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Psychological consequences of child sexual abuse and the risk and protective factors influencing these consequences

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Psychological Consequences of Child Sexual Abuse and the Risk and Protective Factors Influencing These Consequences

by

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Psychological Consequences of Child Sexual Abuse and the Risk and Resilience Factors Influencing These Consequences

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ABSTRACT

Although a number of negative consequences of childhood sexual abuse (CSA) have been identified, research has shown that some survivors of CSA are fairly resilient and do not demonstrate these negative outcomes. The current study examined differences between sexually abused and non-abused children on a number of emotional and behavioral dimensions and on achievement. In addition, the role of factors such as intelligence, abuse severity, gender, history of previous psychological interventions and number of foster homes on outcomes in a group of 117 children between the ages of 7 and 16 with sexual abuse histories and 80 controls who did not have a reported history of sexual abuse was examined. Results suggested that children with CSA histories were rated by their caregivers as exhibiting significantly more overall behavior problems than children without CSA histories. CSA history was not found to be significantly associated with self reported depressive symptoms and there was not a significant relationship between gender and caregiver reported behavior problems. However, consistent with expectations, CSA history was significantly associated with intelligence and higher levels of intelligence being predictive of better functioning in a number of areas. Similarly, CSA history was significantly associated with achievement and as expected, higher levels

of intelligence were significantly associated with higher overall achievement. Number of foster care placements, abuse severity, history of previous psychological treatment and age at time of testing were generally not found to be significantly associated with resilience.

Psychological Consequences of Child Sexual Abuse and the Risk and Protective Factors Influencing these Consequences

Introduction

Researchers have identified a number of psychological and behavioral consequences in survivors of child sexual abuse such as posttraumatic stress disorder and eating disorders (Browne & Finkelhor, 1986). Factors such as the severity of the abuse experience (Kendall-Tackett, Williams & Finkelhor, 1993) and cognitive functioning (Trickett, McBride-Chang & Putnam, 1994) have been identified as putting an individual at greater risk of developing these negative consequences. In addition, since many children who have been sexually abused are removed from their home and placed into foster care, the impact of the number of foster care placements on sexual abuse survivors, therefore, is an important factor to consider when discussing risk factors in survivors of CSA. Stanley, Riordan and Alaszewski (2005) suggested that a high number of foster placements were related to mental health problems in the children in their sample. Research has also indicated, however, that not all survivors of CSA experience these negative consequences (Spaccarelli & Kim, 1995). Factors such as intelligence have been purported to act as protective factors in high risk children (Luthar, Zigler, & Goldstein, 1992) but have only been examined to a limited degree in individuals who were sexually abused as children.

Prevalence

In 1984, the "Second National Incidence and Prevalence Study of Child Abuse and Neglect" was mandated by Congress. This study demonstrated that girls were significantly more likely to be victims of sexual abuse than boys. The incidence rate of sexual abuse among girls was 3.28 per 1000, while for boys it was 1.00 per 1000. The study also reported that low income was a significant risk factor for abuse in general, both physical and sexual, but there was a greater gender difference for lower income families, with girls in low income families at greater risk for sexual abuse rather than physical abuse (Cappelleri, Eckenrode, & Powers, 1993).

Putnam (2003) suggested that the majority of the research reviewed has been retrospectively collected from adult samples, and that prevalence rates "vary widely as a function of the selection and response rate, the definition used, and the method by which the history is obtained (p. 270)." Putnam (2003) reported that based on statistics from the U.S. Department of Health and Human Services (1998), before the 1970s the incidence of CSA was rare. These statistics should be interpreted with care, however, based on low rates of reporting any type of abuse, especially sexual abuse during this time period. There was then an increase to about 149,800 substantiated or indicated cases in 1992 and as of the most recent statistics in 2000, this number has decreased to about 88,000. Putnam (2003) reported that studies in community samples indicate that prevalence rates are usually between 12% and 35% in female samples and between 4% to 9% in male samples. Gorey and Leslie (1997) found the prevalence rates of CSA in women to be

16.8% and for men to be 7.9% after adjusting for factors such as sample related variation, response rates and differences in definition.

