avoidance was significantly related to both the LASC total score and the LASC PTSD score. Similarly, Anxiety was significantly related to both the LASC total score and the LASC PTSD score (see Table 7). Spearman's rho found no significant association between the Sexual Risk Scale and Relational Comfort Scale (see Table 8).

**Tests of hypotheses**

The following hypotheses will examine the relationships between attachment dimensions, sexual attitudes and values, and sexual risk behavior in this adolescent sample. It is predicted that the way a teenager feels comfortable being intimate with others in the world will have an impact on how he perceives himself as a sexual being. This will be analyzed by first examining bivariate

correlations between the outcome and dependent variables. Hypothesis I will examine the relationship between attachment and adolescent comfort in sexual relationships. Hypothesis II will examine the relationship between attachment and adolescent sexual risk taking behaviors. Hypothesis III will examine the relationship between sexual behavior and symptoms of trauma. Finally, Hypothesis IV will examine the multivariate relationship between attachment, significant sexual risk factors, significant relational comfort variables, and significant trauma symptoms.

***Hypothesis I: Relationship between attachment style and adolescent comfort with relationships***

Hypothesis I predicted that teens who score higher on attachment anxiety (as measured by the Relationships Scales Questionnaire) would be motivated to have sex in order to: keep a boyfriend or girlfriend, gain respect, feel a part of the crowd, and have a sense of belonging (as measured by the Relational Comfort Scale). Teens who score high on attachment anxiety (as measured by the RSQ) were also predicted to feel that the negative ramifications of having sex would be: losing respect from friends, having parents get angry, getting a bad reputation, losing self-respect (as measured by the Relational Comfort Scale). Teens who score higher on attachment avoidance (as measured by the RSQ) would be motivated to have sex in order to: get revenge and find sexual pleasure (as measured by the Relational Comfort Scale). Teens who score high on attachment avoidance (as measured by the RSQ) were also predicted to feel that the negative ramifications of having sex would be: losing a partner and having parents getting angry (as measured by the Relational Comfort Scale). Finally, it was predicted that both attachment anxiety and avoidance would be associated with Relational Comfort Scale total score.

Analyses of covariance (ANCOVAs) were run to examine differences on anxious attachment scores between those who endorsed each relational comfort item and those who did not endorse that item (see Table 9b), covarying for gender. As predicted, teens who endorsed feeling that a negative outcome of having sex would be having parents get angry scored higher on attachment anxiety than those who did not endorse this item ($F=4.15$, $p=0.04$). As predicted, teens who felt motivated to be in a relationship to feel a sense of belonging with another person scored higher on attachment anxiety than those who did not endorse this item ($F = 5.91$, $p = 0.02$). Not predicted was the finding that anxious teens were also concerned that having sex would lead to losing a boyfriend or girlfriend ($F = 6.61$, $p = 0.01$). It was predicted but not found that anxious teens would feel that negative outcomes of having sex would be: losing respect from friends ($F = 0.30$, $p = 0.58$); getting a bad reputation ($F= 2.84$, $p=0.09$); losing self respect ($F= 1.04$, $p = 0.31$). It was also predicted but not found to be significant that anxious teens would feel that gains of having sex would be: keeping a boyfriend/girlfriend ($F = 1.67$, $p = 0.20$); feeling a part of the crowd ($F = 1.93$, $p = 0.17$). See Table 9b for findings.

Additionally, after covarying for gender, partial Pearson correlations (see Table 10) show that there was a significant positive relationship between attachment anxiety and total Relational Comfort Scale with the two variables sharing 3.9% of their variability (R squared equals 0.039).

Individual t-Tests were run to examine differences on avoidant attachment scores between those who endorsed each relational comfort item and those who did not endorse that item (see Table 9a). As predicted, teens high on avoidance were concerned that having sex would lead to losing a boyfriend or girlfriend ($t = -3.20$, $p = < 0.001$) Not predicted was the finding that avoidant teens were also less likely to endorse feeling that they wanted companionship from a relationship ($t = 2.07$, $p = 0.04$). Also not predicted was that teens who scored high on avoidance

evidenced feeling that having sex would lead to losing respect from friends ($t = 2.21$, $p = 0.03$). It was predicted but not found that teens who scored higher on avoidance would be motivated to have sex to get revenge ($t = 0.66$, $p = 0.51$) and find sexual pleasure ($t = 0.04$, $p = 0.97$). See Table 9a for findings. Avoidance was not associated with the total Relational Comfort Scale (see table 10) ($p = 0.71$ and R squared = .01).

Results indicated that Hypothesis I was partially supported in that teens who scored high on attachment anxiety endorsed feeling that a negative outcome of having sex would be having parents get angry. These anxious teens were also found to be motivated to be in a relationship to feel a sense of belonging with another person. As predicted, attachment anxiety was related to the total Relational Comfort Scale. Also, as predicted teens who scored higher on avoidance were more concerned about losing respect from friends and were concerned that having sex would lead to losing a boyfriend or girlfriend.

***Hypothesis II: Relationship between attachment and adolescent sexual behavior*.**

Hypothesis II predicted that anxiety and avoidance (as measured by the Relationships Scales Questionnaire) would lead to higher risky sexual behaviors (as measured by the Sexual Risk Score). Specifically, less anxious and avoidant teens (as measured by the RSQ) would report higher use of protection. In contrast, it was predicted that highly anxious and highly avoidant teens would report less use of protection. Further, it was predicted that avoidant teens would seek ways to limit intimacy, either by not having had sexual experiences or having higher risk sexual behavior. In other words, teens high on avoidant attachment were predicted to be lower on non-risky safe sex behaviors than their peers. It was also predicted that anxious teens,

in a need to be close, would have a higher number of sexual experiences and a lower perception of risk due a drive to please their partners.

Tests of association between the individual Sexual Risk Scale items and the RSQ anxiety and avoidant scores were conducted and the following variables were associated. Pearson correlations showed that teens who score higher on anxiety were more likely to have had an STI though less likely to be pregnant (See Table 11).

Pearson correlations also showed that teens who score higher on avoidance were more likely to engage in unprotected vaginal sex. Also as predicted, attachment avoidance was related to an increase in the Sexual Risk Score, with the most avoidant teens engaging in more types of sexually risky behavior compared to teens who had had sex but did not engage in risky behavior; these teens scored as even more avoidant than teens who had never had sex (see Table 15). Analysis of variance showed significant differences between groups (never had sex, non-risky sex, risky sex) ($F [2, 123] = 6.71$, $p = 0.002$). Tukey HSD post-hoc tests showed significant differences on avoidance scores between the group that never had sex and the group that had non-risky sex. The never had sex group showed lower avoidance scores **(**$M = 0.09$, $SD = 0.18$**)** than the non-risky sex group ($M=0.57$; $SD=0.32$) ($p=0.04$); and the risky sex group ($M=0.67$; $SD=0.18$, $p=0.01$).

Results indicated that Hypothesis II was partially supported in that teens who score higher on anxiety were more likely to have had an STI though less likely to be pregnant. Teens who score higher on avoidance were more likely to engage in unprotected vaginal sex. Also as predicted, attachment avoidance was related to an increase in the composite sexual risk total score.

***Hypothesis III: Relationship between decision-making in sexual relationships to trauma***

Hypothesis III predicted that Sexual Risk Scores would be positively correlated with scores on LASC and LASC PTSD. It was also predicted that Relational Comfort Scores would be negatively associated with LASC and LASC PTSD scores.

Spearman's rho correlations were run to examine the relationship between the Sexual Risk Score and LASC. No significant relationship was found between the Sexual Risk Score and the LASC PTSD score ($r = 0.17$, $p = 0.06$) or between the Sexual Risk Score and the LASC total score ($r = 0.13$, $p = 0.16$). See Table 12 for findings. However, for the individual risk items, the LASC PTSD score was significantly related to Sexual Risk 1 (In the last 6 months, did you have unprotected vaginal sex?). Contrary to predications, Sexual Risk 6 (Were you ever sure you were pregnant/made a girl pregnant?) was negatively related to both the LASC Total Score and LASC PTSD Score (see Table 13). Pearson correlations were run determine the relationship between the Relational Comfort Score and LASC. No significant relationship was found between the Relational Comfort Score and the LASC PTSD score ($r = 0.10$, $p = 0.26$) or between the Relational Comfort Score and the LASC total score ($r = 0.15$, $p = 0.09$) See Table 7 for findings.

Results indicated that Hypothesis III was partially supported in that teens who scored higher on the LASC PTSD score were more likely to have had unprotected vaginal sex in the last six months.

***Hypothesis IV: Empirical Model***

Hypothesis IV predicted that attachment would be associated with sexual risk outcomes, but that this relationship would be mediated by trauma. The fourth hypothesis created a model that includes a multivariate, mediational approach to examine the relationships in Hypotheses I,

II and III. See figures 1 and 2 for unimodal relationships between hypotheses I, II and III from which Hypothesis IV was derived.

Given the relationships revealed in the first three hypotheses, and presented graphically in Figures 1 and 2, the fourth hypothesis tested two models suggested by these findings. The first model suggests that the relationship between attachment avoidance and the occurrence of unprotected vaginal sex may be mediated by the trauma (PTSD symptoms). This will be Hypothesis 4A. The second model suggests that the relationship between attachment anxiety and the occurrence of unwanted pregnancies is also mediated by trauma (PTSD symptoms). This will be Hypothesis 4B.

The mediation models hypothesized were tested using the INDIRECT procedure macro for SPSS (Preacher & Hayes, 2008). To clarify the terms used, the relationship between the independent variable (IV) and the Mediator is called path *a*, the relationship between the mediator and the dependent variable (DV) is path *b*, and the overall or total effect of the DV on the IV is path *c*. The indirect effect (the effect of the mediator) is *ab*, and is the part of the effect of the DV on the IV that is accounted for by the mediator. The direct effect, *c'*, is the part of the effect of the DV on the IV that is not mediated by the mediator.

**Hypothesis 4A: Trauma as a mediator of the effect of attachment avoidance on the occurrence of unprotected vaginal sex.** For this hypothesis data was available for 94 subjects. The independent variable was attachment avoidance, the dependent variable was the occurrence of unprotected vaginal sex, and the hypothesized mediator was trauma as measured by PTSD symptoms. Results found that the mediation model was not supported (see Figure 3). Attachment avoidance was significantly and positively associated with the mediator, PTSD symptoms (path a: B = 4.45, $p < .001$). The mediator, PTSD symptoms, was not associated with

the occurrence of unprotected vaginal sex (path b: B = 0.03, *p* = .26). Attachment avoidance was significantly and positively associated with the occurrence of unprotected vaginal sex (path c, the total effect: B = 0.67, *p*= .02). The direct path (c') was not significant (B = 0.52, *p* = .09). And finally, the mediator effect (path ab) was not significant (B = 0.14, *p*> .05, CI: -.09 to .61), indicating that PTSD symptoms do not mediate the relationship between attachment avoidance and the occurrence of unprotected sex. Although the finding did not reach a level of statistical significance, the size of the ab coefficient can be considered a large effect size (the mediator accounted for 21.0% [ab/ab+c'] of the total relationship between attachment avoidance and occurrence of unprotected sex).

