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The impact of adolescent social anxiety on adulthood adjustment among sexually abused girls

Madeline Anne Rakow Ivanchenko

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THE IMPACT OF ADOLESCENT SOCIAL ANXIETY ON
ADULTHOOD ADJUSTMENT AMONG SEXUALLY ABUSED GIRLS

by

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Dissertation

Submitted to the Department of Psychology

Eastern Michigan University

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

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April 21, 2008

Ypsilanti, Michigan

To Roman, my husband and best friend.

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Abstract

Childhood sexual abuse (CSA) is a significant social problem that has gained increased recognition since the 1980s. The increased attention has led to a substantial body of research that documents both the high prevalence and pervasive effects of CSA. CSA is associated with a wide range of adulthood psychopathology, including major depression, posttraumatic stress disorder, anxiety disorders, substance use, suicidal behavior, alterations in self-concept, and disruptions in interpersonal relatedness (Beichtman, Zucker, Hood, DaCosta & Cassavia, 1992; Browne & Finkelhor, 1986; Cole & Putnam, 1992; Polusny & Follette, 1995; Russell, 1986; Wilson, 2006). Sexually abused children are also at a higher risk for experiencing social anxiety during adolescence due to the shame and guilt that characterize CSA sequelae (Feiring, Rosenthal & Taska, 2000; Wilson, 2006). However, little is known about the impact of these problems on adulthood adjustment. This study investigated the impact of adolescent social anxiety at age 14 on adulthood adjustment among sexually abused girls by focusing on three study aims. First, a range of indicators of adulthood adjustment were compared between sexually abused and non-abused girls, including depression, self-esteem, problematic alcohol use, alcohol risk behavior, relationship satisfaction, friendship satisfaction, violence in relationships, relationship characteristics, age at first voluntary sexual intercourse, and frequency of unprotected sex. Second, the relationship between CSA and adolescent social anxiety at age 14 was evaluated. Third, adolescent social anxiety was assessed as both a mediator and a moderator between CSA and adulthood outcomes. Results suggest that CSA is associated with increased depression at age 28, lower self-esteem at age 28, lower alcohol risk behavior at age 28, higher

frequency of unprotected sex at age 24, and younger age at first voluntary sexual intercourse. Severity of CSA experiences demonstrated a significant, albeit small, relationship to adolescent social anxiety at age 14. Finally, adolescent social anxiety at age 14 was supported as a mediator between CSA and adulthood depression at age 28 and self-esteem at age 28. Data for this study were drawn from a larger 17-year community-based longitudinal study, the Michigan Study of Adolescent and Adult Life Transitions (MSALT).

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THE IMPACT OF ADOLESCENT SOCIAL ANXIETY AND ON ADULTHOOD
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Introduction

Childhood sexual abuse (CSA) became increasingly recognized by the general public in the last quarter of the 20th century. As a result, research investigating the prevalence and consequences of CSA proliferated. This literature documents both the high prevalence of sexual abuse and the marked multifinality seen among sexually abused individuals. The range of psychopathology associated with CSA includes agoraphobia, social phobia, simple phobia, panic disorder, obsessive compulsive disorder, posttraumatic stress disorder (PTSD), substance abuse, dissociation, memory impairment, somatization, personality disorders, self-blame, sexual problems, interpersonal problems, and revictimization (Beichtman, Zucker, Hood, & DaCosta, 1992; Brown & Finkelhor, 1986; Polusny & Follette, 1995). The psychopathology seen among sexually abused individuals is often varied and persistent, lasting years and even decades past the initial incidence of abuse.

The heterogeneity of outcomes among sexual abuse survivors is marked, as illustrated by wide range psychiatric disorders and adjustment issues presented above. The relationship between CSA and adulthood outcome is influenced by many factors, including characteristics of the sexual abuse experience(s), the child and his/her environment, and factors that occur both before and after the abuse. Children who experience the same sexual abuse event may respond very differently over time and may reach different outcomes in adulthood. The complexity of the relationship between CSA and adulthood outcome necessitates a lifespan approach that considers factors present

throughout the course of development. The heterogeneity of response to CSA and the widespread nature of this problem warrant further empirical investigation into the relationship between CSA and adulthood outcomes.

Legal Protection of Children from Childhood Sexual Abuse

Legal protection of children from CSA has evolved over time. During the Progressive Era (1891-1913), all states wrote legislation defining child abuse and neglect, awarding the states the authority to remove a child from the home if necessary. The increased willingness on the part of the state to intervene on behalf of the child arose in part out of a high profile New York court case in 1874 in which a small child, Mary Ellen, was brought into a courtroom severely beaten by her caregivers. Although no child abuse legislation existed at the time, animal protection legislation did exist and was used to uphold the state's right to remove the abused child from her home. Mary Ellen was removed from the home on the basis of the authority invested in the New York Society for the Prevention of Cruelty to Animals. The infamous case of Mary Ellen resulted in the foundation of the New York Society for the Prevention of Cruelty to Children. By 1900, 161 "Cruelty Societies" existed in the United States (Mason, 1994).

Although categories defining child abuse and neglect were established during the Progressive Era, they were rarely enforced. States were ill-equipped to enforce this legislation, and the social norms favored the acceptance of corporal punishment and deference to the privacy of family affairs. Court documents from this time show that very few children were removed from the home for physical or sexual abuse, and that most often it was neglect of a child that caused the state to remove a child and enforce the legislature (Mason, 1994).

Mandatory reporting laws, which were enacted several decades later, provided a systemic effort to protect children from abuse and neglect. These laws required physicians to report all forms of suspected child abuse. In 1968, 44 states had enacted mandatory reporting laws. Since the late 1960s, mandatory reporting laws have expanded to include all professionals and voluntary reporting by the public (Mason, 1994).

Prevalence of Childhood Sexual Abuse

Mandatory reporting laws resulted in a heightened awareness of the prevalence of child abuse, including CSA. In the 1970s and 1980s, empirical investigation of the prevalence and effects of CSA began to flourish, with early studies including Finkelhor (1979) and Russel (1983). This early research, coupled with several high-profile cases of CSA that received significant media attention at this time, raised public awareness of and promoted interest in CSA as an area of academic study.

Research has continued to document the widespread scope of CSA both in the United States and around the world. In a large U.S. national survey, Finkelhor, Hotaling, Lewis, and Smith (1990) found that 27% of women and 16% of men reported CSA. High rates of CSA have also been found in countries outside the United States of America. A review of large population-based studies from 19 countries found CSA prevalence rates ranging from 7% to 36% for females and 3% to 29% for males.

The actual rate of CSA is likely to be higher than these reported rates, due to the secretive nature of CSA and the inherent powerlessness of children (Finkelhor, 1994a). Children have very few of their own resources at their disposal for self-protection, and very young children lack the verbal capacity to tell someone about the abuse. These

characteristics lead to an inherent powerlessness that places younger children at risk of experiencing more frequent and more severe forms of victimization than older children and adults (Finkelhor, 1994b).

Definitions of Childhood Sexual Abuse

Researchers have used a variety of definitions regarding what constitutes sexual abuse. For example, Russell (1986) defines sexual abuse as unwanted sexual experiences before the age of 14, attempted or completed rape prior to age 17, or attempted or completed sexual contact between relatives before the victim turned 18. Briere and Runtz (1988) define CSA as sexual contact between someone under 15 and another person 5 or more years older. Burkhardt and Rotatori (1995) define CSA as sexual contact or interaction between a child and an adult when the child is being used for the sexual stimulation of the perpetrator or another person. This definition highlights that although sexual abuse often occurs in a dyadic interaction, sexual abuse can also occur in a group setting characterized by multiple perpetrators and/or multiple victims. Coulborn-Faller (1988) defines CSA as any act occurring between people who are at different developmental stages which is for the sexual gratification of the person at the more advanced developmental stage.

As evidenced by the various definitions used by researchers, the term *childhood sexual abuse* encompasses a wide array of sexually exploitative behaviors between a child and an older person. Examples of some specific behaviors that fall under this term include exposure of sexual organs, talking in sexually inappropriate ways to a child (e.g. commenting on a child's sexual attributes), as well as physical contact, including oral to genital contact, genital to genital contact, digital penetration, and sexual intercourse.

Sexual exploitation such as child pornography and child prostitution is also a form of CSA (Coulbern-Faller, 1988). These heterogeneous sexually exploitative behaviors are all forms of CSA that vary in terms of severity and sexual intrusiveness.

Due to the heterogeneity of what constitutes CSA, the term “sexually abused individuals” often includes children with quite different CSA experiences. For example, an individual who was repeatedly raped as a child may be categorized accordingly with another individual who experienced a single episode of less intrusive sexual abuse. In cases where research studies employ a broad definition of CSA that includes individuals with varying parameters of CSA in the same group, the psychopathology seen in the sample may underrepresent that which may be experienced by survivors of more severe sexual abuse (Haugaard, 2000).

Characteristics of Childhood Sexual Abuse

Certain characteristics of CSA are associated with more complex and chronic long-term effects. These factors include the level of sexual intrusiveness of the abuse (Silk, Nigg, Westen, & Lohr, 1997), the frequency/ duration of the abuse (Terr, 1995), the closeness of the relationship between the child and the perpetrator (Freyd, DePrince, & Zbruggen, 2001; Freyd, 1996), and the age at onset (Beitchman et al., 1992). The relationship between the characteristics of CSA and adulthood outcomes is described below.

Sexual intrusiveness. The extent of sexual contact involved in CSA appears to have a direct effect on the severity of the emotional effects of abuse. Among CSA experiences, those that involve penetration, such as vaginal intercourse, are associated with more lasting harm than less sexually intrusive forms of CSA (Beitchman et al.,

1992; Finkelhor, Hotaling, Lewis, & Smith, 1989; Russell, 1986). More sexually invasive sexual abuse produces higher subjective ratings of lasting harm by survivors. It is generally accepted that sexual abuse involving genital contact is potentially more harmful than non-invasive forms of sexual abuse, such as exhibitionism. Severity of CSA, or level of sexual intrusion, is positively correlated with frequency of the abuse, and negatively correlated with age at onset. More frequent abuse that begins at an earlier age is more likely to be highly sexually intrusive (Beichtman et al., 1992).

Frequency/duration of CSA. Frequent or ongoing sexual abuse is one of the most widely recognized parameters of CSA that is associated with severe long-term psychopathology. The effects of ongoing CSA on adulthood adjustment are much more severe than the effects of a discrete incident or episode of CSA (Elliott & Briere, 1992; Terr, 1988). It is believed that ongoing trauma exposure impedes normal recovery processes with repeated violation and thereby requires the continuous use of defensive coping mechanisms (Briere, 2002). Silk, Nigg, Westen, and Lohr (1997) found that the frequency or duration of CSA was the most significant predictor of problems in interpersonal functioning in adulthood and was associated with the development of borderline personality disorder. The authors suggest that ongoing, continuous abuse can severely alter the child's worldview, leading to a deep conviction that other people are unsafe and interested only in their own gratification. This contributes to the development of a malevolent object world and disruptions in interpersonal relationships that can persist over the course of development (Silk et al., 1997).

Terr (1988) discusses the distinct differences in emergent symptom patterns of those exposed to ongoing childhood traumas versus single, episodic traumatic events.

She developed a rubric for categorizing traumas based on the frequency/duration of the traumatic experience, categorizing single, episodic events as Type I traumas and ongoing traumas as Type II traumas. Type II traumas predict more severe and complex symptomatology relative to Type I trauma. Clinical and empirical research supports the relationship between ongoing Type II traumas and more complex psychopathology (Terr, 1995).

Closeness to the perpetrator. The relationship between the child and the perpetrator of sexual abuse also has a significant impact on the posttraumatic reaction (Beichtman, Zucker, Hood, DaCosta, & Cassavia, 1992). Level of perceived closeness of the child to the perpetrator is positively associated with psychopathology and adjustment difficulties. Janoff-Bulman (1992) suggests that in cases of child abuse perpetrated by a primary caregiver, the experience is likely to become fully incorporated into the way the child cognitively constructs the world (Janoff-Bulman, 1992).

It is common for a perpetrator to be a relative or acquaintance of the child because these individuals have access to the child in ways that a stranger does not (Coulborn-Faller, 1988; Freyd, 1996). Individuals who are known to the child have increased opportunities to sexually abuse. The literature regarding identity of the perpetrator suggests that sexual abuse by a parental figure is particularly harmful and that sexual abuse perpetrated by a parental figure is less likely to be remembered or reported by the child (Freyd, 1996). Incest victims are more likely to report revictimization in adulthood than individuals who experience abuse perpetrated by a stranger (Freshwater, Leach, & Aldridge, 2001).

Age at onset. Younger age at onset of CSA is also associated with more severe psychopathology in adulthood (Courtois, 1979). However, younger age is also correlated with other abuse characteristics indicative of long-lasting harm. The younger the child is at the first incidence of abuse, the greater likelihood is that the abuse was highly sexually intrusive (Browne & Finkelhor, 1986). For example, younger children are also more likely to be abused by a father or stepfather, which is associated with more severe sequelae than abuse perpetrated by non-father figures (Herman, Russell, & Trocki, 1986). Younger age is also correlated with duration of trauma: the younger the child is when the abuse begins, the more likely it is that the abuse is ongoing in nature. Because age at onset of CSA is highly correlated with level of sexual intrusiveness, frequency/duration, and closeness to the perpetrator, it is difficult to assess the independent contribution of age to adulthood outcomes (Beichtman et al., 1992).

Theoretical Models of CSA Sequelae

Several researchers have proposed theoretical models to account for the marked multifinality among survivors of CSA. Two such models are the four traumagenic dynamics model and the complex posttraumatic stress disorder (CPTSD) model. Both the traumagenic dynamics model and the CPTSD model emphasize the complexity of the human response to trauma, particularly when the trauma is purposely inflicted, such as the case in CSA. Both models also assume that symptoms and disorders emerge from a result of a convergence of multiple causative factors, rather than as a direct result from a single factor. The following sections introduce and describe these theoretical models.

Four traumagenic dynamics. In effort to better understand the heterogeneity of adulthood outcomes among sexual abuse survivors, Finkelhor and Browne (1985)

identified four traumagenic dynamics that characterize CSA and predict dysfunction later in life. Traumas are conceptualized in this model to vary based on a particular dynamic of the trauma that is said to be “traumagenic,” or producing harm. The four dynamics are traumatic sexualization, betrayal, stigmatization, and powerlessness. The paragraph below outlines each dynamic.

Traumatic sexualization refers to the inappropriate or dysfunctional shaping of the child’s sexuality. This occurs when perpetrators reward children for age-inappropriate sexual behavior. Betrayal, the second dynamic, refers to both the betrayal of trust between the child and the perpetrator, and the potential betrayal response when a child’s disclosure of actual abuse is not believed by others. Stigmatization refers to the feeling of defilement and shame common among survivors of CSA. Messages given to the child by the perpetrator or heard by the child in the wake of disclosure often implicate the child, further contributing to this dynamic. Powerlessness, the final traumagenic dynamic, occurs because the child’s will is overruled by the experience of abuse, which hinders the child’s sense of efficacy (Finkelhor & Browne, 1985). This direct threat to safety is referred to in the PTSD model as the experience of threat to life and helplessness (American Psychiatric Association, 2000).

A unique attribute of the traumagenic dynamic model (Finkelhor & Browne, 1985) is that it predicts the emergence of specific symptoms by identifying disruption of a particular traumagenic dynamic. For example, disruption of the traumatic sexualization dynamic can lead to having many sexual partners and compulsive sexual behavior, or, alternatively, to having an aversion toward sex and intimacy (Classen, Field, Koopman, Nevill-Manning, & Spiegel, 2001).

Browne and Finkelhor (1986) completed a review of empirical literature to test their model and to identify both the acute and long term reaction to CSA. In regard to the acute response, sexually abused children show fear, anxiety, depression, anger and hostility, aggression, and sexually inappropriate behavior. Common long term effects include depression, self-destructive behavior, anxiety, feelings of isolation and stigma, poor self-esteem, difficulty in trusting others, a tendency toward revictimization, substance abuse, and sexual maladjustment (1986). They conclude that the types of sexual abuse that are most deleterious are those perpetrated by father figures, those that involve a greater degree of sexual intrusion, and those that use excessive force.

The four traumagenic dynamics model aids in identifying the aspects of CSA that cause psychopathology. The traumatic sexualization, betrayal, stigmatization, and powerlessness that characterize sexual abuse experiences are causative agents that predict long term psychopathology.

Many of the effects that the traumagenic dynamics produce fall outside the framework of PTSD. While the four traumagenic dynamics model outlines the effects of various abuse characteristics, the Complex Posttraumatic Stress Disorder model focuses on the wide range of adulthood adjustment problems reported by survivors of CSA and other complex traumas.