Loeb, Williams, Carmona, Rivkin, Wyatt, Chin and Asuan-O'Brien (2002) suggested that prevalence rates of CSA do not appear to differ among ethnic groups. In addition, research from other countries indicates that prevalence rates around the world are comparable to those in the United States. Finkelhor (1994) conducted a review of studies from 19 countries and found that the rates of CSA in women were between 7% and 36% and in men were between 3% and 29%. Some researchers have suggested that the prevalence rates may be higher because many individuals who have been abused do not report this abuse (Dimock, 1988; Finkelhor, 1994). This may be especially significant in the case of male victims of CSA. Watkins and Bentovim (1992) reviewed research on male children and adolescents and found that males were less likely than females to report the abuse to authorities. Males may be less likely to report the abuse because they may accept greater blame for the abuse (Myers, 1989); there is greater stigma attached to the abuse (Dimock, 1988); because of fear of being labeled as homosexual (Black & DeBlassie, 1993); they may be less likely to view the sexual activity as abuse, especially if the perpetrator was female (Dhaliwal, Guazas, Antonowicz, & Ross, 1996); and they may feel that their reports will be taken less seriously by the authorities (King & Woolett, 1997). Lab, Feigenbaum and De Silva (2000) found that mental health professionals are less likely to ask males about histories of CSA.

Definition of sexual abuse

Sexual abuse has been defined in a variety of ways by different researchers. The definitions of sexual abuse vary within the sexual abuse literature from no contact events such as exhibitionism to fondling and sexual intercourse (Rumstein-McKean & Hunsley, 2001). One of the most widely used definitions is that of Finkelhor (1979) whose definition includes sexual activity between a child and an older person, including simulated, attempted or actual intercourse, kissing, hugging or fondling in a sexual manner, sexual overtures and exhibitionism. This contact was described as sexual abuse if it occurred between a child 12 or under and an adult over 18; or more than 5 years older than the child; or between an adolescent and an adult at least 10 or more years older than the adolescent. Russell (1986) defines sexual abuse as any sexualized behavior between a minor child and anyone who is 5 years older than the child. Bartoi and Kinder (1998) defined sexual abuse as oral, vaginal or anal intercourse, or genital manipulation with someone at least 5 years older, being touched in a way that made the individual feel violated or being coerced into unwanted sexual activity, or had ever been touched in a way that made them feel violated. Bartoi and Kinder (1998) developed a brief measure using this definition that has been used in a number of studies.

The definition that will be used in the current study is based on the definition used by the Department of Children and Family Services (DCF) which is found in Chapter 39 of the Florida Statutes. Florida state statute 39.01 defines sexual abuse as involving one or more of the following by an adult to a minor child : penetration; any sexual contact not intended for medical purposes or as normal caregiver responsibility; masturbation in the

presence of a child; exposure of genitals for the purpose of sexual arousal or gratification, aggression, degradation, or for a similar purpose; sexual exploitation including encouraging, or forcing a child to solicit for or engage in prostitution, or engage in a sexual performance. Florida statues define a minor child as a child below 18 years old. Sexual abuse can also be committed by a juvenile whereby the sexual behavior "occurs without consent, without equality, or as a result of coercion." DCF determines that a child has been sexually abused if there is "substantive evidence" that the abuse occurred. The results of the DCF investigations are classified as "no indicators of abuse," "some indicators of abuse," or "verified abuse." After the investigation has been classified into one of these categories, the child may be adjudicated "dependent" and placed in the care of DCF.

Research has demonstrated many negative consequences of CSA. The outcomes found by each study are often dependent on the particular definition of sexual abuse used by the researchers. Negative symptomatology can be viewed as internalizing and/or as externalizing and many sexual abuse survivors may demonstrate characteristics of a variety of these problems.