**Hypothesis 4B.** For this hypothesis, data was available for 99 subjects. The independent variable was attachment anxiety, the dependent variable was the occurrence of pregnancy, and the hypothesized mediator was trauma as measured by PTSD symptoms. Results found that the mediation model was not supported (see Table 4). Attachment anxiety was significantly and positively associated with the mediator, PTSD symptoms (path a: B = 4.09, *p*< .001). The mediator, PTSD symptoms, was not associated with the occurrence of pregnancy (path b: B = -0.06, *p* = .12). Attachment anxiety was significantly and negatively associated with the occurrence of pregnancy (the total effect, path c: B = -0.82, *p*= .007). The direct path (c') was not significant (B = -0.60, *p* = .07). Finally, the mediator effect (path ab) was not significant (B = -0.24, *p*> .05, 95% CI: -.77 to .05), indicating that PTSD symptoms do not mediate the relationship between attachment anxiety and the occurrence of pregnancy. However, in terms of effect size, the size of the ab coefficient would be considered a large effect size. Interpreted another way, the mediator accounted for 29.0% [ab/ab+c'] of the total relationship between attachment anxiety and occurrence of pregnancy.

**Post Hoc analyses**

Out of the 128 participants in the study, 24 (18.8%) endorsed never having had sex (neither vaginal, oral nor anal sex). Twenty-two participants (17.2%) endorsed having had sex but no risky behavior. Eighty-two participants (64.1%) endorsed having had sex and engaging in some type of risky sexual behavior. See Table 14 for the frequencies of all individual sexual risk behaviors.

Post hoc analyses were run to examine whether there was a difference in attachment between the teens who have had sex and the teens who have never had sex (in the study, virginity was defined as never having had any experiences of oral, vaginal or anal sex). The bivariate relationship between attachment and history of sexual involvement was examined. Independent t-tests found no difference in attachment anxiety between those who had been sexually experienced and those who had not. However, those who had been sexually experienced were found to score significantly higher on attachment avoidance than their peers who had not yet been sexual (see Table 15).

Post hoc tests were also run to examine whether there was a difference in the way teens who have had sex feel about relationships than their virgin peers. Chi square tests were run to determine the relationship between relational comfort items and having had sex. It was found that teens who had never had sex felt that they would want to be sexual in order to be a part of the crowd ($n$ = 6, 25.0%) more than their peers who had already been sexually active ($n$ = 7, 6.7%), $\chi^2$ (1, $n$ = 128) = 7.13, $p$< .05. The teens who had already been sexually active endorsed that they would seek pleasure from their partner (n = 82, 78.8%) compared to their peers who had never had sex (n = 13, 54.2%) $\chi^2$ (1, $n$ = 128) = 6.21, $p$< 0.05. It was also found that teens who had never had sex felt that a negative ramification of having sex would be having their

parents get angry (n = 15, 62.5%) as compared to their peers who have been sexually active (n = 14, 13.5%), $\chi^2$ (1, $n$ = 128) = 26.76, $p$< 0.001. It was also found that teens who had never had sex felt that a negative ramification of having sex would losing respect from friends (n = 13, 54.2) as compared to their peers who have been sexually active (n = 3, 2.9%), $\chi^2$ (1, $n$ = 128) = 46.89, $p$< 0.001. It was also found that teens who had never had sex felt that a negative ramification of having sex would be losing self-respect (n = 11, 45.8%) compared to their peers who have been sexually active (n = 9, 8.7%), $\chi^2$ (1, $n$ = 128) = 20.45, $p$< 0.001. It was also found that teens who had never had sex felt that a negative ramification of having sex would be getting a bad reputation (n = 12, 50.0%) compared to their peers who have been sexually active (n = 4, 3.8%), $\chi^2$ (1, $n$ = 128) = 37.98, $p$< 0.001. It was also found that teens who had never had sex felt that a negative ramification of having sex would be losing friends (n = 7, 29.2%) compared to their peers who have had sex (n = 8, 7.7%), $\chi^2$ (1, $n$ = 128) = 8.69, $p$< 0.05.

# Discussion

Drastic and life altering changes wind, as the psychoanalyst Peter Blos (1967) states, like a "scarlet thread" through the years of adolescence. As the adolescent undergoes the "second individuation" process (Blos, 1967) during the ever-important teenage years, the shift between attachment of primary objects and peers is intricately interwoven with the development of adult sexuality. The theory of human attachment can inform our understanding of sexual behavior and shed light upon the relationship between adolescent development and sexuality. The attachment and trauma literature have suggested the ability to feel comfortable being close to others is a protective factor in sexual behavior while feelings of anxiety about closeness and avoidance of being close are risk factors. The goal of this study of adolescent sexual behavior using an inner city multi-racial sample was to examine the extent to which insecure attachment and trauma were predictive of sexual risk taking. Investigators accomplished this by examining key variables that were hypothesized to play a role in sexual risk taking behavior. Study results provided some support for the hypotheses and revealed several valuable findings.

## Summary

The hypothesis that attachment insecurity would predict attitudes toward intimacy and motivations for sex was partially supported. Specifically both highly anxious and highly avoidant teens were concerned about the negative ramifications of having sex such as losing a boyfriend or girlfriend. However, these teens were not motivated to have sex in order to get closer to their partners suggesting that contrary to hypotheses and predictions intimacy was not a factor in motivations toward sexual behavior.

The hypothesis that attachment organization would predict sexual behavior and risk taking was partially supported. Attachment avoidance predicted higher sexual risk but not

simultaneously a lack thereof. Attachment avoidance also predicted higher rates of unprotected vaginal sex. Attachment anxiety did not predict overall sexual risk but did predict lower rates of pregnancy.

The hypothesis that risky sexual behavior would predict the presence of trauma symptoms was only partially supported. Sexual risk did not predict symptoms of PTSD but related to higher rates of unprotected vaginal sex and lowered rates of pregnancy. Not originally predicted but found was that adolescents who scored high on both avoidance and anxiety were found to have increased levels of PTSD.

The empirical model that used trauma as a mediator in the relationship between attachment and sexual risk that was hypothesized was not supported. Nevertheless, while PTSD was not a statistically significant mediator between insecure attachment and sexual risk, a closer look at the specific conditions showed that PTSD did account for a large portion of the relationship.

The following discussion examines the results of the major hypotheses and exploratory questions. This is followed by strengths and limitations of the study as well as future directions and implications for clinical practice.

**Attachment and sexual risk taking: relevant theory and findings**

The attachment system (Bowlby, 1973; Ainsworth, 1973) assumes that individuals seek others in times of need. The quality of connection with these significant others during these periods of vulnerability then shapes expectations for how others will respond in the future. When significant others are perceived to be emotionally unavailable in these precarious times, the individual's attachment system takes one of two paths: it either becomes hyperactivated in order to stay close to a partner even if they are assumed to be insufficiently available or it becomes

deactivated so that the individual can distance himself and strive for self reliance because people are assumed to not be available for protection (Birnbaum et al., 2006).

These experiences of protection are first experienced in childhood and then, throughout the course of a lifetime, one's attachment system is built on these hyperactiviating and deactivating strategies (Birnbaum et al. 2006; Shaver & Mikulincer, 2002; Brennan, Clark & Shaver, 1998). These strategies are the underlying constructs from which individuals approach intimate and vulnerable relationships, including often the most attachment activating relationships of adolescence and adulthood—

those that are romantic and sexual in nature.

From an attachment theory perspective, the hyperactivating behaviors map onto attachment anxiety while the deactivating behaviors map onto attachment avoidance. Avoidant individuals who have deactivated their attachment needs in the service of self-reliance and who therefore struggle to trust others would be expected to gravitate toward getting their sexual needs met outside of intimate relationships. Sexual activity may create discomfort for avoidant individuals who feel safer with distance from attachment needs and may deactivate attachment system by either abstinence or emotion free sex (Brennan & Shaver, 2002; Birnbaum et al., 2006). The strategy of maintaining a deactivated attachment system serves to reinforce the maladaptive cyclical psychodynamic (Wachtel, 1982) expectations that others cannot be relied on for closeness and safety.

Anxious individuals who have a hyperactivated attachment system possess a desire for closeness with others while at the same time worry about rejection. This may lead to partners rejecting them for an insatiable need for closeness that would only reinforce the anxious cyclical expectations of self and other (Wachtel, 1982). Sexual activity for anxious individuals may

hyperactivate attachment needs to be close and therefore create fears of loss of the closeness they assume is unreliable. Therefore anxious individuals are more likely to have sex to achieve emotional intimacy (Davis et al., 2004) and avoid abandonment (Birnbaum et al., 2006; Tracey et al., 2003).

**Attachment and sexual risk taking: avoidant attachment**

In this study, adolescents who scored high on avoidant attachment were found to have an increase in frequency of sexual risk taking behaviors overall and specifically higher rates of unprotected vaginal sex. Adolescents who scored high on avoidance were also more likely to have lost their virginity and than their non-avoidant peers. These findings are partially consistent with the literature (Feeney, Noller, & Patty, 1993) that shows avoidant teens to be more likely to have casual and risky sex but discordant with other literature (Cooper et al., 1998) that have found avoidant adolescents to be less likely to have had sex than their anxious or secure peers. Interestingly, some of these studies in both adolescent and adult samples (Brennan and Shaver, 1995; Gentzler & Kerns, 2004; Tracy et al., 2003) have found a bifurcation between the avoidantly-attached participants, with some shying away from sexual interactions and others being more risk taking. For example, Gentzler & Kerns (2004) found that avoidantly attached college students were more likely to report either not yet having had sexual intercourse *or* having sexual intercourse before the age of 15 than were their securely and anxiously attached peers. Similarly, Brennan & Shaver (1995) found that avoidant adults tend to either shy away from sexual activity entirely or seek it in situations with reduced intimacy or emotion. Both of these types of behaviors in avoidant individual, either the abstinence or casual and risky sex, make sense in that avoidant individuals tend to deactivate their attachment system in an attempt to protect themselves from closeness and reliance on others.