Complex posttraumatic stress disorder. Complex posttraumatic stress disorder (CPTSD; Herman, 1992a) is used as a diagnostic label that serves as an alternative to PTSD for survivors of “complex traumas.” Complex traumas are prolonged, interpersonal traumas characterized by the infliction of terror or some form of captivity. This diagnostic label is used to describe an emergent symptom pattern that is

qualitatively different from that related to circumscribed, episodic traumatic events. Survivors of concentration camps, childhood sexual or physical abuse, and domestic violence would all be classified under the definition of prolonged, interpersonal trauma. The range of symptoms seen among survivors of such traumatic experiences is more complex and is diffused over many aspects of functioning.

CPTSD includes a wider range of symptoms relative to the traditional PTSD framework. CPTSD emphasizes the experience of shame, guilt, and the disruption in interpersonal relationships that is not integral to the PTSD model. While the symptoms of PTSD are based on three main symptom clusters: hyperarousal, reexperiencing of the trauma, and avoidance of trauma-related stimuli (American Psychological Association, 2000), the symptoms of CPTSD include a more diffuse range of symptoms, such as alterations in affect regulation (e.g. persistent dysphoria, self-injurious behavior), alterations in consciousness (e.g. memory impairment, dissociation, flashbacks), alterations in self-perception (e.g. helplessness, sense of complete difference from others), alterations in perception of the perpetrator (e.g. idealization of paradoxical gratitude, unrealistic attribution of total power to the perpetrator), alterations in relations with others (disruption in interpersonal relationships, persistent distrust), and alterations in systems of meaning (sense of despair, loss of sustaining faith; Herman, 1992a). Additionally, the symptoms of CPTSD may be comorbid with other disorders and symptomatology. Complex trauma exposure results in a loss of core capacities, such as self-regulation and interpersonal relatedness, which are not necessarily affected in other types of trauma (Wilson, 2006).

Children exposed to complex trauma are at a particular risk because of the early stage of development at which they face the harmful event. They may be unable to contextualize the trauma because of the lack of contradictory positive life experiences and few personal resources (Janoff-Bulman, 1989). The early experience of complex trauma places children at risk for additional trauma exposure and cumulative impairment (e.g., psychiatric disorders; vocational, and relationship problems). Additionally, the high levels of shame and guilt experienced by survivors of complex trauma compound the pathological emotional processes of depression, substance use, and PTSD (Wilson, 2006). These problems potentially extend through adulthood (Cook, Ford, Lanktree, Blaustein, Cloitre, DeRosa, Hubbard et al, 2005).

Several researchers have proposed mechanisms explaining the range of outcome related to CSA. For example, children who are sexually abused learn to adopt a dissociative defense style that is characterized by a psychological separation from the immediate situation. Dissociation is adaptive for sexually abused children because it allows them to dis-associate from a reality that may be extremely painful. However, as an adult, the dissociative defense style may hinder accurate appraisal of danger, particularly in interpersonal relationships (Siegal, 1996). Other theorists suggest that survivors have an unconscious “habit of obedience” that may impair their ability to protect themselves and make them susceptible to future maltreatment. The over-learned tendency to denigrate oneself and idealize others can potentially contribute to impaired judgment and appraisal of interpersonal danger. Another explanation is that sexual abuse survivors often have a deep longing to be loved and to receive nurturing care that may override signals that a relationship is unhealthy. The strength of this longing may make it

difficult to maintain appropriate boundaries. Although these tendencies were initially healthy adaptations to the experience of CSA, these patterns often generalize to adulthood and may interfere with interpersonal functioning across development (Herman, 1992b).

Several studies based on the CPTSD model have supported the relationship between CSA and adulthood psychopathology. Herman, Russell, and Trocki (1986) found that CSA is associated with a range of long term effects, such as difficulty trusting others, higher rates of abusive interpersonal relationships, high levels of dissociation, and low self-worth.

The range of symptoms associated with CSA, although diverse, often maintain and contribute to one another. For example, unhealthy interpersonal relationships may contribute to depression and low self-esteem. Drug and/or alcohol use may contribute to unhealthy interpersonal relationships, low self-esteem, and depression. The reciprocal influence among symptom clusters characterizes the complexity of CSA sequelae. The following sections will introduce several disorders and symptomatology common among survivors of CSA.

Depression. Multiple meta-analyses have documented the relationship between CSA and adulthood depression (e.g., Beichtman et al., 1992; Polusny and Follette, 1995). Polusny and Follette's review found that all but one study demonstrated significant differences in depression between abused and non-abused groups. Several studies reviewed utilized non-clinical sample demonstrated higher rates of depressive symptoms among participants sexually abused in childhood relative to non-abused participants (e.g., Braver, Bumberry, Green, & Rawson, 1992). Other studies reviewed found that CSA

survivors scored significantly higher on the Depression scale of the Minnesota Multiphasic Personality Inventory (MMPI), which taps depressive symptoms such as hopelessness about the future and general dissatisfaction with life (e.g., Hunter, 1991). Beichtman et al. (1992) reviewed eight studies and found that six supported a relationship between CSA and adulthood depression. Of the two studies that did not support the relationship between CSA and adulthood depression, one may have been hindered by the inclusion of less severe forms of CSA in the abused group, and the other still found a significant correlation between CSA and depression even when the time elapsed since the abuse was 37 years.

Depression is often highest among individuals who have experienced multiple abusive experiences in both childhood and adulthood relationships (McGuigan & Middlemiss, 2005; Murphy, Amick-McMullan, Veronen, Paduhovich, Best, Villepontoux, & Saunders, 1988). Sexual abuse is also associated with suicidal behavior. Brodsky, Oquendo, Ellis, Haas, Malone, and Mann (2001) examined abuse history, impulsivity, suicidal behavior, and aggression in 136 adult inpatients with major depressive disorder. Results suggest that participants who reported childhood abuse were more likely to make a suicide attempt than non-abused participants. The effect of sexual abuse on suicide remained significant even after the traits of impulsivity, aggression, and borderline personality diagnosis were taken into account (Brodsky, Oquendo, Ellis, Haas, Malone, & Mann, 2001).

Self-esteem. Traumatic events can profoundly affect how individuals view themselves (Janoff-Bulman, 1992). CSA, in particular, can have a profound negative impact on a child's sense of self that persists across development. Browne and Finkelhor

(1986), in their review of the short and long-term effects of CSA, found more empirical support for decreased self-esteem as a long-term effect as opposed to a short-term response to abuse. Cole and Putman (1992) identified two themes underlying the long-term effects of CSA on self-esteem: (a) deviations in the intra-psychic processes of defining, regulating, and integrating aspects of the self; and (b) deviations in the related ability to experience a sense of trust and confidence in others. In this way, CSA can profoundly impact both one's sense of self as well as one's appraisal of others.

Comparisons of sexually abused and non-abused women have found significant differences in self-esteem long after the initial experience of abuse (Browne & Finkelhor, 1986; Freshwater et al., 2001). Freshwater et al. (2001) found that sexually abused participants reported greater discrepancies between their sense of an ideal self and how they actually perceived themselves, leading to impaired self-esteem. Disruptions in self-esteem may be expressed in numerous ways, including affect regulation, self-injurious and self-critical behaviors, and insecure interpersonal relationships (Liem & Boudewyn, 1999).

A coherent sense of self requires the integration and organization of diverse aspects of experience (Siegel, 1999). This is often an extremely difficult task in light of sexually abusive experiences. The experience of CSA is often secretive, which inhibits the child from being able to incorporate this experience into their narrative of the rest of their life. This impairs their ability to achieve a coherent sense of self. CSA also entails a violation of the boundary of the child's body and personal space as well as a violation of social norms. Because the child often views him or herself as a participant in this act, a profound sense of shame can result that may last through adulthood. In describing the

effect of abuse-related shame on development, Hunter (2000) explains that, “Since shame is related to a person’s “self” and not merely to an experience, the shame becomes part of the victim’s identity, and it follows him into adulthood affecting his view of himself and everything he does....” (p.81)

Violence in interpersonal relationships. Adults who were sexually abused as children report higher levels of violence and revictimization in their adult relationships. The prevalence of interpersonal violence such as rape, domestic violence, and prostitution is significantly higher among adults sexually abused as children than among non-abused adults (Classen, Field, Koopman, Nevill-Manning, & Spiegel, 2001; Messman-Moore & Long, 2003). Swan, Gambone, Fields, Alice, Sullivan, and Snow (2005) found that victimization in childhood increased the risk of violence in adulthood relationships. Violence in adulthood relationships was also linked to an increased risk for depression and PTSD.

Several factors have been identified as contributing to unhealthy adulthood relationships among abuse survivors, including impaired sense of self, maladaptive behaviors, attitudes, and beliefs related to the abuse, poor relationship choices, learned helplessness, and level of closeness of the child/perpetrator relations (Freshwater et al., 2001; Classen et al., 2001). Briere (1989) writes that, “Sexual abuse may be relatively unique among forms of interpersonal aggression in that it combines exploitation and invasion with, in some instances, what otherwise may be evidence of love or caring (e.g., physical contact, cuddling, praise”; p. 19). It is not surprising that CSA potentially impacts the adult survivor’s ability to trust others appropriately, to experience intimacy, and to form and maintain healthy relationships.

Relationship satisfaction. Survivors of CSA also experience interpersonal difficulties less severe than interpersonal violence. Survivors of CSA report lower sexual adjustment in adulthood (Beitchman et al., 1992; Fromuth, 1986) and less satisfaction in relationships (Larson & Lamont, 2005; Testa, VanZile-Tamsen, & Livingston, 2005). The experience of CSA potentially distorts beliefs about trust, safety, and control in interpersonal relationships, leading to interpersonal conflict (Cole & Putnam, 1992). Colman and Widom (2004) used a prospective design of substantiated abuse cases to investigate the effect of childhood abuse and neglect on adult intimate relationships. Results indicated that male and female survivors of abuse and neglect reported higher rates of walking out and divorce and lower levels of trust for their partners. However, contrary to the expected effects, adult males who reported abuse had significantly higher ratings of warmth for their adult interpersonal relationships than non-abused males. Results indicated that sexually abused and neglected females reported significantly lower ratings of relationship quality than controls.

DiLillo and Long (1999) found that CSA was related to lower levels of relationship satisfaction and poorer communication with romantic partner. Jehu, Gazan, and Klassen (1988) found that all survivors of CSA reported problematic relationships with romantic partners and friendships, and that half of female survivors reported problematic relationships with other women. Liem and Boudewyn (1999), in a sample of 687 undergraduate students, found that level of self-blame regarding the abuse was predictive of impaired social functioning in adulthood. In sum, research suggests that childhood abuse is related to lower levels of stability and lower ratings of quality of adulthood interpersonal relationships.

Drug and alcohol use. Higher rates of problematic alcohol and substance use are also reported by survivors of sexual abuse relative to non-abused individuals (Bensley, Spieker, Van Eenwyk, & Schoder, 1999). CSA is also associated with early initiation of substance use in adolescence (Medrano, Hatch, Zule, & Desmond, 2002). Research supports that CSA contributes to substance use independent of other contextual factors. For example, Bailey and McCloskey (2005) examined the relationship between CSA and adolescent substance use and found that CSA was associated with substance use even when controlling for concurrent physical abuse, emotional abuse, age at the time of abuse, childhood depression and aggression, family income, maternal substance use, and parenting practices. Wilsnack, Vogeltranz, Klassen, and Harris (1997) investigated the relationship between CSA and adult alcohol use. Results indicated that women reporting CSA were significantly more likely than other women to report problem drinking behavior. Widom, Ireland, and Glynn (1995) found a significant relationship between childhood neglect and adult alcohol use; however, results did not support a significant relationship between CSA and alcohol use. Results supporting a relationship between neglect and alcohol use remained consistent after controlling for parental alcohol and drug use, childhood poverty, race, and age.

Sexually abused individuals are likely to use alcohol and other substances as a strategy to avoid both abuse-related and non-abuse-related distress (Reynolds et al., 2005). Briere and Runtz (1988) suggest that drug and alcohol use among sexual abuse survivors is a form of "chemically induced dissociation" (p. 374), allowing the individuals to distance themselves from unpleasant affect, both that related to and that not related to the experience of sexual abuse. Alcohol and other substances may be used to

mitigate negative affect related low self-esteem, interpersonal relationship dissatisfaction, social anxiety, and depression.

It warrants attention that women who become addicted to substances may take a different developmental path than their male counterpart. Gomberg and Lisansky (1997) identify two gender-specific developmental pathways to addiction. The first type is seen more frequently in males and is correlated with behavior problems and conduct issues in youth. The age of onset for the usage of alcohol or substances for this type is earlier. The second type is seen more frequently found in women. In this case, the addiction often emerges in response to emotional difficulties, and the age of onset for the addiction is typically later in life. Among women, the function of substance use is more likely to be related to affect regulation and self-medication, as women often become addicted after mood and/or anxiety disorders have already developed. Substance use among women is more often directly related to the emotional difficulties that pre-date the addiction. It should be noted, however, that both sexes can have either type of addiction and that the literature is noting only general trends.

In sum, CSA is associated with a wide array of long-term adjustment problems and disorders, not limited to those described above. Adulthood outcome is influenced by many factors including those that pre-date the trauma, those that characterize the trauma, and those that occur after the trauma. The complex interplay of factors leads to the marked heterogeneity of adulthood outcomes seen among survivors of CSA.

Developmental Considerations

The study of CSA and adulthood outcomes requires a conceptual framework that accounts for different ways abuse-related distress is expressed across development.

Trickett and Putnam (1993) provide the one known study of the long-term implications of childhood sexual assault, tracking victims as they progress from childhood to adolescence and adulthood using a sample of 160 females. Half of the sample reported CSA by a family member, and half of the sample consisted of a demographically matched control group. The abused sample was referred by protective service agencies between the ages of 6 – 16 years of age ($M=11$) and sustained genital contact and/or penetration during abuse. Four follow-up data collections were conducted, with 2 occurring during adolescence and 2 during young adulthood.

As participants progressed from childhood and through adolescence, there were pronounced differences between the abused and non-abused girls' biological, psychological, and social functioning. During childhood, the abused sample reported lower social competence, poorer academic performance, lower self-esteem, greater school avoidance behaviors, sexual behaviors, depression, and aggression. The developmental transition of adolescence resulted in the emergence of new symptoms. For example, abused girls began reporting increased PTSD symptoms, hormonal disruption, and early and unwanted sexual activity. Although the abused girls reported dissociative tendencies during childhood, these symptoms reached pathological levels during adolescence. These findings suggest that psychological and behavior dysfunctions associated with sexual abuse may increase over time rather than dissipate and, moreover, that new problems emerge as abuse survivors enter the next developmental stage.

The early disruption of development caused by CSA interacts with factors that occur at subsequent developmental stages. One model that helps conceptualize these interrelationships is developmental psychopathology. The following section introduces

developmental psychopathology and describes why it is useful in conceptualizing the range and severity of outcomes among survivors of CSA.

Developmental Psychopathology

Developmental psychopathology is an integrative framework that conceptualizes adaptation over the course of development. Sroufe and Rutter (1984) define developmental psychopathology as "...the study of the origins and course of individual patterns of behavioral maladaptation...however complex the course of developmental pattern" (p. 18). The developmental psychopathology framework presumes that multiple risk and protective factors interact to produce outcome. As such, pathological outcomes are not caused by a single factor but rather by problems at multiple levels within the system (Cicchetti & Toth, 1995). Developmental psychopathology is interested in understanding why some children who show precursors of a disordered behavior pattern fail to develop pathology in adulthood (Sroufe & Rutter, 1984).

The concept of the developmental pathway refers to the sequence and timing of a particular behavioral pattern as well as possible relationships between behaviors over time (Cicchetti & Rogosch, 1996). The pathway concept characterizes development as an active, dynamic process, rather than a simplistic cause-effect relationship. The developmental pathway concept acknowledges the multiplicity of pathways leading to any particular outcome and allows for early identification of poor outcome.

The concepts of equifinality and multifinality explain the diversity of developmental pathways and outcomes, particularly among children who experience traumatic events. Equifinality refers to when the same outcome is reached from very different pathways. For example, two children may express the same conduct problems

but may have different developmental pathways that led them to that behavior.

Multifinality, alternatively, refers to when two people experience the same developmental pathway but manifest very different outcomes. For example, two children exposed to the same abusive experience could manifest different outcomes in adulthood, including mood disorders, eating disorders, anxiety disorders, or a lack of psychopathology altogether (Cicchetti & Rogosch, 1996).

According to developmental psychopathology, pathological outcome is reached by repeated failures to adapt over the course of development. Conversely, returning to adaptive functioning is possible despite early deviation from normative development by successfully achieving later developmental tasks (Cicchetti, Rogosch, Lynch & Holt, 1993; Sroufe, 1997). For survivors of CSA, the possibility of returning to normal functioning over the course of development remains an option, despite the effects of early childhood abuse. Resilience refers to those children who go on to function competently despite facing adversity and multiple risk factors. Successfully achieving later developmental tasks makes the child more likely to be resilient to the negative effects of prior risk factors (Egeland, Carlson, & Sroufe, 1993; Sroufe, 1997).