Psychological Consequences and Behaviors

Psychological effects such as depression, anxiety, fear, distress, guilt and shame have been associated with women who have been sexually abused (Browne & Finkelhor, 1986; Chaffin, Silovsky, & Vaughn, 2005; Johnson & Kenkel, 1991; Kendall-Tackett, Williams, Finkelhor, 1993; Paolucci, Genuis, & Violato, 2001; Saywitz, Mannarino, Berliner & Cohen, 2000; Spaccarelli & Fuchs, 1997). Some behaviors that have been

identified by researchers as possibly stemming from abuse are aggression, over-sexualized behavior, eating disorders, substance abuse, self injurious behaviors, somatic complaints, dissociation, sexual perpetration, academic difficulties, interpersonal difficulties, and suicidality (Browne & Finkelhor 1986; Inderbitzen-Pisaruk, Shawchuck & Hoier 1992; Kendall-Tackett, Williams, Finkelhor 1993; Martin, Bergen, Richardson, Roeger & Allison, 2004; Monahan & Forgash, 2000; Newman, Clayton, Zuellig, Cashman, Arnow, Dea, & Taylor, 2000; Paolucci, Genuis, & Violato, 2001; Saywitz, Mannarino, Berliner & Cohen, 2000; Smith M.S. & Smith M.T., 1999; Spaccarelli & Fuchs, 1997).

Martin et al (2004) found that boys with histories of CSA were more likely to exhibit suicidality which included suicidal ideation, plans, threats, deliberate self injury and suicide attempts than girls with histories of CSA when controlling for hopelessness, depression and family functioning. They found that girls' suicidality was better accounted for by depression, hopelessness, and family functioning while boys were more likely to demonstrate suicidality even after controlling for these factors.

Garnefski and Arends (1998) examined emotional and behavioral problems and suicidality in boys and girls with CSA histories and compared them with matched controls that had not experienced CSA. Emotional problems assessed were loneliness, anxiety, depressed mood and self esteem and were measured by subscales on an emotional problems scale. Behavioral problems assessed included use of alcohol, aggressive behavior, criminal behavior, use of drugs and truancy and were assessed by subscales on a behavioral problems scale. They found that boys and girls with histories of

CSA reported significantly more emotional and behavioral problems and suicidal problems than matched controls. In comparing boys and girls with histories of CSA, there were no significant differences with regard to overall levels of emotional problems being reported, although boys reported significantly more loneliness than girls and girls reported significantly more feelings of anxiety than boys. Boys with histories of CSA had significantly more overall behavior problems than girls with histories of CSA including significantly more use of alcohol and drugs, suicidality, aggressive behavior and criminal behavior, and truancy.

Some researchers have found that the circumstances surrounding CSA, the way that the abuse is processed and the effects of the abuse may differ by ethnic group. For example, Wyatt (1990) reported that while there were few differences between African American and Caucasian women with regard to their initial response to CSA, the short term impact of the abuse, as well as many of the long term consequences, African American women were more likely than Caucasian women to avoid men resembling the perpetrator. This research is still in its infancy and more research needs to be conducted to examine whether the effects of sexual abuse is different for males and females in different cultures, as the majority of research examining cultural factors to date has looked these factors with regard to women.

Weinstein, Staffelbach, and Biaggio (2000) in their review of the literature on PTSD and Attention Deficit Hyperactivity Disorder (ADHD) in individuals with histories of CSA reported that while PTSD is the diagnosis most often given, ADHD is the second most common. The authors suggested that it may be difficult to make a differential

diagnosis because PTSD and ADHD may share similar symptomatology such as problems concentrating and impulsivity. In addition, PTSD and ADHD may truly co-occur in some individuals.

Kisiel and Lyons (2001) reported that dissociation, described as a natural, protective response to stress can, with prolonged stress become an automatic response to stress. They also suggested that aggressive, risk taking behaviors can occur in the context of dissociative experiences when individuals feel "out of control" and forced to do something against their will. They examined the hypothesis that dissociation mediated the relationship between abuse history and psychopathology among children and adolescents in a state run residential facility and found that sexual abuse was significantly associated with dissociation. Dissociation was measured using the Adolescent Dissociative Experiences Scale (Armstrong, Putnam, Carlson, Libero & Smith; 1997) and the Child Dissociative Checklist (Putnam, Helmers, Horowitz & Trickett; 1993). Further, they suggested that their results indicated that dissociation may mediate the relationship between sexual abuse and psychiatric symptoms and risk-taking behavior.