Unlike the previous literature discussed above, the current study did not produce a subgroup of avoidant teens that shied away from sexual behavior. In this study, the adolescents who were the least sexually risky were also the least avoidant. In other words, not having had sex did not seem to be related to high avoidance suggesting that these teens were making different decisions around sexual behaviors than the teens in previous studies for whom avoidant attachment led to delayed sexual behavior. The fact that for this sample, the highly avoidant teens were having more risky sex, suggests that they may have struggled with how to be sexual while simultaneously avoiding risk with partners. The negotiation of how to get close without taking risks is itself a task that requires a level of comfort with expressing needs. This may have been too activating for these avoidant teens that feel more comfortable with a deactivation of attachment systems. This is particularly pertinent in a sample from a neighborhood with a high seroprevelence of HIV where many of the participants would have known someone with HIV or AIDS. In other words, these are teen that knew talking about the risks of STI's and HIV was important, and still the avoidant teens struggled to protect themselves.

Additionally, the fact that the sexual practices of these avoidantly-attached teens differs from those in previous studies of both adult and adolescent samples is not surprising due to the different demographics of this sample. Indeed, of the two studies that have reported this bimodal distribution of attachment avoidance scores in relation to sexual risk (i.e. high avoidance at the very low and very high ends of sexual risk scores), neither have looked at these constructs in a completely non-white and inner city sample. Tracy et al.'s (2003) study came from a secondary analysis from the same sample of adolescents originally in Cooper, Shaver & Collins (1998) study with 43% white subjects from a small city. Though more recently collected data, Gentzler and Kerns (2004)'s study used an undergraduate sample with 86% white subjects from a rural

college town. Indeed, Gentzler and Kerns (2004) themselves call for a need for research in adolescent attachment and sexual behaviors for populations that are urban and non-white.

Cooper, Shaver and Collins (1998) state that higher percentages of risky sexual behavior have been related to anxious attachment for African-American adolescents but not for Caucasian adolescents and that more research is much needed in this area. Moreover, little research has been conducted to date comparing attachment across racial or ethnic groups within the United States (Wei et al. 2004). Lopez, Melendez, and Rice (2000) examined parental bonds reported by African American, Hispanic American, and Caucasian college students and found that Latino American and African American college students reported greater adult attachment avoidance relative to their Caucasian peers. However, they found no differences in adult attachment anxiety among Latino Americans, African Americans, and Caucasian students. Wei, Russell, Mallinckrodt & Zakalik (2004) found difference between ethnicities in adult attachment. However, it should noted that their data were collected at a Midwestern university and Wei et al. (2004) call for further studies of adult attachment in more ethnically diverse areas of the United States. Further both Wei et al. (2004) and Lopez et al. (2000) studied these constructs with emerging adults in colleges making these findings difficult to apply to an inner city ethnic minority sample that includes adolescents ranging from 13-22.

**Attachment and sexual risk taking: anxious attachment**

In this study, adolescents who scored high on anxious attachment were not found to have an increase in overall sexual risk score, though they were more likely to have an STI and less likely to be pregnant than their non-anxious peers. These findings are inconsistent with the literature, which shows an increase in sexual risk taking among anxiously attached adults and adolescents (Feeney et al, 2001). Indeed, Feeney et al. (1999) found that anxiety about

relationships was related to less safer sex practices and Feeney et al. (2001) found that anxiety was linked to unsafe sex while avoidance was linked to more cautious attitude toward risky sexual behaviors. However, the current findings that anxiety was related to higher rates of STIs is consistent the literature of adolescent attachment and sexual behavior. Feeney et al. (1999) also showed anxious attachment to be predictive of less reports of safer sex, including reduced condom usage, among older adolescents (Feeney et al., 1999). Anxious adolescents in this study had higher rates of STIs suggesting that choices of safe sex and protecting oneself may have been trumped by a fear of rejection and a feeling that they were unable to say no to not disappoint the other who they assume could abandon them.

The finding that anxiety was related to a reduction in rates of pregnancy is also inconsistent with the literature but possibly consistent with the population this sample was measuring. Cooper, Shaver & Collins (1998) that found attachment anxiety to be associated with greater unplanned pregnancies among adolescent girls. These inconsistencies may speak to the demographic differences between the samples as well as how attachment was measured. The relationship between attachment anxiety and pregnancy may differ from the literature because of the demographic makeup of the sample and thus what pregnancy in adolescence means to teens in this population. Previous literature and theory has placed a negative valence on teenage pregnancy and white attitudes have viewed it as an unwanted life event. However, it is important to look at what pregnancy may mean to a teenager on the Lower East Side of Manhattan where the experience of getting pregnant might be neither ego- dystonic nor unwanted. Kinship networks and family systems in which children are often cared for by multiple generations of caregivers in these adolescents lives may make bearing a child in adolescence not only a possibility but not seen as negative. More, qualitative findings from this data set and other

studies of the Lower East Side of Manhattan and NYC inner city Puerto Rican and African American families indicate that many of these adolescents have been raised in families with multiple generations of teenage pregnancy. Thus, parental communication around having children in teen-age years is possibly been normalized. It could be that for these teens, not having a child early in life would indicate a step away from an identification with earlier generations and their parents. A securely attached child who knows that her family may help care for this child, may decide that there are fewer risks in getting pregnant while finishing high school or going to college.

The following qualitative excerpt from the SASS study illuminates this concept. This excerpt comes from a nineteen-year-old African American female who had sex for the first time at age 16 "to get it over with." She became pregnant soon after that by another boyfriend. She speaks here of her decision to not use condoms during that time in her life:

> PARTICIPANT 157: Because if I was thinking the way I was thinking now back then, I would be not pregnant.
>
> INTERVIEWER: NO? WHAT—WHAT CHANGED?
>
> PARTICIPANT 157: I should have used condoms. [Laughter] I don't know what was wrong with me. I guess I was caught up in that I love you stage, where you like all lovey-dovey and you don't care.
>
> INTERVIEWER: MM-HMM. AND WHAT ABOUT THE 'I LOVE YOU STAGE' CHANGED THE LIKE CONDOM USE?
>
> PARTICIPANT 157: I don't know. I was sure that I was gonna be with him, so that's why we decided to stop using them…after we took the HIV test. [Laughter] … We just decided because we was gonna be together, and we was faithful to each other, so we decided to stop using them.

Future studies should ask more questions about decision making around pregnancies. More, studies should take into consideration the age and educational demographic of the population that is being sampled. For example, studies that use college students (i.e. Gentzler & Kerns, 2004) as a sample would be expected to have different implications for pregnancy outcomes as the decision to attend college is an educational step that must take into consideration raising a child. Studies that found anxious attachment to be related to greater unplanned pregnancy among adolescent girls (i.e. Cooper, Shaver & Collins, 1998) used Caucasian respondents from a small city.

These findings in both attachment avoidance and anxiety lead us to predict that this sample of inner city racial minority teens whose identity on multiple levels differ from teens in previous studies may be motivated to have sex and engage in risky behavior that can long term effects (i.e., HIV, STIs etc.) based in part but not entirely on their attachment needs. Or said another way, the methods to date of measuring adult attachment which have not been normed or created for this sample of inner city may not be capturing the underlying constructs of attachment in the same manner. Indeed, cultural identity and socioeconomic status have been found to affect attachment classifications. Specifically, non-white, lower SES samples have yielded to produce larger proportions of insecure attachments than middle-class European-American samples (Fracasso et al., 1994).

These findings could be related not only to a sample issue but also to the fact that measuring attachment in adolescence has its clinical difficulties and to this date has not been widely studied. While attachment in childhood and adulthood has been much more studied, there is debate in the field as to what attachment organization means to adolescents. Social support research has documented that by adolescence peers are valued as equal or greater sources of

intimacy than caregivers (Buhrmester, 1996; Furman and Buhrmester, 1985). While a developmental perspective of attachment (Bowlby, 1982; Ainsworth, 1989) assumes that attachment organization is directly related to relationships with primary caregivers, adolescent attachment researchers (Hazanet al., 1991) have also found that adolescents have different attachment figures for different functions (Freeman and Brown, 2001). That is, as autonomy and independence are being developed in adolescence and teens are gingerly or forcefully moving away from childhood, new attachment figures move in and out of their lives and at different points primary caretakers can be more or less saliently related to their immediate attachment needs. Thus, measuring adolescent attachment at a single point in time (such as with the RSQ), may capture the teen's often intense and fleeting attempts to individuate and find safety and attachment needs (Bowlby, 1982) from peers and intimate partners. This is especially true for teens who are highly anxiously or avoidantly attached in that their primary attachments may not have been as safe (Freenman & Brown, 2001) and thus they are in the early stages of looking for other attachment figures, namely peers and romantic partners, but do not yet have the developmental and emotional skills to navigate this difficult process.

Before coming to conclusions about these findings, it is critical to discuss the fact that the debate over the interaction between the distinct yet overlapping behavioral systems of sexuality and attachment has been ongoing (see Ammaniti, Nicholais & Speranza, 2007 for a review). The debate is especially present in the psychoanalytic, attachment, neurobiological and developmental literature on adolescence because of this unique middle ground between childhood and adult sexuality and the corresponding changes in the individual's world. Indeed, Hazan and Ziefman (1999) propose that adolescents may be engaging in sexual behaviors in what they term a "pre-attachment phase of attraction and flirting" before the two systems

interweave a tighter knot in adulthood where individuals fall in love and have sex in a qualitatively different manner. This theory sheds light on this study's inconsistent findings between attachment and sexual behavior. It is important to note that the correlation between attachment and sexual behavior, especially sexual risk in this study, does not imply causation or a complete interaction between these two behavioral systems.

**Attachment and relational comfort**

The Relational Comfort scale was created to assess the participant's comfort with intimacy as well as their motivations for having sex that can map onto underlying theoretical models of attachment. This scale aimed to better understand the choices these teens were making about how and why they chose to be sexual and intimate with others. Specifically, these questions tapped what these teens felt they could gain or lose from being intimate and how they perceived their choices though the eyes of peers, family and partners. This questionnaire also tapped teens' values about motivations toward and away from closeness and intimacy that the questions about sexual behavior could not. Overall, of the thirty-two items on the Relational Comfort Scale only two significantly related to insecure attachment in general. More, the avoidant and anxious groups did not look very different from each other on this scale. [i]

It is worth mentioning the one item that the highly anxious and highly avoidant teens were both concerned about was the loss of a boyfriend or girlfriend. The following excerpt from the qualitative portion of the SASS study illuminates this concept. An eighteen year old African American and Puerto Rican female discussed the loss of her boyfriend after their first time:

> It [first time having sex] happened on a Sunday and he came back to my house that following Friday to see me and as soon as he saw me he was like you know can we have sex? And I was like no. I was telling him how painful like how I was hurting down there and I was bleeding, so I was scared. And I told him you know I just stopped bleeding the day before. … He was like I

> came all the way down here. I was like you came down here just for that now? I'm like you used to come down here seeing me all the time you know and I'm like so now that is your motivation to come to see me. That was like you know that was never a problem before you know. You just would come watch a movie with me and you know relax you know and be with me but I'm like now you are assuming that every time you see me we're going to have to do that. I'm like that is just not me you know and we [broke up] that same day.