For a sexually abused child, each developmental task provides an opportunity to either ameliorate or exacerbate the effects of the abuse. The period of transition from adolescence to adulthood offers a unique opportunity to correct developmental deviation as multiple changes in environment and neurobehavioral functioning occur at this age (Masten, Burt, Roisman, Obradovic, Long, & Tellegen, 2004). The possibility of “late emerging resiliency” offers hope for individuals who may have initially strayed from the adaptive developmental pathway. Adolescence provides a window of time in which, if

the child successfully achieve the developmental demands of this stage, he or she can move toward healthy adulthood outcomes.

Social Competency

Achieving social competence during adolescence is a primary developmental milestone that can significantly alter a child's developmental pathway. Although there is considerable variability in how social competency is operationalized across research studies, it typically involves making and maintaining friendships, fostering popularity and peer acceptance, and social self-confidence (Ladd, 1999).

During late childhood and adolescence, peer relationships become an increasingly important part of an individual's identity (Buysse, 1997; Masten, 2005). Masten explains that adolescents actively recruit peers in efforts to boost their sense of self and regulate affect, whereas peer relationships play less of a role in regulating affect among very young children. Within the framework of developmental psychopathology, peers can potentially contribute to the onset, maintenance, prevention, and treatment of disorders in all stages of development. As peer relationships become increasingly central to the child's life, they become the primary means by which the growing child learns about interpersonal relationships and forms mental representations of him or herself as well as expectations for future interpersonal interactions. Children who lack adequate peer experiences during adolescence are at risk for future adjustment problems during adulthood (Masten, 2005).

Children who are rejected by their peers learn to misattribute the motivations of other children as being overtly hostile and perceive social success as unstable and externally caused. Children with negative peer experiences learn to respond in an

unnecessarily aggressive fashion to social overtures from other children, thus harming their relationships with those children and hindering their sense of self. In adolescence, these children are more likely to form associations with other socially unskilled or deviant peers, which places them on a maladaptive developmental pathway (Coie, 2004; Crick & Dodge, 1994). Children who are rejected by their peers are more likely to experience a range of negative affect and psychopathology both in childhood and in adulthood (Bagwell, Newcomb, & Bukowski, 1998; Parker & Asher, 1987) and are more likely to exhibit antisocial behavior, suicidal behavior, drug use, depressive symptoms, and academic problems (Kupersmidt & DeRosier, 2004).

Coie (1990) was the first researcher to discuss peer problems as a predictor of maladjustment. Asher and Coie (1990) reported that children who experience rejection from their peers experience lower self-esteem and more negative emotions, such as loneliness, depression, and social anxiety. More recent research continues to support the link between adolescent peer problems and later pathology (e.g., suicide, low self-esteem, drug use, deviant behavior, academic problems and depression; Kupersmidt & DeRosier, 2004; Sandstrom & Zakriski, 2004).

CSA and Adolescent Social Anxiety

Sexually abused children are at risk for developing problems with peer relationships based on the high levels of shame, anxiety, and self-blame that characterize CSA sequelae (Wilson, 2006). Both the CPTSD and four traumagenic dynamics models identify anxiety, a sense of stigmatization, and distrust of others, as central effects of CSA (Herman, 1992a; Finkelhor & Browne, 1985; Wilson, 2006). The traumagenic dynamic “stigmatization,” in particular, emphasizes the centrality of the sense of

defilement and shame to the effects of CSA. These feelings are likely to carry over to adolescence and lead to elevated levels of social anxiety among sexually abused children. Although there is strong theoretical support for the relationship between CSA, adolescent social anxiety, and adulthood adjustment, few empirical studies investigate the interrelationship between these factors. Those studies that pertain to social functioning of sexual abuse survivors are mainly retrospective and focus primarily on sexual dysfunction (Briere & Runtz, 1993). Studies that investigate the relationship between CSA and adolescent social functioning do not go on to investigate the link between adolescent social functioning and adulthood adjustment (e.g., Feiring et al., 2000). Additionally, the majority of studies on the relationship between childhood abuse and peer relationships focus on physical rather than sexual abuse. The paragraphs below outline the extant research in this area and include literature pertaining to both sexually and physically abused children.

Feiring et al. (2000) investigated the traumagenic dynamic stigmatization as a mediator between CSA and adolescent friendships among 56 sexually abused adolescents. Participants were seen within eight weeks of the discovery of the abuse and again one year later. The majority of the sample came from families with an annual income of \$25,000 or less. Results indicate that higher levels of shame and self-blame regarding the sexual abuse were related to lower satisfaction within friendships with peers of the same sex, poorer perception of acceptance by peers, and poorer quality of close friendships. Feiring et al. (2000) conclude that the high levels of shame and self-blame experienced by sexual abuse survivors interfere with the development of social competency during adolescence. Although this study demonstrates the relationship

between abuse-related stigmatization and adolescent peer problems, the link between these problems and adulthood adjustment was not examined.

Research examining physical abuse and social competency suggests that physically abused children also experience significant social impairments. Physically abused children have fewer friends, are less likely to make friends with other children in their classes, have fewer friends that they feel positive about, and have interpersonal interactions characterized by higher levels of conflict and lower levels of intimacy (Parker & Herrera, 1996; Salzinger, Feldman, Hammer, & Rosario, 1993).

Salzinger et al. (1993) examined social behavior and peer status among 87 physically abused children and 87 matched non-abused controls. Abused children had lower peer status and were nominated less frequently as a friend by their classmates. They were also rated as showing more aggressive behavior. Although physically abused children were significantly more likely to be classified as having negative peer status, some physically abused children not only succeeded in avoiding negative peer status but were classified as popular, which suggests the operation of protective factors (Salzinger et al., 1993).

Parker and Herrera (1996) examined the dyadic interactions of 16 physically abused children compared with 32 non-abused controls. Data were coded for expression of affect, level of intimacy, and conflict. Physically abused children showed less intimacy and more conflict and disagreement in their interactions with peers. Physically abused boys showed more negative affect and aggression, and physically abused girls displayed less positive affect. No significant differences were found in regard to duration of relationship or frequency of contact with friends.

Research has also documented the relationship between childhood abuse and perception of social interactions. Price (1996) reports that maltreated¹ children experience social interactions on average more negatively and have more difficulty forming friendships than non maltreated children. Maltreated children are also less likely to perceive social relationships as being reciprocal, experience more anxiety regarding their friendships, and show lower satisfaction with friendships than non maltreated children (Price, 1996). Maltreated children are more likely to desire more closeness in their relationship, even when they rated their relationship as close as non-maltreated children. Interestingly, maltreated children showed “all or nothing” ratings of trustworthiness, either completely trusting or not trusting at all. Price (1996) acknowledges the important influence that peers have on development and concludes that peer relationships can either ameliorate or exacerbate psychosocial problems that develop as a consequence of maltreatment.

Moderator and Mediator Approaches to Adolescent Social Anxiety

Many aspects of psychopathology associated with CSA are likely to impair social functioning, including shame, low self-esteem, self-blame, and anxiety. Problems with peers, such as social anxiety in adolescence, are associated with a range of adjustment difficulties in adulthood, including depression, drug use, loneliness, and social anxiety (Asher & Coie, 1990; Kupersmidt & DeRosier, 2004; Sandstrom & Zakriski, 2004). Adolescent social anxiety may be examined as playing a variety of roles in relationship to adulthood adjustment. Two such roles are that of a moderator and a mediator. Each is described below.

¹ Price (1996) collapsed all forms of childhood abuse under the umbrella term *maltreatment*.

Moderator. A moderating variable attenuates the relationship between an independent and dependent variable. When adolescent social anxiety is viewed as a moderator, a researcher tests whether the associations between CSA and outcome vary as a function of the level of adolescent social anxiety (Baron & Kenny, 1986; Holmbeck, 1997). This approach is largely based on the work of Sullivan (1953), who proposed that positive experiences with peers can potentially mitigate the effects of a negative childhood experience. A moderator model would test whether sexually abused children who experience lower levels of social anxiety in adolescence have fewer long-term adjustment problems than those abused children who experience higher levels of social anxiety.

Friendships and social competence have been supported as a moderator in several studies not specific to CSA (Hodges, Boivin, Vitaro & Bukowski, 1999; Pettit, Laird, Dodge, Bates, & Criss, 2001). Hodges et al. (1999) studied what factors protect against future victimization among children who are victimized by peers. Results indicate that friendships moderate the relationship between being victimized by peers and later adjustment. For those children who were picked on by peers, having friendships significantly helped mitigate the effects. The risk for future victimization increased if the child did not have a best friend. For those children without a friend, peer victimization was related to problems in adjustment, whereas there was no relationship between victimization and adjustment among those children with at least one friend (Hodges et al., 1999).

The Child Development Project (Pettit, Laird, Dodge, Bates & Criss, 2001) found that reports of harsh parental discipline in kindergarten were related to externalizing

problems in second grade, but only for those children with few friends during the first grade. For those children with many friends, no association between harsh parenting style and externalizing problems was found. Peer relationships have also been shown to protect children against the effects of a chaotic home environment. Prinstein, Cheah, and Schweder (2005) found that the association between cognitive vulnerability and negative affect is stronger for boys who have problematic peer relationships than for boys who do not.

According to the moderator model, positive relationships with peers can mitigate the negative effects of risk factors present in the child's life. This literature demonstrates that friendships can have a protective influence following types of adversity other than CSA. Peer relationships may be especially important to those children already at risk for maladjustment, such as those who have experienced sexual abuse.

Mediator. When viewed as a mediator, social anxiety during adolescence would partially explain the association between CSA and adulthood outcomes (Baron & Kenny, 1986; Holmbeck, 1997). In this model, the risk factor (CSA) must precede the mediating variable (adolescent social anxiety). To meet criteria for mediation, several requirements must be satisfied. CSA must demonstrate a significant direct effect on outcome as well as on adolescent social anxiety. Adolescent social anxiety must demonstrate a significant direct effect on outcome. Finally, the mediation model assumes a significant reduction in the effect of CSA on outcome when the effect of the mediator is considered. When the relationship between the independent variable and outcome is reduced to 0, there is evidence for a single, dominant mediating variable. If this relationship is significantly reduced, there is evidence of multiple mediating variables. Given the complexity of most

psychological phenomena, a significant reduction in this relationship is sufficient to support mediation (Baron & Kenny, 1986). There is a general paucity of literature examining the mediational model in regard to peer relationships, particularly in regard to sexually abused girls. Such a model would examine if the effects of CSA on adjustment are, at least in part, due to some aspect of peer relationships.

The mediational role of friendships has been studied in the field of parenting in child development. One example of this is in the relationship between poor parenting and the child's drug use. It was hypothesized that poor parenting increased the likelihood that the child would experience peer pressure to use drugs and that this peer pressure would lead to increased drug use (Kung & Farrell, 2000). Domitrovich and Bierman (2001) also found that the relationship between parenting and health outcomes was explained by having friends. This study found that the effects of warm parenting on child loneliness and victimization were partially mediated by the presence of friendships.

Peer relationships may function in complex ways to both mediate and moderate the processes leading both toward and away from psychopathology (Masten, 2005). Peer relationships can amplify or reduce the impact of sexual abuse on adjustment according to a moderator model. Peer relations can also change the course of the individual's development and increase the exposure to risk according to the mediator model. These approaches are not mutually exclusive: they both can be supported in relation to the same variables. The potential of peer relationships to influence etiology, course, and treatment of disorders stems from the increasingly central role that peers play beginning in childhood and increasing through adolescence.

Purpose of the Current Study

It is widely accepted that CSA is associated with a wide range of psychopathology that can persist across the lifespan (Beichtman, Zucker, Hood, DaCosta, Akman, & Cassavia, 1992; Browne & Finkelhor, 1986; Polusny & Follette, 1995). However, ambiguity exists as to which effects are attributable directly to the sexual abuse itself, and which may be attributable to other factors that occur following the abuse. Risk or protective factors that appear at subsequent developmental stages can significantly impact adulthood adjustment among sexually abused individuals. Understanding and alleviating the effects of CSA requires consideration of the complex interplay of factors that occur over the course of development that contribute to adulthood outcomes.

Studies support the critical influence of peer relationships during adolescence on healthy development. Positive relationships with peers during adolescence may mitigate the negative effects of the previous trauma, whereas problematic peer relationships may explain the associations between stressors and subsequent outcomes (Coie, 1990; Hodges, Boivin, Vitaro, & Bukowski, 1999; Kupersmidt, & DeRosier, 2004; Pettit, Laird, Dodge, Bates, & Criss, 2001; Prinstein, Cheah, & Shweder, 2005; Sandstrom, & Zakriski, 2004). Sexually abused children are at particular risk for problematic peer relationships due to the psychological effects of CSA, including anxiety, self-blame, shame, guilt, and stigmatization (Browne & Finkelhor, 1986; Wilson, 2006). Although literature suggests that abused children experience more problems with their peers than non-abused children (Price, 1996), few studies address the impact of these factors on adulthood outcomes. This study aimed to examine adolescent social anxiety as both a mediator and a moderator between CSA and adulthood adjustment. To investigate the

relationships between CSA, adolescent social anxiety, and adulthood outcome, three hypotheses were examined.

Hypothesis 1: Adulthood Adjustment. Based on prior research (Beichtman et al., 1992; Browne & Finkelhor, 1986; Polusny and Follette, 1995), participants reporting CSA were expected to show significant differences on measures of adulthood outcome relative to non-abused participants. Given the wide range of adulthood adjustment problems associated with CSA, multiple dependent variables were considered, including depression, self-esteem, problem alcohol use, alcohol risk behavior, violence in relationships, relationship satisfaction, friendship satisfaction, relationship characteristics and sexual behavior (e.g., age at first voluntary sexual intercourse, frequency of unprotected sex).

Follow-up analyses to Hypothesis 1 evaluated for the presence of extreme responses in risk-taking behavior. Although CSA is generally associated with higher levels of reported adjustment problems in adulthood, literature also suggests that a polarization of response may be evident in regards to risk-taking behavior. For example, survivors of CSA may show either hyper-sexuality or an aversion from sexual activity (Classen et al., 2001; Downs, 1993; Finkelhor, 1988; Maltz & Holman; 1987). Because of this complexity of response, CSA was expected to be related to either significantly lower or significantly higher levels of risk-taking behavior. The two domains of risk-taking focused on in this study were sexual behavior and alcohol use.

Hypothesis 2: Adolescent Social Anxiety. CSA survivors are likely to experience higher levels of social anxiety during adolescence due to the shame, guilt, and stigmatization that are central to CSA sequelae (Feiring et al., 2000; Browne &

Finkelhor, 1986). It was hypothesized that participants who report CSA would report significantly higher levels of social anxiety during adolescence than participants who did not report CSA.

Hypothesis 3: Adolescent Social Anxiety as a Mediator and Moderator. The third hypothesis focused on the impact of adolescent social anxiety at age 14 on adulthood adjustment at age 28. Adolescent peer problems have a significant impact on adulthood mental health, even among non-abused populations (Coie, 1990; Hodges, Boivin, Vitaro, & Bukowski, 1999; Kupersmidt & DeRosier, 2004; Pettit, Laird, Dodge, Bates, & Criss, 2001; Prinstein et al., 2005; Sandstrom & Zakriski, 2004). Although sexually abused children are likely to experience higher levels of adolescent social anxiety, the relationship between adolescent social anxiety and adulthood adjustment among sexually abused individuals has not received a significant amount of attention in the literature (Masten, 2005). This study proposed a mediational model in which adolescent social anxiety mediates the association between CSA and adulthood adjustment problems. As shown in Figure 1, the mediational model evaluates whether adolescent social anxiety partially explains the relationship between CSA and problems in adulthood adjustment.

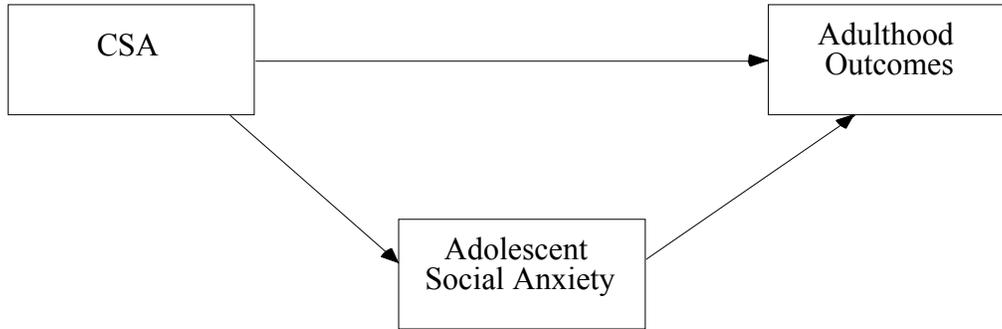


Figure 1. Mediation model of childhood sexual abuse, adolescent social anxiety, and adulthood outcomes.

Adolescent social anxiety was also examined as a moderator between CSA and adulthood adjustment. The moderator hypothesis tested whether the relationship between CSA and adulthood outcomes varied as a function of adolescent social anxiety (Bukowski & Adams, 2005).