Kaplow, Hall, Koenen, Dodge, and Amaya-Jackson, (2005) examined attention problems in sexually abused children. They found that dissociation immediately following disclosure of abuse was the strongest predictor for attention problems. Dissociation was assessed by the Trauma Symptom Checklist for Children (TSCC; Briere, 1996). They suggested that this may be because dissociation interfered with the child's perception of their environment and the integration of incoming information, which may in turn lead to concentration problems. In addition, they hypothesized that

dissociation has been associated with less connectivity in the corpus callosum which may lead to the attention and information processing problems seen in children who have been sexually abused. The authors found that PTSD was only related to attention problems by way of dissociation. Kaplow et al (2005) also found that being abused by a family member was also predictive of attention problems. This study did not include a control group of children who had not been sexually abused.

Cognitive Dysfunction

Trickett, McBride-Chang and Putnam (1994) suggested that the psychological consequences that have long been identified as stemming from sexual abuse likely affect cognitive functioning in those who have been abused. They suggested that because abused children are distracted by their abuse experience, this takes away cognitive energy from other pursuits. In addition, they suggest that the abused child's internal motivation to please significant others which can provide the motivation needed to succeed in academic pursuits may be diminished because it is likely that these or other significant individuals in the child's life are perpetrating the sexual abuse. Additionally, because of low self esteem, abused children may be less inclined to participate in and learn from challenging experiences. Other researchers such as Nakano, et al (2002) have found that prolonged stress can result in structural brain changes which can then impact memory functioning. Nakano et al (2002) examined hippocampal volume in cancer survivors. They found that in cancer survivors with a history of distressing cancer related memories, the volume of the left hippocampus was 5% smaller than in cancer survivors without a history of distressing memories. It may be that prolonged stress experienced by sexual

abuse survivors may result in changes in the structure of the brain, which in turn affects cognitive functioning.

Bremner, Randall, Scott, Capelli, Delaney, McCarthy and Charney (1995) examined memory and intellectual functioning in adult survivors of severe childhood physical and sexual abuse. They found that while there were no significant differences between adults with abuse histories and controls with regard to IQ, the survivors of abuse had deficits in verbal short term recall, as well as immediate and delayed recall.

There is some evidence to suggest, however, that there is a relationship specifically between sexual abuse and cognitive dysfunction in those who have been abused. Trickett et al (1994) found that, in comparison to controls, sexually abused girls did not do as well in classroom social competence and overall academic performance. In addition, participants in the sexually abused sample had higher levels of school avoidant behavior than controls. They also found that sexual abuse was negatively related to cognitive ability as measured by the Peabody Picture Vocabulary Test – Revised (PPVT-R), but that sexual abuse history was not related to grades. It should be noted, however, that the PPVT-R has been criticized on the grounds that it is heavily dependent on environmental exposure to the test stimuli.

In their review of the literature, Veltman and Browne (2001) suggested that the research on the effect of sexual abuse on intellectual ability and academic functioning is mixed, with some research suggesting a link between sexual abuse and lower intellectual and/or verbal ability while other research does not find such a link. This link seems to be more tentative when sexual abuse is distinguished from physical abuse. For example,

Perez and Widom (1994) found that while abused and neglected individuals had significantly lower IQ scores than controls, when the sample of those who had been sexually abused only was separated from their larger sample, the results indicated that young adults who were sexually abused as children did not differ from controls with regard to IQ and reading ability. Harford and Kinder (2004) also found that there were no significant differences between women with (M = 102.74, SD = 8.14) and without (M = 101.85, SD = 7.57) histories of CSA with regard to intelligence. This study was, however, based on a college student sample and it may be that women who are able to attend college are more resilient to the abuse than others with CSA histories.

Similarly, Porter, Lawson and Bigler (2005) compared children who had been sexually abused and in therapy with matched controls and found that there were not significant differences between abused and non abused children with regard to memory and intellectual abilities when controlling for socioeconomic status and overall intelligence.

Severity

Many researchers have examined the impact of abuse characteristics on the subsequent functioning of sexual abuse survivors. One characteristic that has often been studied is the severity of the abuse.

Feinauer and Stuart (1996) examined outcomes in women who had been sexually abused as children. They defined severity in terms of age at onset, identification of perpetrator, frequency, duration and type of abuse. They found that severity of abuse was significantly related to current level of trauma symptoms.