Highly anxious teens also endorsed being motivated to be in a relationship to feel a sense of belonging with another person. Another participant, a nineteen-year-old African American female states:

> So many girls think that just because they like, 'cause I have his babies or, 'If he breaks up with me, I'm still gonna have his baby, and he's always gonna come back.' … And some girls use that to be spiteful if their boyfriend is gonna leave them, or if their boyfriend is really not, you know, faithful to them or whatever. They use it as a way to keep them.

Adolescence is a life stage in which the task of navigating intimacy is treacherous, especially if one's attachment system is already prone to deactivation or hyperactivation as in the case of these insecurely attached teens. However, the reasons why anxious and avoidant teens would be worried about the loss of a partner may be different given their attachment organizations. Highly anxiously attached teens could be worried that not having sex would lead to abandonment or rejection while highly avoidantly attached teens may be more concerned that negotiating the relational intimacy attached with sex would be too activating for them.

These findings are consistent with the literature that has examined adult and adolescent attachment and intimacy. In adult samples, anxious attachment has led to more jealousy in relationships (Collins, 1996), a need to be close (Hazan & Shaver, 1987) and concern about rejection and abandonment (Bartholomew and Horowitz, 1991). In adolescent samples, anxious teens have been found to have sex to feel close to their partners (Tracey et al., 2003).

Avoidant teens were also worried about losing respect from friends if they had sex. The following qualitative excerpts explicate this point:

> A 16-year-old Latino male: Yeah. Before, I used to like play little games like- I never used to hold a girl's hand. I don't care. She could be the finest girl in the world. I never hold a girl- Now, like, I feel more comfortable holding a girl's hand. Know what I mean? Even if she is fat. Like, I don't really care what people think of me anymore.

> A 19-year-old Latino male: Another negative point is you don't want your name getting out on the street like that. You don't want people talking about you. Saying you like this pretty girl but you have sex with this other girl, they don't like each other and the pretty girl don't want you now because you had sex with her and stuff like that.

The finding that avoidant teens were worried about losing respect from friends is consistent with previous studies. Research on adolescent sexual risk taking has found that friends' approval of sexual behavior has a direct effect on decision making, especially in older teens (Treboux & Busch-Rossnagel, 1995).

In the end, attachment in terms of their perceptions of the relational consequences of engaging in sexual behavior did not seem to have much of an impact. What they see as consequences of sexual behavior did not seem to be related to attachment. Indeed, these findings suggest that we cannot assume that reasons these teens are making decisions about sex is related to a desire to be close. This may have implications for theory of sexual behavior in that it should be assumed that motivation toward sex is always relational. It is not known if these inconsistencies with previous literature have to do with the makeup of the scale or the demographics of the sample. More, it is not known if the disconnect between attachment and relational comfort would be different in a sample of white adolescents because ethnicity and family structures can play a role in the decision-making around comfort in peer relationships.

**Attachment and trauma**

Though not originally hypothesized, it nevertheless seemed critical to discuss the significant findings between attachment and trauma found in this data set. Theoretically it makes sense that attachment and trauma should be strongly correlated given the fact that the underpinnings of attachment theory are based on a sense of safety and proximity to a secure other; in the absence of this experience of protection, attachment insecurity inherently leaves the individual open to a higher probability of internalization of traumatic experiences (Sable, 2000). Inversely, PTSD symptoms may cause an individual to experience intense feelings of vulnerability and helplessness that in turn can activate the attachment system (Mikulincer, Shaver & Pereg, 2003).

Avoidantly attached individuals may be at risk for blocking the experience of stressful experiences, leaving them unresolved and at risk of not learning and finding resilience from the experience (Mikulincer et al., 2006). Anxious individuals for whom stress can be hyperactivating, may also be at risk for handling stressful situations by approaching them with a helplessness and vulnerability that will also hinder the processing of the emotional experience (Mikulincer et al., 2006, p. 8).

Mikulincer, Shaver and Pereg (2003) discuss that the two types of insecure attachment serve to protect the individual from perceived threat. They propose that anxiously attached adults who are more likely to become hyperactivated in the face of stress while avoidant adults who are organized toward becoming deactivated in the face of stress. Differently, avoidantly attached individuals protect themselves by blocking or distancing upsetting emotions thus leaving stress unresolved that can lead to a vulnerability to PTSD symptoms such as numbing (Mikulincer & Shaver, 2007; Mikulincer, Shaver & Pereg, 2003).

Indeed, in this study, adolescents who scored high on both avoidance and anxiety were found to have increased levels of PTSD. These findings are consistent with the literature on trauma victims that show insecure attachment correlated with PTSD symptomotology (Muller et al., 2000). Studies have shown attachment avoidance and anxiety to be associated with PTSD in samples of veterans as well as adults abused as children (Muller et al., 2000; Renaud, 2008). These findings are also consistent with the literature (Mikulincer, Shaver & Pereg, 2003; Mikulincer and Shaver, 2007; Sable, 2000) that shows insecure attachment to be indicative of affect dysregulation reminiscent of trauma and PTSD. These findings suggest that if symptoms of PTSD are at clinical levels, trauma must be taken into consideration when understanding the connection between intimacy and attachment. Indeed, it may be experiences unrelated to primary attachments that make these adolescents' scared to get close and to rely on intimate partners. However, it is important to note that this study did not include finely differentiated measures of trauma; the Los Angeles Symptom Checklist only asked about symptoms correlated with PTSD. This relationship should be explored further in future studies. The findings in the following section will expand on this study's intersection between trauma, attachment and sexual behavior.

**Mediators of the Relationship between Attachment and Sexual Risk**

Since attachment, sexual attitudes and values, and sexual risk behaviors are influenced by many life experiences this model was created to look at the intersection with the factors that may contribute or interfere with an assumption that sexual risk behaviors are directly related to attachment. Indeed, adolescents have additional stressors and possible trauma in their lives that make it hard to get close to others unrelated to early attachment figures. For example, a death of a friend to AIDS could disrupt a teen's desire to protect himself when having sex. More, PTSD symptoms, as discussed in the previous section, can intensify difficulty communicating about

sexual safety. For example, a teen in this sample whose partner was sent to jail could be so distressed by this loss that she chose to get pregnant to keep the connection to her partner to mitigate the loss.

The model looked at whether PTSD symptoms would mediate the relationship between attachment and sexual risk, breaking down attachment avoidance and attachment anxiety and the respective significant sexual risk variables. Interestingly, it was found that PTSD symptoms did not mediate the relationship between attachment avoidance and the presence of unprotected vaginal sex nor did PTSD symptoms mediate the relationship between attachment anxiety and the occurrence of pregnancy. However, these mediational relationships did not meet levels of statistical significance and are very exploratory findings; thus they should be looked at with caution. Yet, PTSD explained 21% of the total relationship between attachment avoidance and unprotected vaginal sex while PTSD explained 29% of the total relationship between attachment anxiety and pregnancy. In both of these models, the sample sizes were not large enough to create sufficient power to achieve statistical significance. Replication of these models are necessary to determine whether there are no relationships, or whether this 21% and 29% are meaningful, but just suffered from lack of power.

Whether or not replications of these models with sufficient power would yield statistically significant findings, the model itself is important. There is a paucity of studies that have directly tested mediational models for explaining the process by which attachment predicts behavioral outcomes (Lopez, Mitchell & Gormley, 2002). This is especially critical with a mediational model that includes acute symptoms of PTSD that will interfere with most internal working models of closeness and intimacy.

**Strengths**

This study builds on the small body of research that has applied adult attachment theory and sexual behavior to an adolescent population (Cooper, Shaver & Collins, 1998; Tracy et al., 2003; Gentzler & Kerns, 2004). The demographics of this study's sample is a major strength because while many of the studies on attachment and adolescent sexual behavior cited have yielded some interesting results, no study has yet looked at this phenomenon with an urban non-white population. Data for this current study' s entirely non-white sample was specifically gathered to study the non-white population of the Lower East Side of Manhattan, a neighborhood with a majority of Black and Latino residents. The data was gathered using subject recruitment strategies to produce a sample as representative of the ethnic composition of the community as possible. Hopefully this study will help fill the gap in studies in the literature that has yet to look at attachment and adolescent sexual risk from a non-white sample.

This study was one of the first to explore adolescent's sexual risk taking behavior in the context of both attachment and PTSD. Indeed, this particular study adds a valuable contribution to the research on both the intersection of attachment and sexual behavior in the context of trauma as no study has yet attempted to incorporate the experience of trauma as a mediating factor in the examination of attachment and adolescent sexual risk. Individual mental health factors such as low self esteem (DiClemente et al., 2008); depression (Shrier et al., 2002), history of sexual abuse (Small & Luster, 1994); and lack of hope for the future (Small & Luster, 1994) have been predicted to put adolescents at greater risk for contracting STIs and HIV. Sexual activity and risk taking behavior has been seen as a coping mechanism or diversion against the depressed affect (Shrier et al., 2002). In addition, teens' comfort with partners when in sexually active relationships affect sexual risk (DiClemente et al., 2008, Crosby et al., 2000). While these

studies help explain why and how teens take risks with their health in sexual relationships, merging the larger research on attachment and PTSD into this research gives researchers and clinicians deeper language for understanding these phenomena. More often the attachment research has been separate from public health research; brining them together helps form a new clinical, theoretical and empirical language from which to examine adolescent behavior. There is still much to be uncovered about sexual behavior in adolescents; experiences of attachment and trauma may aid in filling significant research and theoretical gaps.

Another strength of this study was the use of continuous or dimensional measurement of attachment. Prior research highlights the importance of using continuous rather than categorical ratings of adult attachment (Scharfe & Bartholomew, 1994). Kim Bartholomew, the creator of the Relationship Scales Questionnaire (Bartholomew, 1991), supports continuous measures of adult attachment over categorical as a means to understand the intensity of the attachment type and of better assessing individual differences. Tracy et al.'s (2003), one of the only other studies that looks at attachment and sexual risk in a young adolescent sample, used Hazan and Shaver's (1990) categorical classifications of attachment. Gentzler and Kerns (2004) used a dimensional measure of adult attachment in their study, but their sample had an older age range of 18-50.