Methods

Data for this study ($N = 680$) were drawn from a larger 17-year longitudinal study, the Michigan Study of Adolescent and Adult Life Transitions (MSALT), which was conducted at the University of Michigan. The MSALT research was supported by grants from the National Science Foundation [DBS9215008] to Bonnie L. Barber and Jacqueline S. Eccles [92-1459-92], from the William T. Grant Foundation to Eccles and Barber, and by a Spencer Foundation grant to Eccles and Barber.

The MSALT study began in 1983 as a junior high transition study when participants were making the transition from 6th to 7th grade. The sample is composed of students drawn from 10 public school districts located in middle-income communities in Southeastern Michigan. The study examined how social and academic experiences at school, at home, and with one's peers relate to work and educational achievement and to

psychological adjustment during adolescence and young adulthood. Nine waves of data collection have occurred since the project's inception. The final wave of data was collected in 2000 when participants were on average 28 years old. The average age of participants, rounded to the nearest year, was 11 in wave 1, 12 in wave 2, 13 in wave 3, 14 in wave 4, 16 in wave 5, 18 in wave 6, 20 in wave 7, 24 in wave 8, and 28 in wave 9.

Data were collected from a variety of sources. Adolescents filled out extensive questionnaires in their math classrooms, teachers rated each child on various dimensions, and questionnaires were mailed to the mothers and fathers who had agreed to participate. The student questionnaires were administered by trained field staff in two 1-hour sessions. They assessed a broad range of students' beliefs, values, and attitudes concerning mathematics, English, physical skills, and social activities, as well as other constructs. Although the study assessed for mental health variables, this is not a clinical sample and mental health was not the primary focus of the project. The format of the questions was based on a 5- or 7-point Likert scale. This study utilizes data from the student questionnaires.

Attrition in the study was due primarily to students moving away from the school districts. Efforts were made by the MSALT research team to continue to collect data from students who were at one time included in the study. Children who remained living in the general area but no longer attending participating schools were still included in the data collection. However, in many cases, students had moved too far away from the original school districts and were excluded from future data collection.

Participants

Data for this study were reduced by selecting all female participants who responded to questions at wave 8 of the study (age 24) that assessed for CSA. Cases that did not meet these criteria were dropped from the dataset. There were 680 cases that were female with valid responses for this item. There were 23 cases that were female that did not respond to the item assessing for CSA and were dropped. Rates on demographic characteristics were compared between the 23 dropped cases and the 680 cases retained for the study using cross-tabs and χ^2 tests. There were no statistically significant differences between these groups in terms of the following demographic variables: marital status, being in a steady relationship, parental status, higher education, or employment. The ethnic breakdown for the dropped cases was also similar to the retained cases. Out of 23 dropped cases, 18 responded to the question assessing ethnicity. Of these 18, 16 identified as White, 1 identified as Black, and 1 identified as biracial.

Sample Characteristics

The sub-sample of MSALT data ($N = 680$) used for this investigation consists of predominantly White females. The majority of this sample, 84.6% (575), described their background as White, 2.2% (15) as Black, 1.6% (11) as Asian, 0.7% (5) as Latino, 1.6% (11) as biracial, 0.6% (4) as Native American, and 0.1% (1) as other, and 8.5% (58) of the sample did not respond to the item assessing ethnicity. Ethnicity was assessed at multiple waves of data collection. These percentages are based on responses during wave 7, when participants were 20 years of age.

According to previous research, White women typically report lower rates of CSA than other races (Amodeo, Griffin, Fassler, Clay & Ellis, 2006; Ullman & Filipas, 2005). For example, Ullman and Filipas' (2005) investigation of rates of reported CSA among female college students found that 40.3% of Black female college students reported CSA, followed by 33.3% of Hispanic female college students, 25.5% of White female college students, and 21.5% of Asian female college students. Similarly, Amdodeo et al. (2006) found that White women reported lower rates of CSA than Black and Hispanic women; however, the differences in this study were no longer statistically significant when factors related to family structure and socio-economic status were taken into account. The relative homogeneity of this sample may affect the prevalence of reported CSA.

The majority of the sample participants were from working or middle class families. There were 19.7% (134) participants reporting family incomes in childhood between \$40,000 and \$60,000, 14.3% (97) reported between \$20,000 and \$40,000, 8.8% (60) reported between \$60,000 and \$80,000, 8.2% (56) reported a family income of above \$80,000, 4.1% (28) reported family income between \$10,000 and \$20,000, 2.6% (18) reported family income of less than \$10,000, and 41.6% (283) of the sample did not report their family income.

Adulthood demographic characteristics were compared between participants who report CSA and those who do not. Variables examined include marital status, being involved in a steady romantic relationship, having children or being pregnant, attaining education beyond high school, and being employed full-time or a full-time student.

Variables are taken from wave 9, age 28, and are presented in Table 1. Percentages in

Table 1 are computed based on the total number of participants with valid data for the demographic variables being examined.

Rates on demographic characteristics were compared between the non-abused women and the abused women using χ^2 tests. Differences between groups did not achieve statistical significance in any of the comparisons. However, trends in the data indicate that women reporting CSA are less likely to be married or to be involved in a steady relationship and slightly less likely to be pregnant or have children or to be employed full-time or a full-time student. However, these differences were not statistically significant. Demographic data are presented in Table 1.

Table 1

Descriptive Variables of the Entire, non-Abused and Abused Sub-samples

Variable (age 28)	All women (<i>N</i> = 680)	Non-abused (<i>n</i> = 596)	Abused women (<i>n</i> = 84)
Married	58% (313/540)	58.6% (279/476)	53.1% (34/64)
Steady relationship/ Married	82% (443/540)	82.4% (392/476)	79.7% (51/64)
Pregnant or have children	44.6% (229/514)	44.6% (202/453)	44.3% (27/61)
Attained higher education	95.6% (409/428)	95.5% (359/376)	96.2% (50/52)
Employed: Full-time work or student	76.8% (437/569)	77.1% (387/502)	74.6% (50/67)

As seen in Table 1, an extremely high percentage (95.6%) of the sample attained at least some education beyond high school. Additionally, the majority of the sample reported being employed full-time or a full-time student and involved in a steady

relationship. The high level of overall adjustment in the sample may be in part due to sampling bias, as this sample includes individuals who remained a part of a 17-year longitudinal study. These individuals may be more prone to achieve higher education and show higher levels of overall adjustment than other cross-sectional studies.

Variables

All variables were created and evaluated for reliability. Several steps were taken before creating variables to determine reliability. Individual items were first recoded for missing values, and all items were recoded in the same direction. Only items with the same Likert scale were combined and evaluated for reliability. Cronbach's alpha values above .70 were considered highly interrelated (Frankfort-Nachmias & Nachmias, 2000).

The majority of the items that compose the variables in this research were developed internally by the MSALT research team. The items assessing for problem alcohol use were taken from pre-existing measures. For these items, information on the original measures the items were taken from is provided.

Childhood sexual abuse (CSA). CSA was examined in several ways in this study, both as a dichotomous variable as well as a severity variable based on age of onset and frequency of reported abuse. The dichotomous CSA variable represents whether a participant had ever having been abused, regardless of the severity of the reported abuse. The CSA severity variable represents the level of severity of the reported abuse. Both variables are used in the analyses to answer different questions.

Data pertaining to abuse experiences were assessed at wave 8 of the MSALT study, when participants were 24 years old. Participants responded to the following questions: *Were you ever sexually abused as a child or adolescent (1 = yes, 2 = no)?*

Additional questions inquired about characteristics of both the first time and the most recent time the abuse occurred. The follow up questions were: *If yes, how many times did this happen (1 = once, 2 = 2-3 times, 3 = 4 or more times)? How old were you? Who did this to you (1 = stranger, 2 = acquaintance, 3 = date/partner, 4 = relative, 5 = neighbor, 6 = babysitter, 7 = other (e.g. dentist, mother's boyfriend)? Was the person male or female (1=female, 2 = male)?*

CSA severity. The CSA severity variable was formed based on the follow-up questions related to frequency and age at onset of CSA. Previous literature documents the positive relationship between the complexity of emergent symptom patterns and frequency of the abuse (e.g., Terr, 1988; 1995). Responses to the item assessing frequency of CSA were coded 0 through 3, where higher values represent more frequent CSA. The value of 3 was given to participants reporting sexual abuse that occurred 4 or more times. A value of 2 was given to participants reporting abuse that occurred 2 to 3 times. A value of 1 was given to participants reporting 1 incidence of CSA. Participants who did not report CSA were assigned a value of 0. Age at onset of CSA was coded accordingly. Higher values were assigned to represent earlier age at onset. Ages 0-6 were assigned a value of 3, ages 7-9 were assigned a value of 2, and ages 10 and older were assigned a value of 1. Participants who did not report CSA were assigned a value of 0. The scores for age at onset and frequency of CSA were summed. The resulting CSA severity variable was based on a 0 though 6 scale, where 6 represents ongoing abuse that began at an early age and 0 represents no abuse.

Although the relationship of the victim to the perpetrator is another primary characteristic of CSA that influences outcome, it was not be included in the CSA

variable. Literature suggests that abuse is particularly harmful when perpetrated by a primary caretaker or with someone to whom the child is particularly close (Freyd, 1996). The MSALT dataset differentiated between perpetrators who are relatives and non-relatives, but did not indicate the level of closeness of the child to this relative. Because it is the perceived closeness of the relationship that influence outcome, the relative/non-relative distinction was not used to compose the CSA severity variable. The relative/non-relative distinction was examined in terms of descriptive statistics.

Sexual intrusiveness of the reported CSA experiences was also not included in the CSA severity variable due to limitations in the dataset. No information regarding the intrusiveness of sexual abuse was assessed in the original data collection. However, it should be noted that frequency of CSA is positively correlated with level of sexual intrusiveness CSA (Freyd, 1996), and age at onset of abuse is negatively correlated with sexual intrusiveness (Beichtman et al., 1992). Abuse that begins at a younger age and occurs more frequently is also likely to be highly sexually intrusive. By using a CSA severity variable based on both age at onset and frequency, it is likely that the severity variable also provides a proxy measure of sexual intrusiveness of the reported CSA experience.

Ages at first and last incidences of CSA were assessed in the original data collection. A difference score between these ages could be computed to represent duration of CSA. However, this would be problematic because this value would not differentiate continuous abuse from two distinct incidences. For example, an individual reporting two incidences of CSA that occurred 10 years apart would be given a higher value than an individual who reports daily CSA over the course of two years. Instead of

duration, frequency of reported CSA was used to represent the difference between episodic and ongoing CSA.

Adolescent social anxiety at age 14. Literature suggests that sexually abused children experience high levels of shame and guilt (Browne & Finkelhor, 1986; Wilson, 2006), which are likely to contribute to feelings of social anxiety (Price, 1996). Feelings of shame and guilt that result from sexual abuse can hinder the child's social functioning throughout development and can have a significant impact on adulthood adjustment (Coie, 2004; Feiring Rosenthal, & Taska, 2000). Problems in this area may compound the risk for adulthood adjustment problems that the sexually abused child already faces.

A single variable was formed for adolescent social anxiety based on responses to the following three items assessed at wave 4 of data collection, age 14: *How worried are you that maybe you're not as popular as you'd like to be? How worried are you that maybe other kids don't really like to do things with you all that much? When I'm with people, I think about how much they like me.* Participants responded to these items using a 4-point Likert scale, anchored by 1 (*not at all*) and 4 (*very much*). These items were evaluated for reliability and summed. Higher values indicate greater social anxiety. As noted, Cronbach's alpha values above .70 are considered highly interrelated (Frankfort-Nachmias & Nachmias, 2000). Based on this standard, these items were found to be highly interrelated ($\alpha = 0.70$).

Depression at age 28. The depression variable was based on participants' responses to the following items: *How often do you feel unhappy, sad, or depressed? How often do you feel lonely? How often do you feel discouraged about the future?* This variable did not represent diagnostic criteria for major depressive disorder but rather

assessed for sub-clinical feelings of sadness, discouragement, and loneliness. Participants responded to these items based on a 7-point Likert scale, anchored by 1 (*never*) and 7 (*very often*). These items were highly interrelated ($\alpha = 0.75$). Responses were summed and were drawn from wave 9 of data collection, age 28.

Self-esteem at age 28. Three items were used to calculate a self-esteem variable. The items were: *How often are you satisfied with yourself the way you are? How often do you feel good about yourself? How often do you feel difficulties are piling up so high you can't overcome them?* Participants responded using a 7-point Likert scale, anchored by 1 (*never*) and 7 (*daily*). These items were drawn from wave 9 of the study, at age 28. They items were highly interrelated ($\alpha = 0.75$) and were summed to create a new item.

Problematic alcohol use at age 28. A variable for problematic alcohol use was calculated by summing responses to 11 items assessed at Wave 9, age 28. These items are: *Have you ever felt you should cut down on your drinking? Have people annoyed you by criticizing your drinking? Have you ever felt bad or guilty about your drinking? Have you ever had a drink first thing in the morning to 'steady your nerves' or to get rid of a hangover? Have you ever attended a meeting of Alcoholics Anonymous (AA)? Have you ever lost friends or girlfriends/boyfriends because of your drinking? Have you ever gotten into trouble at work because of drinking? Have family members ever expressed concern or anger about your drinking? Have you ever been unable to remember events that took place after drinking? Have you ever been hospitalized because of drinking? Have you ever engaged in sex after drinking and later regretted it?* Participants were asked to respond by selecting either 1 (*yes*) or 0 (*no*). These items were highly interrelated ($\alpha = 0.73$) and were summed to create a new variable.

The items that compose the problematic alcohol use variable were derived from the CAGE (Mayfield, McLeod, & Hall, 1974) and MAST (Selzer, 1971) alcoholism screening questionnaires. A combination of items from these questionnaires was used in the original MSALT data collection and was used in this study to compute the problem alcohol variable.

The CAGE questionnaire is a brief, four-item self-report screening measure that is used to identify individuals who have alcohol-related problems or are at risk for developing such problems. CAGE is an acronym that represents the following four symptoms of problem alcohol use that the screening measure assesses: (a) Have you ever felt you should *Cut* down on drinking? (b) Have you felt *Annoyed* by criticism about drinking habits? (c) Have you ever felt bad or *Guilty* about your drinking? (d) Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover (*Eye-opener*)? Total scores range from 0 to 4. Endorsing two or more of these items results in a positive screen, indicating the individual is at risk for developing alcohol problems. The seven-day test re-test data with the psychiatric population suggests that scores are stable over time ($r = 0.80$; Teitelbaum & Carey, 2000). The CAGE items also show an acceptable level internal consistency ($\alpha = 0.69$; Hayes, Merz, & Nicholas, 1995).

The Michigan Alcoholism Screening Test (MAST; Selzer, 1971) is a 25-item self-report questionnaire that is one of the most widely used screening tools for alcoholism and problem alcohol use. The MAST contains true/false questions about alcohol consumption and related behavior. The items on the MAST assess for the impact of heavy alcohol use on social, vocational, and family functioning. Total scores range from 0 to 53, where higher scores indicate greater frequency of alcohol-related problems. The

MAST has been found to have high test re-test reliability for 1-day ($r = .97$), 2-day ($r = .86$) and 3-day ($r = .85$) re-test periods with a psychiatric population (Zung, 1984).

Internal consistency of the MAST from nine different studies ranged from .83 to .95 (Teitelbaum & Mullen, 2000). The MAST has been effectively used to assess alcohol abuse with a variety of populations.

Problem alcohol at age 28 was examined as a continuous variable, based on a sum of the 11 items listed above, as well as a dichotomous variable, based on endorsing at least one of the 11 items. Because this study utilizes a community-based sample, the level of pathology may not be as great as in a clinical sample. The dichotomous problem alcohol variable was used to identify potential problem drinkers among a community-based sample. Participants who endorsed one or more item on this scale were given a score of 1, and participants who did not endorse any items on this scale were given a score of 0.

Frequency of intoxication at age 24. A second alcohol related variable was created that is based on frequency of intoxication. This variable was used to test the follow up analyses for Hypothesis 1 that tested for the relationship between CSA and extreme responses in terms of risk-taking behavior. Participants were asked, “*Think about the last 6 months. How often did you get drunk?*” Participants responded based on 1 (*never*) to 7 (*21 or more times*). Responses were coded into 3 groups based on low, moderate, and high responses. Responses in the range of 0 through 3 times were coded as low, 4 through 10 times were coded as moderate, and 11 through 21 or more times were coded as high. Data were taken from wave 8, age 24.

Alcohol risk behavior at age 28. A third alcohol related variable was created representing alcohol risk behavior. Data were drawn from wave 9, age 28. Participants responded to the following questions using a scale anchored by 1 (*never*) and 7 (*21 or more times*): *About how often in the past 6 months did you: drive while drunk or high on drugs? Ride with a driver who had too much to drink? Drink alcohol? Get drunk?* These items are highly interrelated ($\alpha = 0.78$) and were summed to create a new variable.