Morrow and Sorell (1989) similarly found that greater severity of abuse was associated with lower self esteem, greater depression and higher frequency of negative behaviors. They also investigated the effects of other abuse characteristics such as duration, frequency and self blame. They hypothesized that severity was the most important predictor in predicting mental health outcomes in their study because victims of abuse viewed activities not involving intercourse as less damaging and less taboo than activities involving intercourse.

In their review of the existing literature, Kendall-Tackett, Williams and Finkelhor (1993) examined six studies about the impact of severity on survivors of CSA. Five of these studies indicated that severity of sexual abuse did significantly impact survivors of CSA. The majority of these studies appeared to involve penetration in their definition of CSA. Kendall-Tackett et al reported, however, that one of the problems of these studies was that the actual definition of severity varied among the studies.

Merrill, Guimond, Thomsen and Milner (2003) examined different pathways by which CSA may result in both greater and fewer sexual partners using a path analytic model. They found that women with a history of CSA reported greater use of both avoidant and self-destructive coping strategies than women without a history of CSA. They also found that women who used self destructive coping in response to CSA were more likely to engage in dysfunctional sexual behavior and this in turn was associated with a greater number of sex partners. Dysfunctional sexual behavior was measured by the Dysfunctional Sexual Behavior (DSB) Scale of the Trauma Symptom Inventory (Briere, 1995). The DSB scale assesses “sexual behaviors that are self defeating or

maladaptive because of an indiscriminant quality, potential for self-harm, or use for nonsexual purposes" (p.990). They also found that women who engaged in avoidant coping to deal with CSA were more likely to have fewer sexual partners than women who did not use avoidant coping.

Since Kendall-Tackett et al's (1993) review, there have been some studies which call into question the impact of abuse severity on sexual abuse survivors. Paradise, Rose, Sleeper and Nathanson (1994) found that there was no relationship between abuse characteristics such as severity, frequency, duration or relationship to the perpetrator and problems in sexual abuse survivors. The participants in this study may have experienced particularly severe abuse as all the participants had experienced abuse involving contact, that is, children were only included in the study if the child, their parents or their clinician reported that they were physically touched in a way considered sexual by someone 5 or more years older than them, had been touched sexually by a peer and objected to the contact, or had a newly diagnosed sexually transmitted disease.

Similarly, Feiring, Taska, and Lewis (2002) examined the effect of abuse severity in a sample of 147 children and adolescents. They found that abuse severity did not account for additional variation in adjustment in the sexual abuse survivors one year after abuse discovery when controlling for adjustment at the time of discovery. Instead they found that shame and attributional style accounted for adjustment following abuse discovery even after previous adjustment at the time of discovery is controlled. Unlike several previous studies, Feiring, et al (2002) used a complex definition of sexual abuse

severity involving level of sexual contact, relationship to perpetrator, frequency, duration, and use of force.

Foster Care placements as a risk factor

Existing research indicates that children in foster care are at a higher risk for a variety of psychological problems than children that have not been placed in foster care. Since many children who have been sexually abused end up in foster care for varying periods of time, studying the effects of foster care placements may have important implications for individuals with CSA histories. Stanley, Riordan and Alaszewski (2005) investigated the mental health of children in foster care and residential placements. They divided their sample into children who had a high, medium and low level of need for mental health services. They found that 47.5% of their sample had been in more than three placements during their time in the foster care system. In addition, they found that a large percentage (47%) of the children who had experienced more than three placements had a high need for mental health services. Thirty seven percent of children who had experienced three or more placements had a medium level of need for mental health services, while only 16% had a low level of need for mental health services. The authors concluded that based on their sample, and the supplemental information gathered on their sample, it was likely that the high number of placements both resulted from and exacerbated mental health problems on the children in their sample.

Pecora, Kessler, Williams, O'Brien, Downs, English, Hiripi, White, Wiggins, and Holmes (2005) found that 54.4% of foster care alumni in their study had clinical levels of at least one mental health disorder, while 19.9% had three or more mental health

problems. They found that PTSD (25.2%) and major depression (20.1%) were the most common mental health concerns of foster care alumni over the past twelve months before the study, and that rates of PTSD were twice as high as for U.S. war veterans. Rutter (2000) suggested that this may be due to a number of factors acting together such as genetic factors, exposure to physical trauma, psychosocial experiences before entering the foster care system, their experiences while in the foster care system as well as their experiences after leaving the foster care system.