Yet another strength of this study was the use of computerized questionnaires to gather sensitive information about sexual experiences. These sensitive topics are subject to underreporting biases when human interviewers gather data (Gribble et al., 2000). Past research (Tracy et al., 2003) typically has relied on paper self report questionnaires and face-to-face interviews to gather data on adolescents' sexual behavior. For example, Tracy et al. (2003) used face-to-face interview format for all but the most sensitive sexual questions, leaving the rest of the questions open to underreporting bias. Thus, this study has added to the body of research on

adolescent sexual behavior and risk activities gathered via computer questionnaires that aim to limit underreporting biases.

Another strength of this study was the creation and use of a five item ordinal scale to examine sexual risk. Ordinal scales have been shown to be an effective method for measuring sexual risk in that it does not prefer one behavior over another and is able to compare the intensity of risk (Lyons-Ruth, 2011, personal communication). See this method's limitations in the following section.

**Limitations and Future Directions**

Although the data are rich, there were design limitations. The sample size was modest enough to limit the power of some statistical analyses. A larger sample size would increase the power to test for the presence of additional meditational relationships between attachment and sexual risk. Another limitation of this study was the large age range that spanned from early adolescence to emerging adulthood. Narrowing the range for future studies will help focus on specific attachment and sexual behavior because of the vast developmental changes even year to year in adolescence. For example, the developmental challenges of a thirteen year old having his first sexual experience would have very different attachment related experiences than a twenty year old participant well into emerging adulthood who has had almost a decade of experiences with sexual and intimate relationships.

Similarly, another limitation to the age of the participants in this current study was that the mean age of the sample was 18, making it an older adolescent sample. Thus, there may be limitations regarding generalizing the present study findings to an early or middle adolescence population. Emerging adulthood (ages 18-25) has been seen in the literature as a separate developmental period between adolescence and adulthood (Arnett, 2000). Had the sample size

been bigger, it would have been important to split the sample into early adolescence versus later adolescence in order to examine whether the sexual risk outcomes correlated similarly between the two age groups.

Related to this, another limitation of this study was the lack of longitudinal data. The current study's methodology, as cross-sectional design, was limited to establishing associations at a single point in time, which might later be tested for causality. In order to confirm a causal relationship among the key variables, multiple measurements over time would have needed to be collected. This would be quite important for adolescent samples, especially given a developmental perspective of growth and change during these years.

While the Relationship Scales Questionnaire is a valid and reliable measure of adult attachment, there are limitations to using a self-report instrument over a qualitative instrument such as the Adult Attachment Interview (AAI; Main et al., 1985). The AAI has many strengths that the RSQ does not have. First, as an interview and not a self-report measure, the AAI is not as susceptible to response bias as the RSQ. Second, the AAI that codes attachment by examining the language that the participant uses to talk about salient attachment figures and memories. This is not captured in the RSQ which is a forced choice Likert scale. The RSQ is designed to tap into the attachment constructs of specific adult or adolescent relationships rather than assume that early childhood-parent relationship experiences are at play in adult attachment relationships. Of note, had the AAI been used in this study, it would have been best conducted with bilingual (English-Spanish) interviewers because the primary language spoken at home with attachment figures by many of these participants is not English.

Further, the overall question of how to measure attachment in adolescence is an important one to address in the limitations section. Adolescence is, by definition, an in-between time after

childhood's connections to primary objects and adulthood's connection to intimate partners. It is also a characteristically turbulent time with hormonal and brain development, especially executive functioning and frontal lobe growth, still dictating decision making and impulsivity. Thus, it is important to posit that what looks like anxious and avoidant attachment on the RSQ, an adult measure of attachment, might be normative for adolescence and emerging adulthood. In revisiting the findings in this dataset, it would have been very interesting to look at individuals on the lowest and highest ends of both attachment avoidance and anxiety scales to identify potential deviations from the norm. We may also have been able to posit the following: low on both anxiety and avoidance might indicate a more secure attachment and high on both might indicate a disorganized attachment. Future studies could profit from examining the extreme ends of the RSQ responses.

While the Relational Comfort Scale developed for this study was found to yield similar correlations with attachment and intimacy found previous studies, it is still in its early stages of development. The scale may have benefited from being shorter and more user friendly so that future researchers will be able to map each question onto a specific target relational experience (i.e. "I worry that by having sex I will lose my boyfriend or girlfriend" should be reworded so that it directly speaks to fear of loss of partner and a need for closeness.

Trauma may have been assessed in a more in-depth manner if another instrument had replaced the Los Angeles Symptom Checklist (King, King, Leskin & Foy, 1995) in this study. Though the LASC is a solid instrument chosen for this study due to its high consistency with mapping onto the DSM-IV's symptom categories for PTSD and psychometric reliability with an adolescent sample (Foy et al., 1997), the checklist only assesses symptoms and does not assess the nature of the traumatic or triggering experiences. Thus, the assumption must be made that it

is a separate traumatic experience that were associated with the PTSD symptoms, not necessarily the attachment related intimate experiences or sexually risky experiences themselves. Replications of this study should consider adding additional questions about the nature and origin of the PTSD symptomatology.

While also a strength of this study, it is important to note that this was the first study of its kind to use computerized questionnaires, possibly leading to some of the inconsistencies with past literature. Although privacy was maximized by this method of interview, there are no previous studies to compare these findings with. Future studies may want to ask questions in both a hand written and computerized format to compare results.

Most of the scales used in this study were not normed on the population used in this sample, leading to findings inconsistent with previous studies. The Relationship Scales Questionnaire was normed on an undergraduate population that was mostly Caucasian. The Los Angeles Symptom Checklist was normed on an adult veteran population suggesting that it may have a different set of norms for an adolescent sample.

While the creation and use of a five item ordinal scale to examine sexual risk was a strength of the study and supported by attachment researcher Dr. Karlen Lyon-Ruth (personal communication), there were limitations to using this method to measure sexual risk. In order to create the ordinal scale, questions about sexual risk were collapsed into a yes or no response. This method loses important data surrounding frequency of an individual's risk taking behaviors. For example, a participant who had unprotected sex once is very different than someone who did 100 times. In this study however, both of those individuals would have been coded as a yes on unprotected vaginal sex. Looking at the relationship of attachment to the frequency of unprotected vaginal sex acts would illicit different findings and is suggested for future research.

One of the challenges in this study and all studies with adolescence and sexual behavior is the question of how to categorize sexuality during these years. Norms for adolescent sexual behavior can be very fluid and what is seen as both sexually and relationally risky is thus always in question. Indeed, as described above, how these teens on the Lower East Side of Manhattan view teenage pregnancy and even STIs is different than how other groups of teens would see the same behaviors. As researchers we need to be careful to not apply a negative valence to certain sexual risk taking behaviors. Within our sample, we saw that attachment was not necessarily related to motivations toward sexual behavior suggesting that in future studies it will be critical to better understand the interplay between these two constructs.

**Clinical and Policy Implications**

This study highlighted the need to reconsider the decisions adolescents chose to make with their bodies that have long term effects (i.e. pregnancy, sexually transmitted infections) and the risk they put themselves into during these particularly sensitive developmental years. These findings should help inform clinicians who work with adolescents in community settings about how to better connect with their at risk clients. By incorporating discussions about primary attachment figures, unconscious motivations and experiences of trauma into conversations about sexual risk taking behaviors, clinicians will be able to better assist teens in making choices about how to protect themselves and how to go about experimenting sexually.

From a health education standpoint, these findings help educators and community leaders better understand that simply teaching teens how to protect themselves from STIs and sexually risky behaviors does not always directly lead to prevention. Instead, conversations about why adolescents are choosing to engage in risky behaviors regardless of whether they know the risks will help educators work towards prevention on an individual and community level.

## TABLES AND FIGURES

Table 1
**Demographic Characteristics of Sample (N=128)**

| Demographic Variable | *n*(%) |
|---|---|
| Gender | |
| Male | 74 (58%) |
| Female | 54 (42%) |
| Education – highest level of education obtained | |
| Currently attending school | 87 (68%) |
| Completed high school or above | 40 (31%) |
| Completed some high school | 74 (58%) |
| Completed 8th grade or less | 14 (11%) |
| Ethnicity | |
| Puerto Rican | 78 (61%) |
| African American | 46 (36%) |
| Dominican | 23 (18%) |
| African Caribbean | 7 ( 6%) |
| Other Latin American | 7 ( 6%) |
| Cuban | 2 ( 2%) |
| Colombian | 1 ( 1%) |
| Mexican | 1 ( 1%) |
| Speak Spanish at home | 59 (46%) |
| Race | |
| African American | 26 (20%) |
| Hispanic | 91 (71%) |
| Other | 11 ( 9%) |
| Sexual Behavior | |
| Never engaged in sexual activity | 24 (19%) |
| Has engaged in sexual activity | 104 (81%) |

Table 2
**Descriptive Statistics of Outcome Measures**

| Scale | N | Min | Max | Mean | SD | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|
| RSQ Avoidance | 128 | 1.42 | 4.83 | 3.23 | .82 | -0.09 | -0.69 |
| RSQ Anxiety | 128 | 1.00 | 4.81 | 2.53 | .89 | 0.46 | -0.57 |
| LASC total transformed | 122 | .00 | 76.00 | 23.05 | 18.31 | 1.16 | 1.02 |
| LASC PTSD | 122 | .00 | 37.00 | 9.41 | 8.35 | 1.26 | 1.51 |
| Relational Comfort Scale | 128 | 2.00 | 21.00 | 7.55 | 3.70 | 0.86 | 0.69 |
| Sexual Risk Scale | 128 | -1.00 | 5.00 | 0.97 | 1.39 | 0.31 | -0.35 |

Table 3
**Independent t-Tests: Gender differences on Outcome Measures**

| | Male | | Female | | *t* | *df* | *p* |
|---|---|---|---|---|---|---|---|
| Scale | *M* | *(SD)* | *M* | *(SD)* | | | |
| RSQ Avoidance | 3.13 | ( 0.78) | 3.38 | ( 0.85) | -1.69 | 126 | .09 |
| RSQ Anxiety | 2.39 | ( 0.78) | 2.72 | ( 0.99) | -2.04 | 97.37 | .04 |
| LASC Total | 21.92 | (18.91) | 25.45 | (22.20) | -1.19 | 120 | .24 |
| LASC PTSD | 8.96 | ( 8.01) | 10.08 | ( 8.86) | -0.73 | 120 | .47 |
| Sexual Risk Score (excl no sex) | 1.42 | ( 0.98) | 1.43 | ( 1.30) | -0.07 | 102 | .95 |
| Sexual Risk Score (incl no sex) | 0.96 | ( 1.29) | 0.98 | ( 1.51) | -0.09 | 126 | .93 |