Violence in relationships at age 28. This variable was calculated by summing responses to the following four items that assess for physical violence in romantic relationships: *How many times during the past 12 months did your dates/partner throw something at you? How many times during the past twelve months did your dates/partner push, grab, hit, kick, or shove you or hit you with something? How many times in the past twelve months did you do the following to your spouse, partner, or date(s): Throw something at them? Push, grab, hit, kick, or shove them or hit them with something?* Participants were asked to respond using the following categories: (1) *never*, (2) *once*, (3) *twice*, (4) *3-5 times*, (5) *6-10 times*, (6) *11-20 times*, (7) *more than 20 times*. These items were assessed at wave 9, age 28. These items were interrelated ($\alpha = 0.71$). Participants who were involved in a committed relationship to one partner were asked to respond to these items based on their partner. Participants who were not involved in a steady relationship were asked to respond based on a person they dated within the past year. Participants who had not dated within the past year or felt uncomfortable answering these items were skipped. Forty participants (5.9%) had missing data due to the fact that they were not dating. Nine participants (1.3%) had missing data because they did not feel

comfortable answering the items. A larger percentage of 172 participants (25.3%) had data that was missing at random.

Violence in relationships at age 28 (victim only). A second relationship violence variable was created representing only experiences of violence within romantic relationships in which the participant was the victim and the perpetrator was the partner. This variable was based on a sum of three items including: *How many times during the past twelve months did your dates/partner throw something at you? How many times during the past twelve months did your dates/partner push, grab, hit, kick, or shove you or hit you with something? How many times in the past twelve months did your dates/partner threaten you with a gun or a knife?* Participants responded using the following categories: (1) *never*, (2) *once*, (3) *twice*, (4) *3-5 times*, (5) *6-10 times*, (6) *11-20 times*, (7) *more than 20 times*. These items were assessed at wave 9, age 28. Again, participants who had not dated in the past year were asked to skip these items. Forty participants (5.9% of the sample) fell into this category and had missing data on these items because they were not dating. A much larger number of participants, 173 (25.4% of the sample) were missing data at random, and 8-9 participants (1.2-1.3%) had data missing because they did not feel comfortable responding.

Relationship satisfaction at age 28. Two variables were formed to represent satisfaction with the relationship to one's partner and satisfaction with closest friendships. Satisfaction with one's partner was based on responses to the following six items: *How satisfied are you with these parts of your relationship: How we communicate? My partner's attitude about having children? The amount of influence I have over the*

decisions we make? Our social life? How we express affection toward each other? Our relationship in general? Data for these variables were taken from wave 9, at age 28.

Participants responded using a 7-point Likert scale anchored by 1 (*not at all satisfied*) and 7 (*extremely satisfied*). These items were highly interrelated ($\alpha = 0.85$) and were summed to create a new variable. Participants were asked to respond only if they were currently committed to a relationship to one partner. Participants who are not involved in a steady relationship were asked to skip these items and were coded as valid skips. The amount of participants with valid skips for these items was 89 (13.1% of the sample). The amount of participants who were missing at random for these items was much higher, 172 (25.3% of the sample). As noted in the demographic section, the relationship between sexual abuse history and whether or not a participant is involved in a committed relationship or married was explored. There were no significant differences between abused and non-abused groups on marital status or involvement in a committed romantic relationship at age 28.

Friendship satisfaction at age 28. Friendship satisfaction was based on responses to the following 3 items taken from wave 9, age 28: *How satisfied are you with how supportive your closest friend is? Right now, how close do you feel to your closest friend? If you need someone to talk to about a personal problem, how willing would your closest friend be to talk with you?* For these items, participants were asked to respond using a 7-point Likert scale anchored by 1 (*not at all/not at all willing*) and 7 (*very/very willing*). These items were highly interrelated ($\alpha = 0.81$) and were summed to calculate the friendship satisfaction variable. To answer these items, participants were asked to think of their relationship with the friend whom they are most likely to turn to

for emotional support (who was not their romantic partner). Participants who could not think of a closest friend were coded as valid skips. The amount of participants with valid skips for these items was 61 (9% of the sample). The amount of participants who were missing at random for these items was much higher, 173 (25.4% of the sample).

Relationship characteristics at age 28. A variable was formed to represent characteristics of adult romantic relationships based on the following 10 items taken from wave 9, age 28: *In the past year, how often did your spouse/partner/date(s): Make you feel worthwhile, special, and unique? Assists you with major tasks when you really need it? Shares a reliable relationship with you that will last no matter what? Has helped you to become the kind of person you want to be? Makes you feel you are good at many things? Makes you feel better when you are upset? Makes you feel admired and respected? Makes you feel proud of yourself? Listens to you when you are under stress? Will still be close to you even if you get into quarrels or fights?* Participants responded to these items using a 7-point Likert scale anchored by 1 (*a little*) and 7 (*a lot*). These items were highly interrelated and were summed to form a new variable ($\alpha = 0.95$).

Participants were asked to respond to items based on their spouse, partner, or a person they dated in the past year. Participants who had not dated in the past year skipped these items. The number of participants who had not dated in the past year ranged from 42 to 47 cases, or 6.2-6.9%. The number of participants with data that was missing at random was 172, or 25.3%.

Parental Supportiveness at age 16. A control variable was formed to represent familial/parental support based on responses to four items assessed at wave 5 of data collection (age 16). This was the youngest age that these items were assessed. The items

were: *Our family enjoys doing things together. Family members are supportive of each other in difficult times. My parents encourage me to do my best in everything I do. My parents praise me for doing well.* Participants responded based in a 7-point Likert scale anchored by 1 (*not at all*) and 7 (*a lot*). These items assessed for familial and parental support in a way that would not bias results against participants who may have a relationship with only one parent. These items were highly interrelated ($\alpha = 0.76$). The missing data on these items is due to attrition. The primary reason cases were dropped was that students relocated away from the original catchment area.

Age at first voluntary sexual intercourse. In wave 8, age 24, participants were asked, *Have you ever had voluntary sexual intercourse? If yes, how old were you the first time?* Participants responded based on their age the first time they had voluntary sexual intercourse. Responses to this item ranged from age 12 to age 23. This variable was examined independently to take a closer look at the sexual behavior of the sample and to examine differences between abused and non-abused groups. This variable was also recoded to represent varying levels of risk-taking. For this approach, ages 12-15 were coded together to represent high levels of risk, ages 16-20 were coded as moderate, and ages 21-23 were coded as low. This variable was used in the corollary to Hypothesis 1, which examined extreme responses in risk-taking behavior.

Frequency of unprotected sex at age 24. In wave 8, age 24, participants were asked, *Think about the last 6 months. About how often in those 6 months did you engage in unprotected sex?* Participants responded based on a 7-point Likert scale anchored by 1 (*never*) and 7 (*21 or more times*). This variable is used in Hypothesis 1.

Data Analysis

Hypothesis 1: Adulthood Adjustment. The first hypothesis was that participants reporting CSA would show significant differences on measures of adulthood outcome relative to non-abused participants. Sexually abused participants were expected to score significantly higher on measures of depression at age 28, problematic alcohol use at age 28, alcohol risk behavior at age 28, and violence in interpersonal relationships at age 28, and lower on indicators of self-esteem at age 28, relationship satisfaction at age 28, friendship satisfaction at age 28, and positive relationship characteristics at age 28. Additional variables pertaining to sexual functioning were also examined, including age at first voluntary sexual intercourse and frequency of unprotected sex at age 24.

Multivariate analysis of variance (MANOVA) was used to examine the relationship between CSA and all dependent variables. MANOVA tested the mean differences between sexually abused and non-abused groups on all dependent variables. Listwise deletion was employed to select only those cases with valid data for all variables included in the analysis. Sufficient sample size for MANOVA is at least 20 cases per cell. In cases where there was an insufficient number of cases with valid data to warrant the MANOVA approach, *t* tests were used to compare abused and non-abused girls (Tabachnick & Fidell, 2001).

To evaluate for the impact of other factors that influence adulthood outcomes, the analyses for Hypothesis 1 were meant to include a control variable for parental supportiveness². Parental and family support was assessed in the original data collection and is supported as a significant contributing factor in the literature (Beitchman et al.,

² Other potential control variables included factors such as parental mental health (Beitchman et al., 1992; Silk et al., 1997) and cognitive attributions regarding abuse (e.g., stigmatization; Feiring et al., 2000; Finkelhor & Browne, 1985); however, these variables were not assessed in the original data collection.

1992; Fromuth, 1986). However, due to missing data in the MSALT dataset, parental supportiveness was unable to be considered in the first hypothesis. It was included in the tests of mediation and moderation in Hypothesis 3.

Corollary to Hypothesis 1: Extreme Responses in Risk Behaviors. A corollary to Hypothesis 1 was that participants reporting CSA would show a polarization of response in terms of risk-taking behavior. CSA was expected to be associated with both higher and lower levels of various risk-taking behaviors in adulthood. The two areas of risk behavior examined were sexual behavior and alcohol use. Multinomial regressions were used to investigate the relationship between CSA and extreme responses in risk-taking behavior. Dependent variables were created to represent low, moderate, and high levels of risk-taking behavior in terms of age at first voluntary sexual intercourse, frequency of intoxication at age 24, and alcohol risk behavior at age 28³. The multinomial regression was set so that the moderate level of the dependent variable was the baseline and was used to compute whether there was a higher likelihood of participants reporting CSA to fall into either the low or high groups. Separate regressions were used for each dependent variable. Adequate sample size for multinomial regression is at least 100 cases or 10 cases per parameter (Long, 1997). The sample size used in this study exceeded these cutoffs.

Hypothesis 2: Adolescent Social Anxiety. The second hypothesis was that participants who report CSA would report significantly higher levels of social anxiety at age 14 than participants who do not report CSA. To test for differences in adolescent social anxiety between abused and non-abused groups, a *t* test was computed using

³ Ideally, the number of total sexual partners would be examined under this hypothesis. However, this was not assessed in the MSALT dataset. Only the number of sexual partners in the past month was assessed. There was not sufficient variance on this item to warrant its inclusion in this analysis.

adolescent social anxiety at age 14 as the dependent variable. This analysis utilized the dichotomous CSA variable comparing abused to non-abused participants. Additional analyses assessed the relationship between the continuous CSA severity variable and adolescent social anxiety at age 14.

Hypothesis 3: Adolescent Social Anxiety and Adulthood Adjustment. The third hypothesis focused on the impact of adolescent social anxiety at age 14 on adulthood adjustment at age 28. First, it was hypothesized that adolescent social anxiety at age 14 would mediate the relationship between CSA and adulthood outcomes. To evaluate the mediator hypothesis, two separate MANOVA models were compared. The first MANOVA included only CSA severity as an independent variable, while the second MANOVA included both CSA severity and adolescent social anxiety at age 14 as independent variables. To support adolescent social anxiety as a mediator between CSA severity and a particular outcome, CSA severity must demonstrate a significant effect on that dependent variable in the MANOVA that lacks the mediating variable (adolescent social anxiety at age 14). The effect of CSA on the dependent variable must become non-significant when the mediating variable is included in the model. The reduction in the effect size (η^2) of CSA severity on outcome must also be considerable. This statistical approach to mediation is supported by prior research (e.g., Grohmann, Spangenberg, & Sprott, 2007). Additional MANOVAs were tested that included a control variable for parental supportiveness. Listwise deletion was used, selecting only those cases with valid data for all variables included in the analyses. Sufficient sample size for MANOVA is at least 20 cases per cell (Tabachnick & Fidell, 2001). As the

analyses included both abused and non-abused cases, the sample size met requirements for sufficient statistical power.

Adolescent social anxiety was also examined as a moderator between CSA and adulthood outcomes. The moderation hypothesis tested whether the effect of CSA on outcome varied according to level of adolescent social anxiety. MANOVA was used to evaluate adolescent social anxiety as a moderator between CSA and adulthood outcomes. This analysis included CSA as a fixed factor, and adolescent social anxiety, parental supportiveness, and an interaction term between CSA and adolescent social anxiety as covariates. The CSA (yes/no) variable and a mean-centered adolescent social anxiety variable were used to reduce multicollinearity. In order to support moderation, the interaction term must demonstrate a statistically significant effect on the dependent variables.

Results

CSA characteristics

Of the 680 participants, 12.3% (84) reported having been sexually abused in childhood. The majority of women reporting CSA indicated that the abuse began prior to age 6, occurred 4 or more times, and was perpetrated by a relative.

Ages of participants at the time of the first sexual abuse experience ranged from 3 to 18 ($M = 8.69$, $SD = 3.9$)⁴, although a considerable 35.7% of abused girls reported sexual abuse beginning before age 6. In terms of frequency of CSA, 32.1% reported 1 abuse experience, 22.6% reported 2 to 3 abuse experiences, and 44% reported being

⁴ Several participants reporting CSA indicate that the first incidence of CSA occurred in the later teenage years. This is still considered CSA under definitions such as Burkhardt and Rotatori (1995) and Coulborn-Faller (1988).

abused 4 or more times. The majority of participants reporting CSA also reported that the first incidence of sexual abuse was perpetrated by a relative (46.4%). Other perpetrators include an acquaintance (25%), a neighbor (8.3%), a date/partner (8.3%), a stranger (6%), a babysitter (3.6%), and other (2.4%). Consistent with the literature, the majority of perpetrators were male. Ninety-four percent of the perpetrators of the first experience of sexual abuse were male; 6% were female. In regard to the most recent experience of sexual abuse, 97.8% of the perpetrators were male; 2.2% were female. The characteristics of CSA reported by this sample are summarized in Table 2.

Table 2

Characteristics of Reported Childhood Sexual Abuse Experiences (n = 84)

CSA Characteristic	Percentage (N)
Frequency of CSA ⁵	
One time	32.1% (27)
Two to three times	22.6% (19)
Four or more times	44% (37)
Age at onset ⁶	
0-6	35.7% (30)
7-9	26.2% (22)
10-12	14.3% (12)
13-15	14.3% (12)
16-18	5.9% (5)
Identity of perpetrator	
Relative (parent or other)	46.4% (39)
Acquaintance	25% (21)
Neighbor	8.3% (7)
Date/partner	8.3% (7)
Stranger	6% (5)
Babysitter	3.6% (3)
Other	2.4% (2)

⁵ Percents do not sum to 100 because 1 participant (1.2%) did not report the frequency of the abuse.

⁶ Percents do not sum to 100 because 3 participants (3.6%) did not report age at first incidence of abuse.

To gain a basic understanding of the relationships between key variables used in this study, the mean, standard deviation, and correlation of variables were computed and are presented in Table 3. Results from the initial bivariate correlations suggest CSA severity is significantly positively correlated with adulthood depression and significantly negatively correlated with adulthood self-esteem. CSA severity is also significantly positively correlated with adolescent social anxiety at age 14. Adolescent social anxiety at age 14 is significantly positively correlated with depression at age 28, problem alcohol use at age 28, and alcohol risk behavior at age 28, and negatively correlated with self-esteem at age 28. Interestingly, adolescent social anxiety is positively correlated with friendship satisfaction at age 28 and negatively correlated with romantic relationship satisfaction at age 28.

Table 3

Mean, Standard Deviation, and Correlation of Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1 CSA severity	.50	.14	1											
2 Depression	8.9	3.6	.11**	1										
3 Self-esteem	14.6	3.6	-.11**	-.66**	1									
4 Problem alcohol use	1.0	1.6	.06	.08*	-.02	1								
5 Alcohol risk behavior	9.5	4.3	-.09*	.15**	-.07	.32**	1							
6 Relationship Violence	4.6	1.6	.04	.12**	-.11**	.11*	.06	1						
7 Relationship violence_victim	3.3	0.9	.07	.11*	-.06	.09*	.05	.82**	1					
8 Relationship satisfaction	28.0	5.6	-.03	-.50**	.38**	.02	-.10*	-.23**	-.23**	1				
9 Friendship satisfaction	11.3	2.4	.05	-.02	.04	-.01	-.01	-.02	.02	.07	1			
10 Relationship characteristics	58.3	12.7	.01	-.46**	.30**	-.03	-.18**	-.19**	-.20**	.77**	.07	1		
11 Adolescent social anxiety	6.9	2.0	.10**	.15**	-.17**	.16**	.09*	.05	.02	-.12**	.11*	.00	1	
12 Parental Supportiveness	20.5	5.2	.04	-.14**	.13*	.01	.07	-.15**	-.14*	.14*	.03	.08	-.10	1

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

Tests of Hypotheses

Hypothesis 1: Adulthood Adjustment. The first hypothesis was that participants reporting CSA would show significant differences on measures of adulthood outcome relative to non-abused participants. MANOVA was used to examine the relationship between CSA and all dependent variables. Results indicate that CSA has a significant impact on adulthood adjustment ($F = 2.64, p < .01, \eta^2 = .07$) and specifically on depression at age 28, self-esteem at age 28, and alcohol-related risk behavior at age 28. The differences between abused and non-abused participants were in the expected direction in terms of adulthood depression and self-esteem; however, the lower levels of alcohol risk-taking reported by sexually abused participants were in the opposite direction than expected. The finding of lower levels of risk-taking among women reporting CSA was further explored in the corollary to Hypothesis 1. Table 4 summarizes the results from the MANOVA.