Flynn, Ghazal, Legault, Vandermeulen and Petrick (2004) examined mental health in children ages 5-15. They separated the group into 5-9 year olds and 10-15 year olds. They found that children in foster care did not differ from a normative sample in the areas of health outcome and self esteem. However, only 20% of the 10-15 year olds and 22% of the 5-9 year olds were found to be resilient in comparison to a normative sample. They also found that both groups of children in foster care had more negative outcomes in the areas of anxiety and emotional distress.

Ackerman and Lindhiem (2005) examined inhibitory control and oppositional behavior in five and six year old children who were in foster care. They examined inhibitory control using the Day/Night Stroop task. They found that children who had a history of greater placement instability performed significantly worse on the Stroop task than those with a history of greater placement stability, indicating that children with greater instability had inhibitory control difficulties. They also found that there was a significant relationship between placement instability and oppositional behavior, consistent with inhibitory control difficulties. These differences were found even after

controlling for IQ, and performance on a working memory task. The researchers also found that number of past placements was more predictive of inhibitory control and behavioral self regulation than prenatal substance exposure, prematurity, or documented maltreatment history. This study did not utilize a control group and did not involve sexually abused children, but rather a sample of physically abused and neglected children. Pecora et al (2005) also found that fewer placement changes while in foster care was predictive of less mental health concerns in alumni in their study.

Resilience

While the negative effects of CSA are well documented, a number of researchers have found that many individuals who have experienced CSA have been fairly resilient to the abuse (Bartoi & Kinder 1998; Himelein & McElrath, 1996; Liem, James, O'Toole, & Boudewyn, 1997; Masten & Wright, 1998; Monaghan-Blout, 1996; Spaccarelli & Kim, 1995).

Resilience has been defined as a process by which individuals demonstrate positive adaptation in the face of adversity or trauma. Adversity refers to negative life situations that are known to be associated with difficulties in adjustment. Examples of these include abuse or neglect, and low socio-economic status. Positive adaptation can be seen in terms of high social competence or the absence of psychological distress. Three main factors have been associated with resilience: (1) personal characteristics of the individual such as intelligence; (2) aspects of the individual's families such as cohesion or discord; (3) characteristics of the individual's environment such as their social support systems. Due to the dynamic nature of resilience, however, even when personality

characteristics of the individual are serving as protective factors, these characteristics are always being shaped by interactions between the individual and their environment. Individuals who are able to successfully overcome adversities under certain conditions may not be able to do so under different conditions. Research seems to suggest, however, that while individuals may show changes over time, overall, individuals who do well in certain areas continue to show positive adaptation over time. Protective factors may act in two ways: (1) by changing the meaning of the risk factors for the individual and (2) changing the individual's exposure to the risk factor (Luthar, Cicchetti & Becker, 2000; Luthar, Zigler & Goldstein, 1992; Rutter, 1987; Luthar & Cicchetti, 2000).

Intelligence as a protective factor

In studying intelligence as a protective factor, it is important to note that not all experts agree with the use of conventional assessment scales to measure intelligence. In addition, while intelligence is often viewed as a trait, it may be influenced by a number of environmental factors such as the context of testing, social class, parental education, prejudice, and English as a second language (Vaillant & Davis, 2000).

Luthar, Zigler, and Goldstein (1992) found that high achieving, gifted adolescents showed more positive psychological adjustment than their peers who were not identified as gifted. They concluded that this may be due to the gifted adolescents being more cognitively mature, as well as from experiential factors like those associated with frequent past successes.

Luthar, Woolston, Sparrow, Zimmerman, and Riddle (1995) also found that achievement was strongly associated with social competence, and appeared to mediate

associations between intelligence and aspects of competence. Academic achievement was also associated with adaptive behaviors in the contexts of personal care, domestic skills, and skills used in the community. They concluded that success in one domain of competence is often linked with striving for success in other aspects as well. The authors suggested that these findings are useful for intervention and prognosis, as relatively high achieving children seem to be those most likely to engage in adaptive behavior across different domains.