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

Table 4

**Relationship of Outcome Measures to Race: Analysis of Variance**

| Scale | *F* (df, df) | *p* |
|---|---|---|
| RSQ Avoidance | 2.22 ( 2, 125) | .11 |
| RSQ Anxiety | 0.46 ( 2, 125) | .64 |
| LASC total score | 0.62 ( 2, 119) | .54 |
| LASC PTSD | 0.59 ( 2, 199) | .56 |
| Relational Comfort Scale | 1.82 (17, 110) | .03 |
| Sexual Risk Score (excl no sex) | 2.32 ( 2, 101) | .10 |

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

Table 5

**Associations between age and outcome measures: Pearson correlations**

| | *Pearson Correlation* | *p* |
|---|---|---|
| RSQ Avoidance | -.029 | .75 |
| RSQ Anxiety | -.001 | .99 |
| LASC Total | -.121 | .18 |
| LASC PTSD | -.108 | .24 |
| Sexual Risk Score (excl no sex) | -.054 | .58 |
| Sexual Risk Score (incl no sex) | -.039 | .66 |

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

Table 6

**Associations between education and outcome measures: Spearman's rho**

| | *Correlation Coefficient* | *p* |
|---|---|---|
| RSQ Avoidance | .148 | .10 |
| RSQ Anxiety | -.136 | .13 |
| LASC total score | .023 | .81 |
| LASC PTSD | .050 | .58 |
| Sexual Risk Score (excl no sex) | -.116 | .24 |
| Sexual Risk Score (incl no sex) | .348** | <.001 |
| Relational Comfort Scale | -.131 | .14 |

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

Table 7

**Relationship between attachment and trauma scales: Pearson correlations**

| | LASC total | LASC PTSD |
|---|---|---|
| Scale | *r* (*p*) | *r* (*p*) |
| RSQ Avoidance | .34 (< .001)** | .43 (< .001)** |
| RSQ Anxiety | .45 (< .001)** | .46 (< .001)** |
| Relational Comfort Total | .15 ( .09) | .10 ( .26) |

Table 8

**Spearman's Rho for Sexual Risk Score and Attachment Scores/Relational Comfort**

| | *Correlation Coefficient* | *p* |
|---|---|---|
| RSQ Avoidance | .297** | .001 |
| RSQ Anxiety | .-.002 | .978 |
| Relational Comfort Scale | -0.16 | 0.07 |

** Correlation is significant at the 0.01 level (2-tailed)

Table 9a

**Individual t-Tests: Differences in Attachment Avoidance by Relational Comfort responses**

| | Response to Item | | | | | | |
|---|---|---|---|---|---|---|---|
| | "Yes" Group | | "No" Group | | | | |
| GAIN Item | *M* | *(SD)* | *M* | *(SD)* | *t* | *df* | *p* |
| 1. Keeping a boyfriend/girlfriend | 3.20 | ( .86) | 3.24 | (.79) | 0.21 | 125 | .83 |
| 2. Feeling wanted | 3.21 | (.86) | 3.23 | (.79) | 0.17 | 125 | .86 |
| 3. Being one of the crowd | 3.03 | (.54) | 3.25 | (.83) | 0.91 | 125 | .37 |
| 4. Finding pleasure | 3.22 | (.82) | 3.23 | (.80) | 0.04 | 125 | .97 |
| 5. Getting respect | 3.33 | (.75) | 3.19 | (.83) | -0.86 | 125 | .39 |
| 6. Feeling close to my partner | 3.19 | (.80) | 3.26 | .83 | 0.47 | 125 | .64 |
| 7. Getting new friends | 3.36 | (.61) | 3.21 | (.83) | -0.52 | 125 | .60 |
| 8. Getting revenge | 2.91 | (.58) | 3.23 | (.82) | 0.66 | 125 | .51 |
| LOSS Item | *M* | *(SD)* | *M* | *(SD)* | *t* | *df* | *P* |
| 1. Having parents get angry | 3.11 | (.76) | 3.26 | (.82) | 0.89 | 125 | .37 |
| 2. Losing respect from friends | 2.81 | (.75) | 3.28 | (.80) | 2.21 | 125 | .03* |
| 3. Losing respect from others | 3.09 | (.73) | 3.24 | (.82) | 0.60 | 125 | .55 |
| 4. Losing a boyfriend or girlfriend | 3.66 | (.67) | 3.11 | (.81) | -3.20 | 125 | <.001 *** |
| 5. Losing self-respect | 3.24 | (.64) | 3.22 | (.84) | -0.07 | 125 | .94 |
| 6. Getting a bad reputation | 3.00 | (.73) | 3.26 | (.82) | 1.19 | 125 | .24 |
| 7. Having a fight | 3.49 | (.79) | 3.17 | (.81) | -1.69 | 125 | .09 |
| 8. Losing friends | 3.24 | (.56) | 3.22 | (.84) | -0.09 | 125 | .92 |
| VALUES Item | *M* | *(SD)* | *M* | *(SD)* | *t* | *df* | *P* |
| 1. From a relationship I would seek a sense of belonging | 3.32 | (.86) | 3.21 | (.81) | 0.45 | 125 | 0.66 |
| 2. From a relationship I would seek commitment to one another | 3.25 | (0.82) | 3.21 | (.81) | -0.28 | 125 | 0.78 |
| 3. From a relationship I would seek freedom to see other people | 3.09 | (.73) | 3.24 | (.82) | 0.60 | 125 | .55 |
| 4. From a relationship I would seek friendship | 3.14 | (.85) | 3.27 | (.79) | 0.87 | 125 | 0.39 |
| 5. From a relationship I would seek respect | 3.29 | (.83) | 3.11 | (.76) | -0.27 | 125 | 0.21 |
| 6. From a relationship I would seek to enjoy each others company | 2.99 | (.78) | 3.32 | (.81) | 2.07 | 125 | -0.04 |
| 7. From a relationship I would seek understanding | 3.32 | (.79) | 3.16 | (.82) | -1.04 | 125 | 0.30 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 8. From a relationship I would seek sexual fulfillment | 3.17 | (.76) | 3.23 | (.83) | 0.37 | 125 | 0.71 |
| 9. From a relationship I would seek comfort | 3.22 | (.85) | 3.23 | (.79) | 0.65 | 125 | 0.95 |
| 10. For myself, I seek to have a sense of belonging | 3.08 | (1.11) | 3.23 | (.79) | 0.51 | 125 | 0.61 |
| 11. For myself, I seek to help other people | 3.06 | (.85) | 3.26 | (.79) | 1.09 | 125 | 0.27 |
| 12. For myself, I seek to have a family | 3.11 | (.90) | 3.25 | (.79) | 0.79 | 125 | 0.43 |
| 13. For myself, I seek to have a stable romantic relationship | 3.15 | (.90) | 3.24 | (.79) | 0.49 | 125 | 0.62 |
| 14. I desire a partner who wants a family | 3.19 | (.85) | 3.23 | (.81) | -0.18 | 125 | 0.86 |
| 15. I desire a partner who is family oriented | 3.52 | (.78) | 3.19 | (.81) | -1.27 | 125 | 0.20 |
| 16. I desire a partner who wants a serious relationship | 3.15 | (.89) | 3.27 | (.77) | 0.75 | 125 | 0.45 |

Table 9b

**ANCOVAs: Differences on Attachment Anxiety by category of response to Relational Comfort (Gains/Losses) questions, controlling for gender.**

| Relational Comfort Item | Response to Item "Yes: Group | | | Response to Item "No" Group | | | Between Group Effect: Relational Comfort Group | | |
|---|---|---|---|---|---|---|---|---|---|
| **Gains** | *Est.M* | *(SE)* | *n* | *Est.M* | *(SE)* | *n* | *F (1, 125)* | *p* | eta$^2$ |
| 1. Keeping boy/girlfriend | 2.69 | (.142) | 38 | 2.47 | (.092) | 90 | 1.67 | .20 | .013 |
| 2. Feeling wanted | 2.65 | (.138) | 41 | 2.48 | (.094) | 87 | 1.10 | .30 | .009 |
| 3. Being one of the crowd | 2.85 | (.243) | 13 | 2.50 | (.082) | 115 | 1.93 | .17 | .015 |
| 4. Finding pleasure | 2.54 | (.091) | 95 | 2.50 | (.150) | 33 | 0.78 | .78 | .001 |
| 5. Getting respect | 2.56 | (.166) | 30 | 2.53 | (.090) | 98 | 0.03 | .87 | .000 |
| 6. Feeling close to my partner | 2.55 | (.106) | 69 | 2.51 | (.115) | 59 | 0.07 | .79 | .001 |
| 7. Getting new friends | 2.67 | (.302) | 9 | 2.52 | (.081) | 119 | 0.22 | .64 | .002 |
| 8. Getting revenge | 1.84 | (.505) | 3 | 2.55 | (.078) | 125 | 1.91 | .17 | .015 |
| **Losses** | | | | | | | | | |
| 1. parents get angry | 2.82 | (.161) | 29 | 2.45 | (.087) | 99 | 4.15 | .04* | .032 |
| 2. Losing respect from friends | 2.65 | (.221) | 16 | 2.52 | (.083) | 112 | 0.30 | .58 | .002 |

| Relational Comfort Item | Response to Item "Yes: Group | | | Response to Item "No" Group | | | Between Group Effect: Relational Comfort Group | | |
|---|---|---|---|---|---|---|---|---|---|
| | *Est.M* | *(SE)* | *n* | *Est.M* | *(SE)* | *n* | *F (1,125)* | *p* | eta$^2$ |
| 3. Losing respect from others | 2.79 | (.247) | 13 | 2.50 | (0.82) | 115 | 1.24 | .27 | .010 |
| 4. Losing a boyfriend or girlfriend | 2.92 | (.169) | 26 | 2.43 | (.085) | 102 | 6.61 | .01* | .050 |
| 5. Losing self-respect | 2.72 | (.201) | 20 | 2.49 | (.085) | 108 | 1.04 | .31 | .008 |
| 6. Getting a bad reputation | 2.88 | (.222) | 16 | 2.48 | (.083) | 112 | 2.84 | .09 | .022 |
| 7. Having a fight | 2.59 | (.184) | 23 | 2.52 | (.086) | 105 | 0.11 | .74 | .001 |
| 8. Losing friends | 2.91 | (.225) | 15 | 2.48 | (.082) | 113 | 3.26 | .07 | .025 |