Table 4

MANOVA Results between Abused and non-Abused Groups (n = 316)

Covariate	Dependent Variable	df	F	η^2	p
CSA					
	Depression	1	5.13	.02	<.03*
	Self-esteem	1	10.61	.03	<.01**
	Problem Alcohol	1	0.00	.00	<.96
	Alcohol Risk Behavior	1	5.17	.02	<.03*
	Relationship Violence	1	0.19	.00	<.67
	Relationship Violence_victim	1	0.07	.00	<.80
	Relationship Satisfaction	1	1.32	.00	<.25
	Friendship Satisfaction	1	0.31	.00	<.58
	Relationship Characteristics	1	0.00	.00	<.99

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

A second MANOVA was computed using a continuous CSA severity variable⁷. This analysis tested whether the severity of CSA, rather than just its presence, significantly impacts adulthood outcome. Results suggest that CSA severity also has a significant impact on adulthood adjustment ($F = 1.98$, $p < .05$, $\eta^2 = .06$). CSA severity showed a trend toward a significant effect on depression at age 28 ($F = 3.23$, $p < .08$, $\eta^2 = .01$), a significant effect on self-esteem at age 28 ($F = 8.00$, $p < .01$, $\eta^2 = .03$), and a significant effect on alcohol risk behavior at age 28 ($F = 4.99$, $p < .03$, $\eta^2 = .02$). Results from the MANOVAs, using both the dichotomous CSA variable and the CSA severity

⁷ This analysis was based on $n = 316$.

variable, provided consistent support for a significant relationship between CSA and depression at age 28, self-esteem at age 28, and alcohol risk behavior at age 28.

It should be noted that more than 50% (364/680 cases) of the sample was dropped from the MANOVA due to missing data on one or more variables. The cases that were dropped from the analyses were compared to those cases that were included on demographic variables at wave 9 (age 28) using χ^2 tests. Significant differences were found between the dropped and included cases in terms of being married, $\chi^2(1, n = 540) = 49.7, p < .001$, being in a steady relationship or being married, $\chi^2(1, n = 540) = 155.3, p < .001$, and being employed or a full-time student, $\chi^2(1, n = 569) = 129.0, p < .001$ ⁸. No significant differences were found between dropped and included cases in terms of having children or attaining higher education. The significant demographic differences between dropped and included cases, and the amount of missing data, hindered the validity of the MANOVA findings. To address this concern, *t* tests also were computed to examine the relationship between CSA and adulthood adjustment. While the MANOVA analyses dropped cases if any of the dependent variables were missing, the *t* tests included all available cases on a given dependent variable. Findings from the *t* tests remained consistent with the MANOVA results. Specifically, significant differences were found between sexually abused and non-abused groups in regard to depression at age 28, self-esteem at age 28, and alcohol risk behavior at age 28: CSA was related to significantly higher levels of adulthood depression and lower levels of adulthood self-esteem and alcohol-related risk behavior. Given that similar findings were obtained with

⁸ Additionally, the cases that were dropped were compared to those that were included based on sexual abuse history. There were no significant differences in abuse status between dropped and included cases.

the *t* tests, it appears that the MANOVAs were not affected by the significant number of dropped cases for these analyses.

Additional variables were compared that pertain to adulthood sexual behavior. Frequency of unprotected sex at age 24 and age at first voluntary sexual intercourse (retrospectively assessed at age 24) were compared between sexually abused and non-abused groups. Significant differences were found between abused and non-abused groups for both age at first voluntary sexual intercourse and frequency of unprotected sex at age 24. Participants with a history of CSA reported significantly younger ages at first voluntary sexual experience and significantly higher frequencies of unprotected sex at age 24 than participants who did not report CSA.

Results from the *t* tests indicate that participants who reported CSA reported significantly higher levels of depression at age 28, higher frequency of unprotected sex at age 24, lower levels of self-esteem at age 28, lower levels of alcohol related risk behavior at age 28, and younger ages at first voluntary sexual intercourse compared to participants who did not report CSA. No significant differences were found for problem alcohol use at age 28, relationship violence at age 28, relationship satisfaction at age 28, friendship satisfaction at age 28, or relationship characteristics at age 28. It should be noted that there was very little variance in the sample for variables pertaining to relationship satisfaction, relationship violence, and relationship characteristics; the majority of the sample reported a high level of satisfaction with their relationships and indicated that their relationships were supportive in nature. Table 5 summarizes the results from the *t* tests.

Table 5

t Test Results for Abused and non-Abused Groups on Dependent Variables

Dependent Variable	<i>n</i>	<i>M</i>	<i>SD</i>	<i>p</i>
Depression at Age 28				.01**
Abused	61	9.9	3.9	
Non-abused	441	8.7	3.5	
Self-esteem at Age 28				.01**
Abused	62	13.5	4.2	
Non-abused	444	14.7	3.5	
Problematic Alcohol Use at Age 28				.18
Abused	61	1.3	1.5	
Non-abused	439	.98	1.6	
Alcohol Risk Behavior at Age 28				.07
Abused	60	8.6	4.3	
Non-abused	438	9.6	4.2	
Relationship Violence at Age 28				.44
Abused	57	4.8	1.7	
Non-abused	402	4.6	1.6	
Relationship Violence at Age 28 (victim only)				.30
Abused	57	3.4	1.0	
Non-abused	402	3.2	.88	
Relationship Satisfaction at Age 28				.48
Abused	49	27.4	6.1	
Non-abused	361	28.0	5.5	
Friendship Satisfaction at Age 28				.27
Abused	49	11.6	2.4	
Non-abused	380	11.2	2.4	
Relationship Characteristics at Age 28				.81
Abused	54	58.7	14.0	
Non-abused	390	58.3	12.6	
Age at First Voluntary Sexual Intercourse at Age 24				.04*
Abused	62	16.3	2.0	
Non-abused	422	17.0	2.2	
Frequency of Unprotected Sex at Age 24				.03*
Abused	84	3.3	2.6	
Non-abused	572	2.7	2.4	

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

Although the differences between abused and non-abused groups on problem alcohol use at age 28 did not achieve statistical significance, trends in the data indicate

higher levels of problem drinking among participants reporting CSA. The items that comprise the problem alcohol use variable assess symptoms indicative of later stage alcohol abuse and alcoholism, such as impairments at work due to alcohol use, losing relationships because of drinking, and being hospitalized for alcohol-related problems. It has been suggested that the instruments these items were taken from are very effective in assessing later stage alcohol problems but may be less effective in identifying individuals in the early stages of problem drinking (Zung, 1984). When examined in a community-based sample such as that used in this research, the continuous variable may not be identifying an existing relationship between CSA and problem drinking. Because of this limitation, the relationship between CSA and problem alcohol use at age 28 was re-examined using a dichotomous problem alcohol variable and a χ^2 test. The dichotomous problem drinking variable assessed the relationship between CSA and endorsing at least 1 item on the problem drinking variable. Results using the dichotomous problem drinking variable suggest that participants who report CSA are more likely to endorse at least 1 item that assesses problem drinking than participants who do not report CSA, $\chi^2 (1, n = 500) = 8.836, p < .01$. These findings indicate that among a community sample, CSA is associated with a minor increase in problem drinking behavior at age 28 but unrelated to a series of symptoms or a more advanced level of alcohol problems.

The results from Hypothesis 1 suggest that CSA is related to a wide range of problems in adulthood adjustment, including higher levels of depression at age 28, higher frequency of unprotected sex at age 24, higher likelihood of endorsing 1 item related to problem alcohol use at age 28, lower self-esteem at age 28, and lower levels of alcohol risk behavior at age 28. The results offer support for the hypothesis that participants who

report CSA will show significant differences on measures of adulthood adjustment relative to participants who do not report CSA. Although results did not support the relationship between CSA and adulthood relationships variables, significant differences were found in terms of sexual functioning. Participants reporting CSA reported significantly higher frequency of unprotected sex at age 24 and younger age at first voluntary sexual intercourse⁹. This suggests that in this sample, CSA was related to sexual functioning and was not related to other aspects of adulthood interpersonal relationships.

Corollary to Hypothesis 1: Extreme Responses in Risk Behaviors. A corollary to Hypothesis 1 was that participants reporting CSA would show a polarization of responses in terms of risk-taking behavior. CSA was expected to be associated with both higher and lower levels of various risk-taking behaviors in adulthood. The two areas of risk behavior examined were sexual behavior and alcohol use.

The first multinomial regression examined the relationship between CSA and age at first voluntary sexual experience. Results indicate that CSA has a statistically significant trend in the direction of younger age at first sexual intercourse ($p < .08$). Participants reporting CSA were more likely to be in the high risk category in terms of age at first voluntary sexual intercourse (ages 12-15). CSA did not have a statistically significant impact in the direction of older age at first voluntary sexual intercourse ($p < .27$). Results suggest that having been sexually abused was related to a greater likelihood of the first voluntary sexual intercourse occurring between the ages of 12 and 15. Table 6 presents the results from the multinomial regression.

⁹ Interestingly, differences in frequency of unprotected sex disappeared by age 28 ($p < .23$).

Table 6

Multinomial Regression of CSA and Age at First Voluntary Sexual Intercourse (n = 484)

Moderate Risk (16-20) vs. High Risk (12-15)						
Variable	B	SE	<i>p</i>	OR	CI	Wald
CSA	-.51	0.29	.08	0.60	0.34, 1.06	3.14
Constant	-.99	0.11	.00			

Note: OR = Odds Ratio; CI = Confidence Interval.

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

The second multinomial regression examined the relationship between CSA and frequency of intoxication at age 24. Results did not indicate a statistically significant effect on frequency of intoxication in either direction. CSA was not related to high or low levels of frequency of “getting drunk.” Based on the preliminary *t* test results, the model was re-tested using alcohol risk behavior at age 28 as the dependent variable in lieu of the single item assessing frequency of intoxication. Results from the regression did not indicate that CSA has a statistically significant effect on higher or lower levels of alcohol risk behavior at age 28.

To further examine the relationship between CSA and extreme responses in risk behavior, the multinomial regressions were re-tested using the CSA severity variable, based on the sum of severity indices for age at onset and frequency of CSA. Results indicate that CSA severity is related to lower levels of alcohol risk-taking behavior ($p < .05$). Greater severity of CSA was related to participants engaging in fewer alcohol-related risk behaviors at age 28. CSA severity was not related to higher levels of alcohol-related risk-taking ($p < .63$). Table 7 presents the results from the multinomial regression.

Table 7

Multinomial Regression of CSA Severity and Alcohol Risk Behavior at Age 28 (n = 498)

Moderate Risk (16-20) vs. High Risk (12-15)						
Variable	B	SE	<i>p</i>	OR	CI	Wald
CSA Severity	.14	0.07	.05	1.16	1.00, 1.33	3.94*
Constant	.36	0.10	.00			

Note: OR = Odds Ratio; CI = Confidence Interval.

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

Although the dichotomous CSA variable showed a trend toward a significant effect on younger age at first voluntary sexual intercourse as seen in Table 6, CSA severity did not have the same effect ($p < .15$). Results suggest that sexual abuse history, regardless of the severity of the abuse, was related to younger ages at first voluntary sexual intercourse.

Results from the multinomial regressions suggest that CSA may be related to a polarization of responses in regard to different types of risk-taking behavior. In terms of age at first voluntary sexual experience, CSA was related to higher level risk-taking (ages 12-15). In terms of alcohol-related risk-taking at age 28, CSA severity was related to lower levels of risk-taking.

Hypothesis 2: Adolescent Social Anxiety. The second hypothesis was that participants who report CSA would report significantly higher levels of social anxiety at age 14 than participants who do not report CSA. This analysis utilized the dichotomous CSA variable comparing abused to non-abused participants.

Results failed to indicate a statistically significant difference between abused and non-abused groups ($p < .11$). The mean for the sexually abused group was 7.3, and the

mean for the non-abused group was 6.9. Although differences between groups did not meet the cutoff for statistical significance, trends in the data suggested higher levels of adolescent social anxiety at age 14 among participants reporting CSA.

As noted, certain characteristics of CSA are associated with more severe sequelae. Comparing abused to non-abused groups combines individuals with varying severity of sexual abuse experiences into one group, which can minimize the detected effects of CSA. To further examine the relationship between CSA and adolescent social anxiety, this hypothesis was re-tested using the CSA severity variable based on the sum of severity indices for age at onset and frequency of CSA. CSA severity showed a .10 correlation with adolescent social anxiety at age 14 ($p < .01$). Although results using the dichotomous CSA variable suggested a trend in this direction, the effect became significant when factors such as age at onset and frequency of abuse were considered. In sum, results offered support for the hypothesis that CSA is related to higher levels of adolescent social anxiety at age 14, although the magnitude of the association was relatively weak.

Hypothesis 3: Adolescent Social Anxiety and Adulthood Adjustment. The third hypothesis evaluated the impact of adolescent social anxiety at age 14 on adulthood adjustment at age 28 using both a mediator and moderator framework.

Mediation Models of Adolescent Social Anxiety

First, it was hypothesized that adolescent social anxiety at age 14 would mediate the relationship between CSA and adulthood outcomes. The mediator model tested whether adolescent social anxiety partially explains the association between CSA and outcome. Results from the MANOVAs support adolescent social anxiety as a mediator

between CSA severity and adulthood depression at age 28 and self-esteem at age 28. When the MANOVA included only CSA severity as an independent variable, the main effect of CSA severity on all dependent variables was significant ($F = 1.98, p < .05; \eta^2 = .06$). When the MANOVA included both CSA severity and adolescent social anxiety at age 14, the main effect of CSA severity on dependent variables became non-significant ($F = 1.16, p < .33, \eta^2 = .04$). Additionally, the effect of adolescent social anxiety at age 14 on adulthood adjustment became highly significant ($F = 3.52, p < .001, \eta^2 = .10$). The reduction in the effect size (η^2) of CSA severity was .02. These results suggest that adolescent social anxiety mediates the relationship between CSA severity and adulthood adjustment, although the reduction of effect size upon inclusion of the mediator was relatively weak.

The next step was to examine the relationship between CSA severity and each individual dependent variable using the same two-step MANOVA approach. In the first model, as seen in Table 8, CSA severity demonstrated a significant effect on self-esteem at age 28 ($F = 8.00, p < .01, \eta^2 = .03$) and on alcohol risk behavior at age 28 ($F = 4.99, p < .03, \eta^2 = .02$), and demonstrated a trend toward significance on depression at age 28 ($F = 3.23, p < .08, \eta^2 = .01$).

Table 8

MANOVA with CSA Severity (n = 316)

Covariate	Dependent Variable	<i>df</i>	F	H ²	<i>p</i>
CSA Severity					
	Depression	1	3.23	.01	< .08
	Self-esteem	1	8.00**	.03	< .01
	Problem Alcohol Use	1	0.09	.00	< .77
	Alcohol Risk Behavior	1	4.99*	.02	< .03
	Relationship Violence	1	0.55	.00	< .46
	Relationship Violence_victim	1	0.09	.00	< .77
	Relationship Satisfaction	1	0.99	.00	< .32
	Friendship Satisfaction	1	0.16	.00	< .70
	Relationship Characteristics	1	0.02	.00	< .90

p*<.05, *p*<.01

When adolescent social anxiety at age 14 was included, the effect of CSA severity became non-significant in terms of its effect on depression at age 28 ($F = 0.42, p < .52, \eta^2 = .00$) and self-esteem at age 28 ($F = 1.72, p < .19, \eta^2 = .01$). The effect of CSA severity on alcohol risk behavior at age 28 remained significant in both MANOVAs and was related to lower levels of alcohol risk behavior. Table 9 presents the results from the MANOVA with CSA severity and adolescent social anxiety.

Table 9

MANOVA with CSA Severity and Adolescent Social Anxiety (n = 295)

Covariate	Dependent Variable	<i>df</i>	F	H ²	<i>p</i>
CSA Severity					
	Depression	1	0.42	.00	< .52
	Self-esteem	1	1.72	.01	< .19
	Problem Alcohol Use	1	0.00	.00	< .97
	Alcohol Risk Behavior	1	4.10*	.02	< .04
	Relationship Violence	1	0.82	.00	< .37
	Relationship Violence_victim	1	0.16	.00	< .69
	Relationship Satisfaction	1	0.00	.00	< .95
	Friendship Satisfaction	1	0.02	.00	< .90
	Relationship Characteristics	1	0.82	.00	< .37
Adol. Social Anxiety					
	Depression	1	3.26	.01	< .08
	Self-esteem	1	8.24**	.03	< .01
	Problem Alcohol Use	1	6.81**	.02	< .01
	Alcohol Risk Behavior	1	9.26**	.03	< .01
	Relationship Violence	1	0.89	.00	< .35
	Relationship Violence_victim	1	0.12	.00	< .73
	Relationship Satisfaction	1	4.33*	.02	< .04
	Friendship Satisfaction	1	4.74*	.02	< .03
	Relationship Characteristics	1	0.03	.00	< .86

p*<.05, *p*<.01

CSA severity initially demonstrated a significant effect on self-esteem at age 28 and a significant trend on depression at age 28. Consistent with the mediation hypothesis, this effect became non-significant upon inclusion of adolescent social anxiety at age 14 as a mediator. The loss of a significant effect for CSA severity on adulthood depression and self-esteem suggests that adolescent social anxiety mediates the relationship between CSA severity and these two aspects of adulthood adjustment. This supports adolescent social anxiety at age 14 as a mediator between CSA severity and depression at age 28 and self-esteem at age 28. Adolescent social anxiety was not supported as a mediator of CSA severity and any of the other dependent variables.