| **Values** | *Est.M* | *(SE)* | *n* | *Est.M* | *(SE)* | *n* | *F (1,125)* | *p* | eta$^2$ |
|---|---|---|---|---|---|---|---|---|---|
| 1. From a relationship I would seek a sense of belonging | 3.09 | (.240) | 13 | 2.47 | (.080) | 115 | 5.91 | .02* | .045 |
| 2. From a relationship I would seek commitment to one another | 2.58 | (.112) | 62 | 2.48 | (.108) | 66 | 0.41 | .52 | .003 |
| 3. From a relationship I would seek freedom to see other people | 2.26 | (.441) | 4 | 2.54 | (.079) | 124 | 0.39 | .53 | .003 |
| 4. From a relationship I would seek friendship | 2.50 | (.128) | 48 | 2.55 | (.099) | 80 | 0.11 | .74 | .001 |
| 5. From a relationship I would seek respect | 2.57 | (.099) | 80 | 2.46 | (.129) | 48 | 0.43 | .51 | .003 |
| 6. From a relationship I would seek to enjoy each others company | 2.55 | (.145) | 37 | 2.53 | (.092) | 91 | 0.02 | .88 | .000 |
| 7. From a relationship I would seek understanding | 2.56 | (.126) | 49 | 2.51 | (.099) | 79 | 0.11 | .74 | .001 |
| 8. From a relationship I would seek sexual fulfillment | 2.36 | (.178) | 103 | 2.57 | (.087) | 25 | 1.12 | .29 | .009 |

| | Response to Item | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Relational Comfort Item | "Yes: Group | | | "No" Group | | | Between Group Effect: Relational Comfort Group | | |
| **Values** | *Est.M* | *(SE)* | *n* | *Est.M* | *(SE)* | *n* | *F (1,125)* | *p* | eta$^2$ |
| 9. From a relationship I would seek comfort | 2.53 | (.154) | 33 | 2.53 | (.090) | 95 | .00 | .99 | .000 |
| 10. For myself, I seek to have a sense of belonging | 2.46 | (.310) | 8 | 2.54 | (.081) | 120 | .05 | .82 | .000 |
| 11. For myself, I seek to help other people | 2.46 | (.181) | 24 | 2.55 | (.087) | 104 | .17 | .68 | .001 |
| 12. For myself, I seek to have a family | 2.61 | (.176) | 25 | 2.51 | (.087) | 103 | .26 | .61 | .002 |
| 13. For myself, I seek | 2.59 | (.189) | 22 | 2.52 | (.086) | 106 | .10 | .75 | .001 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| to have a stable romantic relationship | | | | | | | | | |
| 14. I desire a partner who wants a family | 2.70 | (.187) | 22 | 2.49 | (.085) | 106 | .94 | .33 | .007 |
| 15. I desire a partner who is family oriented | 2.91 | (.264) | 11 | 2.50 | (.081) | 117 | 2.20 | .14 | .017 |
| 16. I desire a partner who wants a serious relationship | 2.70 | (.128) | 47 | 2.44 | (.097) | 81 | 2.37 | .13 | .019 |

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

Table 10

**Pearson Correlation for Relational Comfort and Attachment Scales**

| | Relational Comfort Scale (total) |
|---|---|
| Avoidance Score, RSQ | |
| *Correlation Coefficient* | -.03 |
| *P* | .71 |
| Anxiety Score, RSQ | |
| *Correlation Coefficient* | .20* |
| *P* | .03 |

* Correlation is significant at the 0.05 level (2-tailed)

Table 11

**Pearson Correlation for Sexual Risk items and Attachment Scores**

| | Sex risk 1 | Sex risk 2 | Sex risk 3 | Sex risk 4 | Sex risk 5 | Sex risk 6 |
|---|---|---|---|---|---|---|
| Avoidance Score, RSQ | | | | | | |
| *Correlation Coefficient* | 0.21* | 0.04 | -0.06 | 0.10 | 0.16 | -0.15 |
| *p* | 0.04 | 0.82 | 0.56 | 0.29 | 0.11 | 0.12 |
| Anxiety Score, RSQ | | | | | | |
| *Correlation Coefficient* | 0.17 | 0.32 | -0.08 | -0.07 | 0.27** | -0.28** |
| *p* | 0.09 | 0.08 | 0.44 | 0.50 | 0.01 | 0.00 |

*Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed).

Table 12

**Spearman's rho for LASC and Sexual Risk Score**

| | *Correlation Coefficient* | *p* |
|---|---|---|
| LASC PTSD score | 0.17 | 0.06 |
| LASC total score, transf | 0.13 | 0.16 |

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

Table 13
**Pearson Correlation for Sexual Risk items and LASC Scores**

| | Sex risk 1 | Sex risk 2 | Sex risk 3 | Sex risk 4 | Sex risk 5 | Sex risk 6 |
|---|---|---|---|---|---|---|
| LASC total score | | | | | | |
| *Correlation Coefficient* | 0.20 | 0.17 | -0.00 | 0.14 | 0.18 | -0.26* |
| *p* | 0.06 | 0.37 | 0.99 | 0.17 | 0.08 | 0.04 |
| LASC PTSD score | | | | | | |
| *Correlation Coefficient* | 0.23* | 0.23 | 0.02 | 0.15 | 0.14 | -0.32* |
| *p* | 0.03 | 0.17 | 0.86 | 0.14 | 0.16 | 0.01 |

*Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed).

Table 14
**Frequencies of Sexual Risk Behaviors**

| | % Yes | % No | % refuse to answer | Never had sex |
|---|---|---|---|---|
| Sexual risk 1: did you have vaginal sex in last 6 months | 33 | 45 | 3 | 19 |
| Sexual risk 2: did you have anal sex in last 6 months | 8 | 16 | 57 | 19 |
| Sexual risk 3: did you drink alcohol the last time you had sex? | 23 | 59 | 0 | 19 |
| Sexual risk 4: did you smoke pot the last time you had sex? | 23 | 58 | 0 | 19 |
| Sexual risk 5: have you ever contracted an STI? | 8 | 73 | 0 | 19 |
| Sexual risk 6: have you ever been/made a girl pregnant? | 21 | 60 | 0 | 19 |

Table 15
**Independent T-Tests: Having had sex on Attachment scores**

| | Have you ever had sex? | | | | | | |
|---|---|---|---|---|---|---|---|
| | Yes | | No | | | | |
| Scale | *M* | *(SD)* | *M* | *(SD)* | *t* | *df* | *p* |
| Avoidance Score, RSQ | 3.34 | ( 0.71) | 2.73 | (0.71) | 3.44 | 125 | 0.00** |
| Anxiety Score, RSQ | 2.51 | (0.92) | 2.59 | (0.74) | 0.34 | 126 | 0.73 |

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

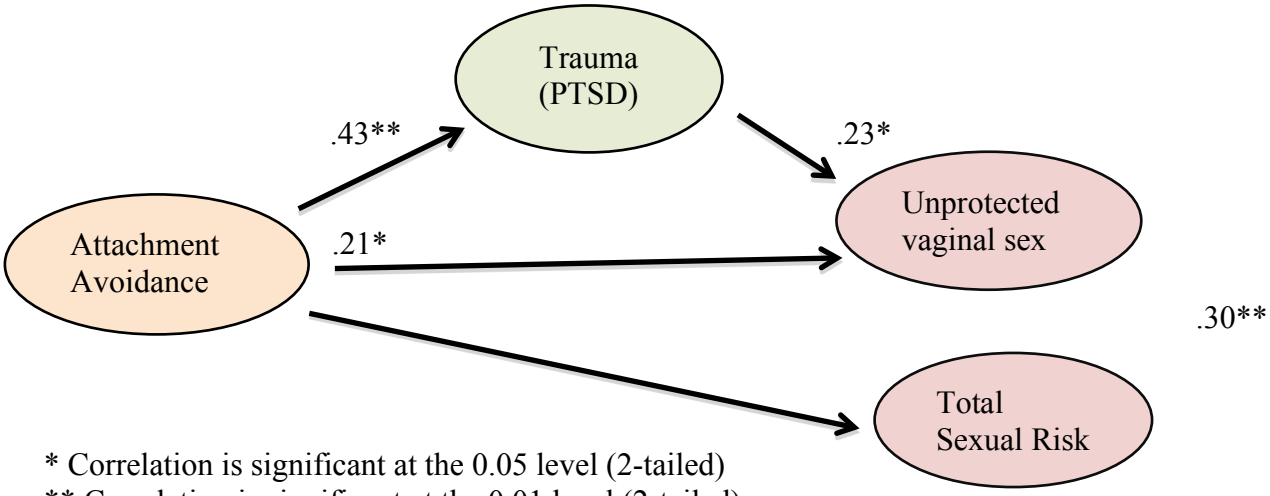
Table 16
**Spearman's rho for Relational Comfort total and Sexual Risk Score**

| | *Correlation Coefficient* | *p* |
|---|---|---|
| Relational Comfort total | -0.16 | 0.07 |

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

Figure 1

**Univariate relationships between RSQ Avoidance, Trauma and Sexual Risk Outcomes**

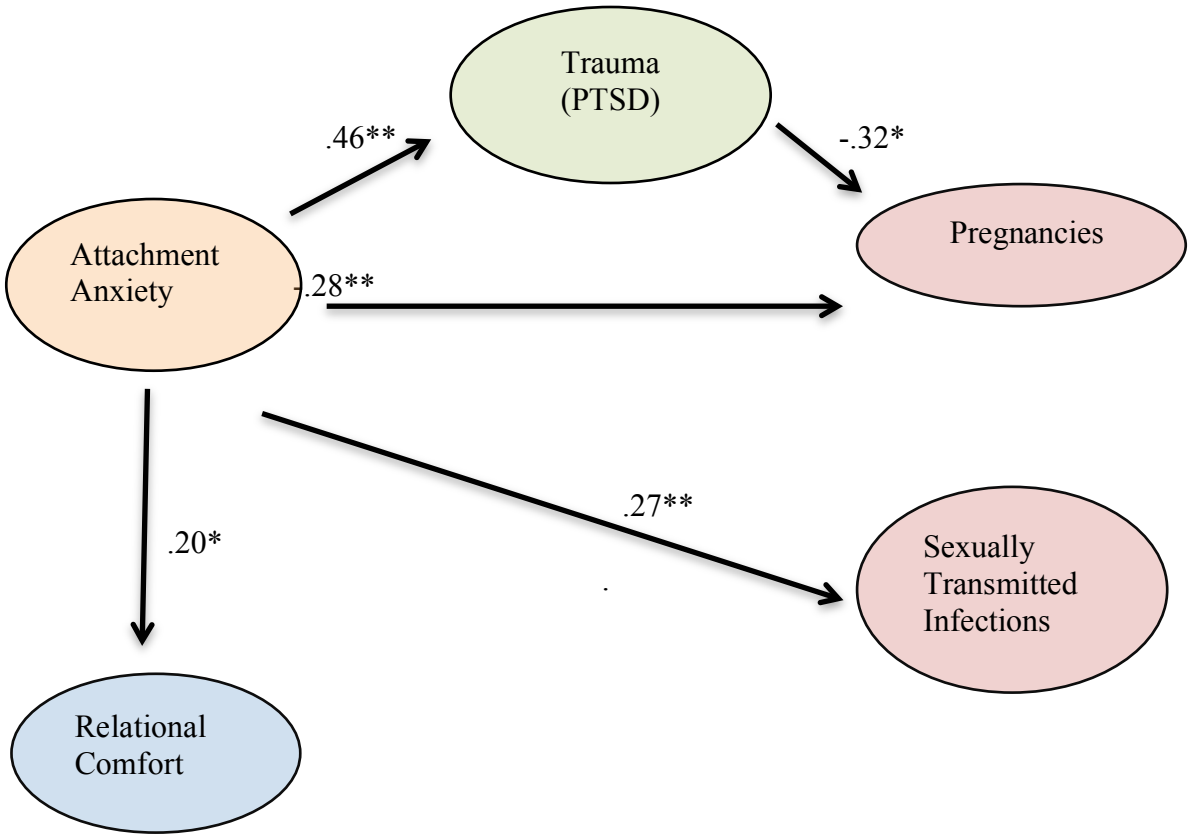



* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

Figure 2

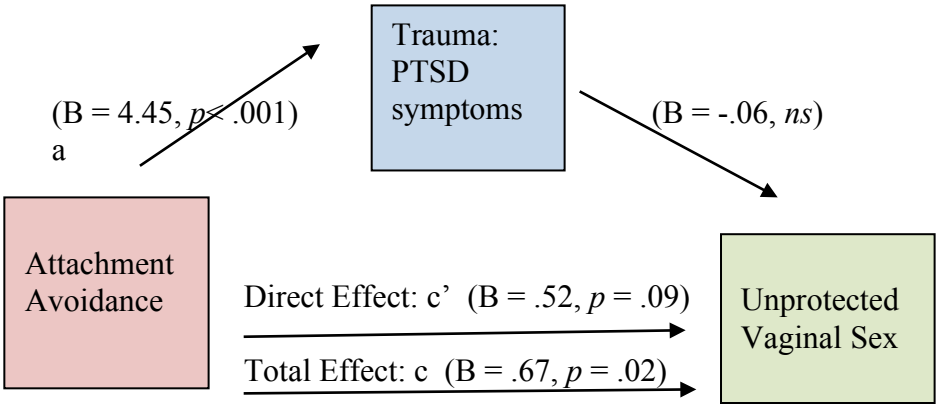
**Univariate relationships between RSQ Anxiety, Relational Comfort, Trauma and Sexual Risk Outcomes**




* Correlation is significant at the 0.05 level (2-tailed)

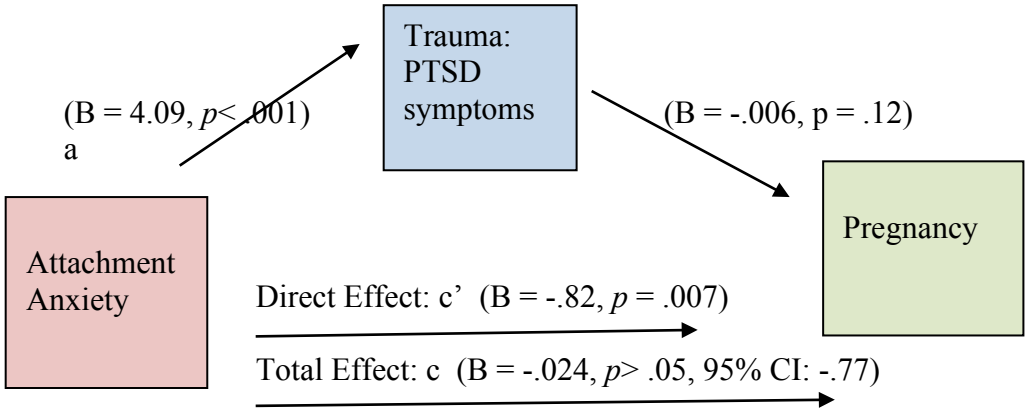
** Correlation is significant at the 0.01 level (2-tailed).

Figure 3
**Hypothesized Mediation Model: Attachment Avoidance**




*Note*. Total effect = Direct Effect + Indirect Effect

Figure 4
**Hypothesized Mediation Model: Attachment Anxiety**




*Note*. Total effect = Direct Effect + Indirect Effect

## Appendix of Measures

### APPENDIX A
### Relationship Scales Questionnaire (Griffin & Bartholomew, 1994)
(WITH FACTOR ANALYSIS CODES)

Please read each of the following statements and rate the extent to which you believe each statement best describes your feelings about close relationships.

(1 = not at all like me; 5 = very much like me).

1. I find it difficult to depend on other people. AVOIDANT
2. It is very important to me to feel independent. AVOIDANT
3. I find it easy to get emotionally close to others. ANXIOUS
4. I want to merge completely with another person. ANXIOUS
5. I worry that I will be hurt if I allows myself to become too close to others. ANXIOUS/AVOIDANT
6. I am comfortable without close emotional relationships.
7. I am not sure that I can always depend on others to be there when I need them. AVOIDANT
8. I want to be completely emotionally intimate with others. ANXIOUS
9. I worry about being alone. ANXIOUS
10. I am comfortable depending on other people. AVOIDANT (REVERSE CODE)
11. I often worry that romantic partners don't really love me. ANXIOUS
12. I find it difficult to trust others completely. AVOIDANT
13. I worry about others getting too close to me. AVOIDANT
14. I want emotionally close relationships. ANXIOUS
15. I am comfortable having other people depend on me. ANXIOUS
16. I worry that others don't value me as much as I value them. ANXIOUS
17. People are never there when you need them. AVOIDANT
18. My desire to merge completely sometimes scares people away. ANXIOUS
19. It is very important to me to feel self-sufficient. AVOIDANT
20. I am nervous when anyone gets too close to me. AVOIDANT
21. I often worry that romantic partners won't want to stay with me. ANXIOUS
22. I prefer not to have other people depend on me.
23. I worry about being abandoned. ANXIOUS
24. I am somewhat uncomfortable being close to others. AVOIDANT
25. I find that others are reluctant to get as close as I would like. ANXIOUS
26. I prefer not to depend on others. AVOIDANT
27. I know that others will be there when I need them. ANXIOUS
28. I worry about having others not accept me. ANXIOUS
29. Romantic partners often want me to be closer than I feel comfortable being.
30. I find it relatively easy to get close to others. ANXIOUS

## APPENDIX B

### Relational Comfort Scale

5 point Likert Scale (1 = not at all like me; 5 = very much like me)

1) I would be able tokeep boyfriend or girlfriend if I had sex
2) I would feel wanted if I had sex
3) I would be one of the crowd if I had sex
4) I would find pleasure if I had sex
5) I would get respect if I had sex
6) I would feel close to my partner if I had sex
7) I would get new friends if I had sex
8) I would get revenge if I had sex
9) My parents would get angry if I had sex
10) I would lose respect from friends if I had sex
11)I would lose respect from others if I had sex
12) I would lose a boyfriend or girlfriend if I had sex
13) I would lose self-respect if I had sex
14) I would get a bad reputation if I had sex
15 I would have a have a fight if I had sex
16) I would lose friends if I had sex.
17) From a relationship I would seek a sense of belonging
18) From a relationship I would seek commitment to one another
19) From a relationship I would seek freedom to see other people
20) From a relationship I would seek friendship
21) From a relationship I would seek respect
22) From a relationship I would seek to enjoy each others company
23) From a relationship I would seek understanding
24) From a relationship I would seek sexual fulfillment
25) From a relationship I would seek comfort
26) for myself, I seek to have a sense of belonging
27) For myself, I seek to help other people
28) for myself, I seek to have a family
29) for myself, I seek to have a stable romantic relationship;
30) I desire a partner who wants a family
31) I desire a partner who is family oriented
32) I desire a partner who wants a serious relationship

# APPENDIX C

## Sexual Risk Scale

1) In the last 6 months, how many times have you had unprotected vaginal sex? YES NO
2) In the last 6 months, how many times have you had unprotected anal sex? YES NO
3) The last time you had sex, did you drink alcohol? YES NO
4) The last time you had sex, did you use marijuana? YES NO
5) Have you ever contracted an STI? YES NO
6) Were you ever sure you were pregnant/made a girl pregnant? YES NO

**ORDINALLY SCORED**

-1= no sex
0=no risk
1=one risk activity
2=two risk activities
3=three risk activities
4=four risk activities
5=five risk activities
6=six risk activities

## APPENDIX D

### *Los Angeles Symptom Checklist* (King, King, Leskin& Foy, 1995)

5 point Likert Scale (0 = "no problem"; 4 = "extreme problem")

1. Difficulty falling asleep
2. Too much drinking
3. Severe headaches
4. Restlessness
5. Nightmares
6. Difficulty finding a job
7. Difficulty holding a job
8. Irritability
9. Pervasive disgust
10. Memory blackouts
11. Abdominal pain
12. Difficulty managing money
13. Feeling trapped in a job
14. Physical disabilities or medical problems
15. Hostility
16. Relationship problems
17. Easily tired
18. Drug abuse
19. Inability to express feelings
20. Tension or anxiety
21. Not able to enjoy activities
22. Suicidal thoughts
23. Vivid memories of unpleasant experiences
24. Eating too much
25. difficulty concentrating
26. dizziness/fainting
27. sexual problems
28. waking during the night
29. difficulty with memory
30. feeling self conscious
31. depression
32. inability to make or keep friends
33. excessive jumpiness
34. waking early in the morning
35. weight loss
36. heart pounding fast
37. panic attacks
38. issues with authority
39. avoidance of activities that remind you of unpleasant experiences
40. trouble trusting others
41. loss of interest in activities
42. feeling numb emotionally

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[i]Since RSQ avoidance and RSQ anxious were highly intercorrelated ($r = 0.54$, $p < .01$) suggesting a high overlap between the scores and therefore possibly a clinical similarity in participants who scored high on each scale (conceptualized as insecure attachment) a total insecurity score was created. In order to create this score, the mean of the avoidant and anxious RSQ scores was obtained. The Insecurity Score was highly correlated with both the RSQ avoidance (0.867) and RSQ anxiety (0.891) scores, both at the 0.01 level. Correlations were then computed between Insecurity score and the outcome variables (Relational Comfort Score and Sexual Risk Score). These correlations were not significant. This is interesting given the fact that RSQ Anxiety was significantly correlated with Relational Comfort at the 0.05 level (see Table 10). Similarly, RSQ Avoidance was highly correlated with Sexual Risk Score at the 0.01 level (see Table 8) but not with the Insecurity Score.