In order to determine whether other variables explained the relationships between CSA, adolescent social anxiety, and adult outcomes, a third MANOVA was analyzed that included parental supportiveness at age 16 as a control variable¹⁰. Results from this model indicate that adolescent social anxiety at age 14 showed a trend toward a significant relationship to adulthood outcome ($F = 1.37, p < .09, \eta^2 = .09$). CSA severity ($F = 0.82, p < .60, \eta^2 = .05$) and parental supportiveness at age 16 ($F = 1.37, p < .21, \eta^2 = .08$) did not demonstrate a significant impact adulthood adjustment. Results suggest that when adolescent social anxiety at age 14, CSA severity, and parental supportiveness at age 16 are examined collectively, adolescent social anxiety at age 14 shows a statistically significant trend in terms of its effect on adulthood adjustment while the other predictor and control variables do not significantly impact outcome.

Results from the MANOVAs suggest that adolescent social anxiety at age 14 mediates the relationship between CSA severity and depression at age 28 and self-esteem at age 28. The effect of CSA severity on adulthood adjustment became non-significant

¹⁰ This MANOVA included 163 participants.

when adolescent social anxiety at age 14 was included as a mediator, albeit this effect was small. Additionally, when parental supportiveness at age 16 was included, adolescent social anxiety remained the most potent predictor of outcome, although its effect on outcome was reduced.

Moderation Models of Adolescent Social Anxiety

Next, adolescent social anxiety at age 14 was evaluated as a moderator between CSA and adulthood adjustment. The moderation hypothesis tested whether the effect of CSA on outcome varies according to level of adolescent social anxiety at age 14.

MANOVA was used to evaluate adolescent social anxiety at age 14 as a moderator between CSA and adulthood outcomes. This analysis included CSA as a fixed factor, and adolescent social anxiety at age 14, parental supportiveness at age 16, and an interaction term between CSA and adolescent social anxiety as covariates ($n = 163$).

Results did not support adolescent social anxiety as a moderator between CSA and adulthood adjustment. The interaction of CSA and adolescent social anxiety at age 14 did not demonstrate a significant impact on outcomes ($F = 0.39, p < .94, \eta^2 = .02$). Because the interaction term was not significant, the moderator hypothesis was not supported. CSA ($F = 1.21, p < .30, \eta^2 = .07$), adolescent social anxiety at age 14 ($F = 1.09, p < .38, \eta^2 = .06$), and parental supportiveness at age 16 ($F = 1.37, p < .28, \eta^2 = .08$) also failed to significantly impact adulthood outcome.

A large number of participants were excluded from the MANOVA due to missing data on parental supportiveness at age 16. To determine if increased power would produce different results, the MANOVA was re-tested without parental support ($n = 295$). Results from this analysis also failed to support the moderation hypothesis. The

interaction term of adolescent social anxiety at age 14 and CSA remained non-significant ($F = 0.59, p < .81, \eta^2 = .02$). Adolescent social anxiety also did not significantly impact outcome ($F = 1.22, p < .29, \eta^2 = .04$). CSA showed a trend toward a significant effect on adulthood outcome ($F = 1.75, p < .08, \eta^2 = .05$).

Summary

The tests for Hypothesis 3 evaluated adolescent social anxiety at age 14 as both a mediator and a moderator between CSA and adulthood adjustment. Results offered support for the fit of the mediator models to the data in terms of depression at age 28 and self-esteem at age 28. Results for these analyses suggest that adolescent social anxiety at age 14 partially explains the effects of CSA on these indicators of adulthood adjustment. Results from the tests of moderation did not support adolescent social anxiety as a moderator. The interaction term of CSA and adolescent social anxiety at age 14 did not demonstrate a significant impact on adulthood outcome.

Discussion

CSA is associated with an increased risk for numerous psychological disorders, general psychological distress, problems in interpersonal relationships, as well as pervasive negative emotional effects, such as shame, defilement, fear, and guilt (Browne & Finkelhor, 1986; Polusny & Follette, 1995; Wilson, 2006). Sexual abuse research has proliferated in the past several decades, increasing the public's awareness of both the high prevalence of CSA among the general population and the range of psychological problems associated with it (Beichtman et al., 1992; Browne & Finkelhor, 1986).

Researchers agree that there is not a simple cause-effect relationship between CSA and outcome. Rather, a myriad of interacting risk and protective factors that occur over the course of development affect a child's adjustment in adulthood. Feelings of shame, defilement, and guilt are central to CSA sequelae and often become internalized into the abused child's self-concept (Finkelhor & Browne, 1985; Wilson, 2006). There is strong theoretical support suggesting that these feelings contribute to increased social anxiety during adolescence, when the child becomes increasingly dependent on peer relationships to develop his/her sense of self-concept (Buysse, 1997; Masten, 2005); however, adolescent social anxiety has not received significant attention in the sexual abuse literature. This research sought to evaluate whether sexually abused children experience higher levels of social anxiety during adolescence, and if adolescent social anxiety significantly impacts adulthood outcome. This study focused on addressing three aims: to examine the relationship between CSA and a range of indicators of adulthood adjustment, to evaluate the relationship between CSA and adolescent social anxiety at

age 14, and to analyze adolescent social anxiety at age 14 as a mediating and moderating variable between CSA and adulthood adjustment.

CSA Prevalence and Characteristics

The severity of sexual abuse experiences reported by this sample was marked. Although the 12.3% (84/680) of the sample that reported CSA in this sample is lower than previously reported prevalence rates for CSA (which typically are closer to 27% for women; Finkelhor et al., 1990), the nature of the abuse that was reported was quite severe. The majority of the 84 participants who reported CSA indicated that the abuse occurred 4 or more times, that the perpetrator was a relative (parent or other), and that the onset of abuse occurred prior to age 6. Frequency of abuse, closeness to the perpetrator, and age at onset are three risk factors associated with more severe psychological sequelae among sexual abuse survivors. Only 6% of participants who reported CSA indicated that the perpetrator was a stranger, which corroborates previous research indicating that perpetrators of sexual abuse are most often an individual who is known to the child (Coulborn-Faller, 1988; Freyd, 1996). Although the MSALT study did not assess for level of sexual intrusiveness, prior research indicates that level of sexual intrusiveness is positively correlated with frequency of CSA and negatively correlated with age at onset (Beichtman et al., 1992). Therefore, it is likely that reported CSA experiences that were frequent and began at a young age were also highly sexually intrusive.

The characteristics of CSA reported by this sample suggest that many CSA experiences are quite severe in terms of frequency, age of onset, and relationship to the perpetrator. Given that the sample was community-based and participants were not selected based on their abuse experiences, these findings suggest that there is a

considerable amount of severe sexual abuse experiences reported by the general population. Moreover, the majority of the sample consisted of well-adjusted women in terms of demographic data such as level of higher education, employment status, and involvement in stable interpersonal relationships. Additionally, there were no significant differences between sexually abused and non-abused participants on demographic variables. Given this, findings suggest that there is a considerable amount of severe reported sexual abuse experiences even among a sample of well-adjusted women.

One possible explanation for the low rates of CSA found in this study compared to rates found in previous studies (e.g. Finkelhor et al., 1990) is the way that CSA was assessed. For the data used in this study, participants were asked, “Were you ever sexually abused as a child or adolescent?” It is likely that assessing for CSA by use of the term “sexual abuse” contributed to the lower prevalence estimates. Previous research demonstrates that measurement of the prevalence of rape is more accurate when researchers inquire about specific unwanted sexual *behaviors*, rather than asking if an individual has experienced “rape” per se (Koss, 1996). In this study, participants would have to label their sexual abuse experience as “sexual abuse” in order to respond affirmatively to the question assessing CSA: the use of questions asking about specific behaviors would likely have resulted in higher reported prevalence rates. Although the prevalence rates for CSA were slightly lower than in previous reports, the nature of the CSA experiences that were reported was quite severe. This suggests that individuals who respond affirmatively to the question of “have you ever been sexually abused” may be fewer than those who would respond affirmatively to behaviorally-based assessment, but they are also more likely to report abuse experiences that are severe in nature.

Hypothesis 1: CSA and Adulthood Adjustment

The first hypothesis examined the relationship between CSA and adulthood adjustment. Based on previous research, it was expected that CSA would be related to a range of psychological and relationship difficulties in adulthood (Classen et al., 2001; Polusny & Follete, 1995). Specifically, participants reporting CSA were expected to show significant differences in terms of depression at age 28, self-esteem at age 28, problem alcohol use at age 28, alcohol-related risk behavior at age 28, relationship satisfaction at age 28, relationship characteristics at age 28 (e.g., supportiveness), friendship satisfaction at age 28, relationship violence at age 28, frequency of unprotected sex at age 24, and age at first voluntary sexual intercourse. It should be noted that as this study utilized a community-based sample, the level of pathology may not be as great as in clinical samples. On the other hand, the relationships between CSA and adulthood adjustment in this study are more readily generalizable to the general population.

Results from the *t* tests indicate that CSA was associated with higher levels of adulthood depression at age 28, lower levels of self-esteem at age 28, lower levels of alcohol-related risk behavior at age 28, higher frequency of unprotected sex at age 24, and younger age at first voluntary sexual intercourse. The results were in the expected direction in terms of depression, self-esteem, unprotected sex, and age at first voluntary sexual intercourse; however, the trend in alcohol-related risk behavior was in the opposite direction than was expected. CSA was related to lower levels of alcohol risk-taking.

Although CSA was not related to the continuous problem alcohol variable, CSA was related to a higher likelihood of endorsing at least 1 item that assesses problem drinking in adulthood. The problem drinking variable assesses for the impact of drinking

on social and vocational responsibilities and represents a relatively high level of pathology. This variable consists of items such as “Have you ever had a drink first thing in the morning to ‘steady your nerves’ or get rid of a hangover?” and “Have you ever gotten into trouble at work because of drinking?” Because this study uses a community-based sample, it is less likely that participants would endorse several of these symptoms. The dichotomous problem alcohol variable was used to parcel out those participants who may have a higher level of problem drinking using a slightly lower threshold. Although no significant effects were found for problem drinking at age 28 when used as a continuous variable, the effect of CSA on the dichotomous problem drinking variable was quite strong. These results suggest that CSA does have a relationship with problem drinking in adulthood; however, the impact is not as significant as would be found in a clinical sample.

Although CSA was related to higher likelihood of participants endorsing at least 1 item related to problem drinking at age 28, it was related to lower levels of alcohol-related risk behavior at age 28. Alcohol-related risk behavior at age 28 assesses the frequency of behaviors such as “getting drunk” and “drinking alcohol” and represents a lower level of pathology than the problem drinking variable. One possible explanation for this combination of findings is that participants reporting CSA show lower levels of social drinking but a higher propensity toward developing an alcohol-related problem. Previous research indicates that CSA is not related to a higher frequency of alcohol consumption (Widom, Ireland & Glynn, 1995), although CSA is related to problem alcohol use (Bensley et al., 1999). It may be that non-abused individuals show a higher frequency of alcohol consumption due to social and lifestyle variables but may not go on

to develop a problematic relationship with alcohol. Conversely, participants reporting CSA may have underlying psychological turmoil that they self-medicate with alcohol use, leading to a problematic relationship with alcohol. For example, a high frequency of alcohol consumption is quite common among college students, particularly those who reside on college campuses, because of the social contextual factors encouraging heavy alcohol consumption. Many students screen positive for alcohol problems based on the frequency with which they consume alcohol, but do not go on to develop alcohol-related problems (Kypri, McGee, Saunders, Langley & Dean, 2002). Sexually abused individuals, however, may not drink as frequently in social situations but may have a greater likelihood of developing alcohol problems. This difference may account for the divergent results among abused and non-abused groups in terms of problem drinking at age 28 and alcohol risk behavior at age 28. Additionally, given the significant positive correlation between adolescent social anxiety and both the problem alcohol and alcohol risk variables, it is likely that alcohol use may be a strategy used by a subset of abuse survivors to self-medicate for feelings of social anxiety.

Surprisingly, results from Hypothesis 1 did not support the association between CSA and dependent variables pertaining to interpersonal relationships at age 28, such as relationship satisfaction, friendship satisfaction, relationship characteristics (e.g., supportiveness), and relationship violence. A major premise of this research was that CSA would be related to impairments in social functioning in adulthood as well as traditional psychiatric symptoms, such as depression. This expectation was based on previous research demonstrating higher levels of difficulties in interpersonal relationships among abuse victims in adulthood (Colman & Widom, 2004). The lack of support of the

relationship between CSA and adulthood relationship problems did not support this premise.

One possible explanation for these null results may be the sampling frame: this study utilized a 17-year community-based longitudinal dataset rather than a clinical sample, and, thus, the sample in this study likely included participants with less pathology. The majority of abused participants in this study reported satisfying and supportive friendships and romantic relationships in adulthood and were quite similar to non-abused participants in terms of relationship status, education, and employment. Previous research documenting the relationship between CSA and adulthood relationships selected participants who met diagnostic criteria for PTSD, could explicitly recall at least two incidences of abuse involving genital contact, and knew the perpetrator prior to the onset of abuse (e.g., Classen et al., 2001). Other studies included only participants with substantiated CSA experiences (e.g., Colman & Widom, 2004). This study did not employ such selection criteria. It may be that a relationship between CSA and relationship problems would be supported in a clinical sample.

It is also possible that the lack of significant differences among abused and non-abused groups in terms of adulthood interpersonal relationships is due to differences in measures and sample size between this study and previous studies. In this study, data pertaining to adulthood relationships were taken from a single, self-report portion of the MSALT dataset. Previous research documenting differences among adult interpersonal relationships among abused and non-abused individuals utilized qualitative measures, such as a 2-hour interview, in conjunction with standardized assessment measures (e.g., Colman & Widom, 2004). In addition, the sample used by Colman and Widom (2004)

was much larger and compared a sample of 676 substantiated cases of child abuse and neglect to 520 demographically matched controls. It is possible that a relationship between CSA and adulthood relationships would have been found if the study utilized multiple methods and modes of assessment in conjunction with a larger sample.

A final possible explanation for this lack of support is that adults abused as children may have satisfying and supportive relationships with their closest friends and romantic partners while still experiencing other interpersonal and adjustment problems. Previous research on peer relationships of physically abused children suggests that the closest friendships of physically abused children may serve a compensatory function, providing a therapeutic forum for abused children to heal (Parker & Herrera, 1996). If this explanation is in effect, no significant differences would be expected between abused and non-abused individuals in terms of the nature and quality of the closest adulthood relationships. While no differences may be expected in terms of the closest relationships, differences may emerge in terms of overall social anxiety and insecurity in adulthood.

Although no significant differences were found between abused and non-abused participants in terms of satisfaction, supportiveness, and violence in interpersonal relationships, a relationship was supported between CSA and adulthood sexual behavior. Significant differences were found between abused and non-abused groups in terms of frequency of unprotected sex at age 24 and age at first voluntary sexual intercourse. One possible explanation for this finding is that the effects of CSA on interpersonal functioning disappeared by the time the sample was 28. For example, at age 24, there were significant differences between abused and non-abused groups in terms of frequency of unprotected sex. By age 28, differences in frequency of unprotected sex

among abused and non-abused groups disappeared. It is possible that by age 28, abused individuals in this sample were able to establish supportive interpersonal relationships and no longer demonstrated differences in interpersonal functioning relative to non-abused individuals that they had at earlier developmental stages.

The traditional way of conceptualizing effects of trauma is the PTSD framework, which focuses on reexperiencing of the trauma, avoidance of trauma-related stimuli, and increased arousal (e.g., hypervigilance; American Psychological Association, 2000). The results from Hypothesis 1 offer support for the notion that CSA is associated with a wider range of symptoms than is captured in the traditional PTSD framework. Such symptoms include alterations in the sense of self, differences in sexual functioning, and depression. This is consistent with previous research suggesting that the effects of CSA are often more complex than captured in the traditional PTSD framework (Herman, 1992a).

CSA and a Polarization of Response in Risk-Taking Behavior

A corollary to Hypothesis 1 was that participants reporting CSA would show a polarization of response in terms of risk-taking behavior. This was based on previous research suggesting that sexually abused individuals may show both an aversion toward and a propensity for risky behavior (e.g., sexual activity) later in development (Downs, 1993; Maltz & Holman, 1987). It was hypothesized that CSA would be associated with both higher and lower levels of risk-taking in terms of sexual behavior and alcohol use in adulthood. As noted, *t* tests from Hypothesis 1 suggest the presence of an association between CSA and both high and low levels of various risk-taking behaviors.

The first area of risk-taking examined was alcohol use. The initial *t* tests for Hypothesis 1 revealed a relationship between CSA and lower levels of alcohol-related

risk-taking behavior at age 28. Results from the multinomial regression offered additional support for the relationship between CSA severity and lower levels of alcohol risk behavior. The dichotomous CSA variable was not related to high or low levels of alcohol related risk behavior; however, the CSA severity variable was significantly related to lower levels of alcohol-related risk behavior at age 28. No relationship was supported between CSA severity and higher levels of alcohol related risk behavior at age 28.

Additionally, no relationship was found between CSA and extreme responses in terms of the single item that assessed frequency of intoxication at age 24. This was somewhat unexpected, given the considerable overlap between the constructs of alcohol risk-taking at age 28 and frequency of intoxication at age 24. It is conceivable that differences would emerge with one variable and not the other, as frequency of intoxication at age 24 consisted of a single item assessing the number of times a participant has “gotten drunk” in the past 6 months, and alcohol-related risk-taking behavior at age 28 consisted of several items assessing for the number of times a participant has driven drunk, ridden with a drunk driver, drunk alcohol, and gotten drunk in the past 6 months. This finding suggests that taken as an aggregate, sexually abused individuals show lower levels of alcohol risk-taking at age 28, although, when the item assessing frequency of intoxication in the past 6 months was examined independently at age 24, the differences disappear.

Results also supported the relationship between CSA and higher levels of sexual risk-taking behavior. This was consistent with results from Hypothesis 1 that demonstrated a relationship between CSA and younger ages at first voluntary sexual

intercourse. Results from the multinomial regression indicate that abuse history showed a significant trend toward younger age at first voluntary sexual intercourse. Participants reporting CSA were more likely to report being between the ages of 12 and 15 at the time of first voluntary sexual intercourse than participants who did not report CSA. Abuse history was not related to older age at first voluntary sexual intercourse.

Although previous research indicates that sexual abuse may be related to both increased promiscuity as well as an aversion toward sexual behavior (Maltz & Holman, 1987), results from this study offer support for the relationship between CSA and greater sexual risk-taking (e.g., younger age at first voluntary sexual intercourse). Results did not support the relationship between CSA and older age at first voluntary sexual intercourse. Interestingly, CSA severity was not related to younger age at first voluntary sexual intercourse. This suggests that having been abused was related to younger age at first voluntary sexual intercourse, but that the severity of the abuse did not have the same impact.

Although results did not support a polarization of response in terms of the same area of risk-taking behavior, results did indicate that CSA is related to higher levels of some areas of risk-taking and lower levels of others. CSA was related to higher levels of sexual risk-taking and CSA severity was related to lower levels of alcohol-related risk-taking.

A moderate level of risk-taking during development, particularly during adolescence, is healthy, and the association between CSA and either too little or too much risk-taking may be related to underlying psychological distress or conflict. Results from this study offer preliminary support for the polarization of response of risk-taking

behavior among sexual abuse survivors; however, additional research is needed to further clarify and replicate these findings with a larger sample size.

Hypothesis 2: CSA and Adolescent Social Anxiety

The second hypothesis investigated the relationship between CSA and adolescent social anxiety at age 14. It was anticipated that participants reporting CSA would report significantly higher levels of adolescent social anxiety at age 14 than non-abused participants. This hypothesis was based on prior research demonstrating the pervasive sense of stigma and shame related to CSA (Finkelhor & Browne, 1985; Wilson, 2006), as well as the increased peer problems associated with other forms of childhood abuse (Parker & Herrera, 1996; Price, 1996). Results offered limited support for the hypothesis. When abused participants were compared to non-abused participants using the dichotomous CSA variable, the data suggested higher levels of adolescent social anxiety at age 14 among sexual abuse survivors; however, this difference was over the cutoff for statistical significance. Because the trend was in the expected direction, this hypothesis was also examined using the CSA severity variable. Results from this approach demonstrated a statistically significant relationship between CSA severity and adolescent social anxiety in the expected direction; severity of CSA was associated with higher levels of adolescent social anxiety at age 14. However, the magnitude of the relationships was relatively weak.

The weak association between CSA severity and adolescent social anxiety was somewhat surprising because of the amount of literature supporting the relationship between childhood abuse and peer problems (Feiring et al., 2000; Parker & Herrera, 1996; Price 1996). One possible explanation for the weak association between variables

is the length of time over which the data were collected. The CSA severity variable was retrospectively assessed at age 24. The adolescent social anxiety variable was taken from data collected at age 14. The 10-year period of time that separates these two variables may account for the relatively weak association between variables. In previous research, such as Feiring et al. (2000), a stronger correlation between CSA frequency and adolescent peer acceptance was found; however, the methodology of that study was somewhat different. The CSA variables in that research were assessed 1 year prior to the variables pertaining to adolescent social competence. The 1-year time span that separated the CSA and adolescent social variables in the Feiring et al. (2000) study is considerably less than the 10-year time span separating similar variables in this research. It is likely that the low associations between variables in this research are an artifact of the long period of time over which data were collected.

Although the strength of the relationship between variables was relatively weak, results did indicate a significant relationship between CSA severity and adolescent social anxiety at age 14. Results were in the expected direction, using both the dichotomous and severity CSA variables. Whether abuse history (yes/no) or severity of abuse was examined, results supported a relationship between sexual abuse and higher levels of adolescent social anxiety. When examined with the dichotomous CSA variable, there was a trend toward higher adolescent social anxiety at age 14 among participants reporting sexual abuse. When examined using the CSA severity variable, severity of CSA was significantly and positively related to adolescent social anxiety at age 14.

Previous literature documents the relationships between childhood abuse and difficulties with friendships, increased peer rejection, and lower ratings of popularity

during childhood (Feiring et al., 2000; Parker & Herrera, 1996; Price, 1996; Salzinger et al., 1993). Although adolescent social anxiety, specifically, has not been identified as a correlate of CSA in previous research, a relationship between CSA and adolescent social anxiety was anticipated based on the pervasive sense of stigma, shame, and defilement experienced by sexually abused children (Finkelhor & Browne, 1985; Wilson, 2006) as well as prior research documenting the relationship between CSA and other aspects social functioning (e.g., peer acceptance; Feiring et al., 2004; Price, 1996). The significant, albeit weak, relationship between CSA severity and adolescent social anxiety at age 14 found by this study offers preliminary support for this hypothesis and warrants further investigation.

Hypothesis 3: Adolescent Social Anxiety as a Mediator

The third hypothesis addressed the impact of adolescent social anxiety at age 14 on adulthood adjustment at age 28. It was anticipated that adolescent social anxiety at age 14 would mediate the relationship between CSA and adulthood outcomes. A series of MANOVAs were used to evaluate this hypothesis, which allowed for the examination of the impact of CSA and social anxiety on adjustment when all indicators of adulthood adjustment were considered collectively.

Results from the MANOVAs suggest that adolescent social anxiety at age 14 mediates the relationship between CSA severity and depression at age 28 and self-esteem at age 28. Once the impact of adolescent social anxiety at age 14 was taken into account, CSA severity no longer had a significant effect on adulthood depression or self-esteem. Adolescent social anxiety at age 14 was not supported as a mediator between CSA severity and other dependent variables.

Results demonstrated a mediating effect for adolescent social anxiety in terms of adulthood depression and self-esteem; however, the strength of the relationship between variables was relatively weak. As discussed above, the relatively low association between variables is most likely attributable to the span of time over which the data were collected. The fact that a mediating effect was supported, in spite of the span of time over which data collection occurred, indicates that adolescent social anxiety at age 14 may play a role in adulthood adjustment among survivors of CSA.

The results from this study did not support a significant relationship between adolescent social anxiety at age 14 and interpersonal relationships at age 28. This was unexpected, as previous literature supports a relationship between CSA and impaired interpersonal functioning (Classen et al., 2001; Colman & Widom, 2004). The lack of findings for the mediation hypothesis in terms of adulthood relationships is consistent with the lack of findings for the relationship between CSA and adulthood relationship variables in Hypothesis 1. As noted, several possible explanations could account for this lack of findings, including the sampling of a community population, insufficient methodology, and the compensatory hypothesis, which states that the closest friendships of abused individuals function similarly to non-abused individuals, providing a forum in which the individual can heal from previous abuse (Parker & Herrera, 1996).

In sum, results from the mediation hypothesis suggest that adolescent social anxiety at age 14 mediates the relationships between CSA severity and depression at age 28 and self-esteem at age 28, albeit these relationships do not appear to be strong. Adolescent social anxiety at age 14 remained the most significant predictor of outcome relative to the severity of CSA and parental supportiveness at age 16. Although the

strength of the significant relationships in this study were relatively weak, results suggest that sexually abused children experience higher levels of social anxiety during adolescence and that adolescent social anxiety at age 14 partially accounts for the development of depression and low self-esteem in adulthood among survivors of CSA.

Hypothesis 3: Adolescent Social Anxiety as a Moderator

It was also anticipated that adolescent social anxiety at age 14 would moderate the relationship between CSA and adulthood outcomes. This hypothesis also was tested using MANOVAs, which included CSA, adolescent social anxiety at age 14, an interaction term of CSA and social anxiety, and a control variable for parental supportiveness at age 16. Results did not support the moderation hypothesis, as the interaction term of CSA and adolescent social anxiety failed to achieve statistical significance. These results were unexpected given previous literature documenting the capability of peer relationships to moderate the effects of other risk factors on outcomes (Hodges, Boivin, Vitaro & Bukowski, 1999; Pettit, Laird, Dodge, Bates & Criss, 2001). One possible explanation for the lack of support for the moderation hypothesis is reduced statistical power due to small sample size. The MANOVA testing moderation was based on 163 participants. However, when the MANOVA was retested without the control variable for parental support and an increased sample size of 295 participants, the interaction term remained non significant. Given this, it is unlikely that the lack of support for the moderation hypothesis was an artifact of insufficient power.

In his discussion of the proper ways to test for moderation and mediation, Holmbeck (1997) states that, “Significant moderation effects may be difficult to detect statistically. This difficulty is most likely to occur in studies where samples are relatively

homogeneous because all high and low values of the moderator and predictor variables may not be adequately represented” (p. 601). Because the sample used in this study is community based, scores on variables that assess pathology, such as adolescent social anxiety and CSA, are not as varied as would be in other samples. This may explain why a moderation effect was not supported by the data. Ideally, the moderation hypothesis could be retested in a sample where all participants have experienced CSA to a greater or lesser degree. This would provide greater variability in CSA and adolescent social anxiety variables.

In sum, results from Hypothesis 3 offered some support for adolescent social anxiety at age 14 as a mediator between CSA severity and depression and self-esteem in adulthood. The tests of mediation suggest that level of social anxiety at age 14 partially accounts for the relationship between CSA severity and adulthood depression and self-esteem at age 28. Results did not support adolescent social anxiety at age 14 as a moderator between CSA and adulthood outcomes. Contrary to the moderation hypothesis, CSA was not more likely to have a negative impact on adulthood adjustment when higher levels of adolescent social anxiety were present. Although moderating and mediating effects are not mutually exclusive, results from this study only supported adolescent social anxiety as a mediator between CSA and adulthood outcomes.

Limitations

There are several limitations to this study that should be considered when interpreting the results and implications. First, this study utilized retrospective self-report data for sexual abuse. This form of assessment asks individuals to answer questions about their previous experience(s) of sexual abuse and lacks independent corroboration

for the abuse which is reported. There is, therefore, a risk of individuals falsely reporting having been abused. Given this, it should be emphasized that this study is based on *reported* CSA experiences, not those that have been corroborated externally. Although independent corroboration would effectively minimize false positives (falsely reporting trauma that did not occur), this approach would also increase the number of false negatives (failing to report trauma that did occur). As Freyd et al. (2001) notes, the unilateral requirement of independent corroboration is problematic because individuals who experienced CSA and did not report the abuse soon after it occurred would be unable to provide external corroboration and excluded on this basis. Although there is a valuable place for studies requiring independent corroboration, there is also a valuable place for studies using self-report. Refusing to study individuals who lack independent corroboration would grossly underrepresent the prevalence of CSA.

A second limitation of this study was that the variables and measures used in this study were pre-determined, as this study utilized a pre-existing dataset. Variables pertaining to mental health were particularly limited, as this domain was not central to the MSALT study's purpose. Ideally, several reliable and valid measures would be used to assess mental health constructs such as self-esteem, depression, and interpersonal functioning. This study was limited to use the variables that were often internally developed by the MSALT research team. Despite this limitation, this study represents one of the few prospective studies of CSA, adolescent variables, and adulthood outcomes. Longitudinal datasets that cover the span of time of the MSALT study are extremely rare. The limitations in variable selection seemed to be outweighed by the

potential contribution of the dataset to the study of the interrelationships between CSA, adolescent variables, and adulthood outcomes.

A third limitation that arose from the use of a 17-year longitudinal study is that the strength of the associations between key variables (e.g., CSA, adolescent social anxiety, and adulthood outcomes) was relatively low. Although many of the interrelationships between variables were statistically significant, the magnitude of the relationships was relatively weak. The span of time over which the data were collected makes this trend understandable; however, it remains a limitation of the study's findings.

Other aspects of the sample that may limit the study's findings are that it was community-based. Because the study utilized a community-based sample, there was not a lot of variance on some items pertaining to psychopathology, such as violence in relationships and general relationship characteristics. Therefore, it is difficult to interpret findings pertaining to these aspects of adulthood adjustment. Additionally, because of relatively small sample size of sexually abused girls (84/680), the design may have lacked the power to detect significant differences. With a larger sample and greater power, we may have found more statistically significant results.

In contrast, though, research on adjustment using community samples provides a more balanced sense of the human capability to tolerate trauma such as CSA than is provided by studies using clinical samples. For example, previous research suggests that there is an association between CSA and adulthood adjustment problems among the general population; however, it is typically smaller than the association of CSA to adjustment problems found in clinical samples (Rind, Bauserman, & Tromovitch, 1998; Lilienfeld, 2002). Thus, the large body of literature of CSA using clinical samples may

overestimate the long-term adjustment problems associated with CSA. Rather, many sexually abused children in the general population appear to be resilient to sexual abuse and go on to function adaptively in adulthood.

Directions for Future Research and Clinical Implications

The impact of adolescent social anxiety on adulthood adjustment among abuse survivors should be reexamined in future research using multiple methods and modes of assessment. One weakness in this study is the limitations of the measures used to assess indicators of adulthood adjustment, such as depression, self-esteem, and the characteristics of adulthood relationships. Replicating these findings using measures that assess for depression per the diagnostic criteria, in lieu of items assessing feelings of sadness, loneliness, and discouragement, would be extremely valuable. However, it is likely that one would not find enough variance on the diagnostic criteria using a community sample such as that used in this study.

Results from this research support the importance of tracking the social functioning of sexually abused children during adolescence as an indicator of overall wellbeing as well as a predictor of future dysfunction. Social anxiety and problematic peer relationships during adolescence offer an important index of the child's adjustment and overall wellbeing to caregivers, teachers, and mental health professionals. Sexual abuse survivors who show difficulties in this area are at greater risk for developing psychopathology in adulthood and could benefit from preventative efforts aimed to decrease feelings of social anxiety and to promote peer acceptance.

Peer-focused interventions are a logical extension of this study's findings. Facilitating positive peer relationships and interactions may be a means to help prevent

the development of abuse-related sequelae when other forms of intervention may not be feasible. A peer-related component to treatment may be ideal in the context of a multifaceted intervention (Masten, 2005) and may also be effective under circumstances when a more comprehensive intervention is not possible. One such circumstance is when abuse is suspected and the child's caregivers are unwilling to contribute to any form of treatment. In this case, other supportive adults may facilitate positive peer interactions and help the child have social experiences that contradict the belief that they are at fault, unlikable, and fundamentally different from their peers.

Summary

Often, research on the effects of CSA has overlooked the numerous contextual factors that occur prior to and following abuse that significantly impact adulthood outcomes. Researchers state that insufficient attention has been given to processes that mediate and/or moderate the effects of childhood abuse, including interpersonal functioning and other social variables (Liem & Boudewyn, 1999). This oversight has been likened to looking at the correlates of CSA in a contextual vacuum (Briere, 1992; Liem & Boudewyn, 1999). This study sought to address this issue by examining the interrelationships between CSA, adolescent social variables, and adulthood outcomes utilizing a prospective dataset.

Identifying factors that contribute to adulthood outcomes is essential to further understand and alleviate the effects of CSA. Results from this study suggest that CSA is associated with a range of adulthood adjustment difficulties, including depression, self-esteem, problem alcohol use, and risky sexual behavior. Results also suggest that the severity of CSA, as indicated by frequency of abuse and age at onset, is positively (yet

modestly) related to adolescent social anxiety at age 14. Finally, results provided some evidence that adolescent social anxiety at age 14 mediates the relationship between CSA severity and adulthood depression at age 28 and self-esteem at age 28. Results from this study suggest that social anxiety during adolescence may be one factor that has a significant influence on the development of adulthood depression and self-esteem among sexually abused girls.

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