Cederblad, Dahlin, Hagnell, and Hansson (1995) found that intelligence and other beneficial temperamental traits such as high activity and energy level, high sociability and good impulse control and persistence were associated with lower frequencies of some psychiatric diagnoses. They also found that different traits seemed to be related to different diagnoses. For example, high intelligence was associated with a lower risk of depression, psychopathy, neurosis and alcoholism.

Werner (1994) reported on a longitudinal study of high risk children on the Hawaiian island of Kauai and suggested that the individual dispositions of the resilient individuals in the study led to them seeking out environments that rewarded their competencies. While parental competence and social support were important for adult competence, this impact was less direct than the individual's disposition.

Masten and Coatsworth (1998) suggested that there are three main predictors of competence in favorable and unfavorable environments: the parent-child relationship; good cognitive development or intellectual functioning; and the child's self-regulation of attention, emotion, and behavior. They suggested that children with good cognitive skills

may be better able to cope with unfavorable situations, because they can manage the "cognitive load inherent in adverse situations." Masten and Coatsworth (1998) also suggested that IQ may act as a moderator of risk by acting as a protective or risk factor in the "processes linking adversity to social conduct." The authors suggested that doing well on IQ tests requires a variety of information-processing skills that may also help the child to cope with adversity. For example, children with higher IQ's may be able to solve problems or protect themselves better and/or have better self-regulation skills. On the other hand, children with below average IQ's may be less able to cope with adverse situations or learn from their experiences to the same degree as children with higher IQ's.

While intelligence has been shown to be correlated with competence among high risk children, at high levels of stress children with high intelligence seem to lose their advantage and demonstrate school based competence levels more similar to their less intelligent peers. There are a variety of explanations offered for these interactions between intelligence and stressors as predictors of competence. Children with a high IQ may be better at problem solving and coping, be better able to evaluate the consequences of their behaviors, to delay gratification, and to contain impulses. Intelligence may, however, act as a vulnerability factor because children with higher IQ may be more sensitive to their environments, which makes them more susceptible to life stressors than individuals with lower IQ's. Intelligent inner-city youth were found to show considerably more variation in school based performance depending on levels of ego development than their less intelligent peers. Ego development was measured by an abbreviated version of the Loevinger's (1985) Sentence Completion Test, Form 81. Increasing levels of ego

development have been associated with increasingly mature functioning across the domains of impulse control, cognitive style, moral development, and interpersonal relations. Intelligent inner-city youth were also found to show more variation in school based performance depending on the degree to which they experienced an internal locus of control than their less intelligent peers. However, their levels of competence never went below those of their less intelligent peers (Luthar & Zigler, 1992).

Tiet, Bird, Davies, Hoven, Cohen, Jensen, and Goodman (1998) found that while IQ had no impact in children at low risk for psychopathology, children at high risk for psychopathology and with higher IQ's may have coped better and therefore avoided the harmful effects of adverse life events. In their study, the children who showed positive adjustment also tended to live in higher functioning families, and receive more guidance and supervision from their parents and other adults in the family. These authors hypothesized that higher educational aspirations may also provide high-risk youth with a sense of direction and hope.

There have been a number of reasons suggested for the superior functioning of intellectually gifted children. They may have greater cognitive maturity, which leads to improvements in their ability to actively structure their experiences and therefore be better able to control them. Also, because their intellectual skills are developmentally advanced, they may have a relatively wide variety of modes for the adaptive handling of their experiences. Therefore, children who are intellectually gifted may show better psychological adjustment than their non-gifted peers because of the greater flexibility of their coping strategies. The psychological adjustment of gifted children may also be due

to experiential variables. For example, intellectual achievement often leads to experiences of high prestige and success in the peer group, school, and family. This history of frequent successes could, therefore, in conjunction with these superior coping strategies contribute to the better adjustment levels shown by academically and intellectually gifted children (Luthar, Zigler & Goldstein, 1992).

The present study

Previous research has indicated that a history of CSA can have a number of negative consequences such as attentional problems, cognitive dysfunction, internalizing problems such as depression and externalizing problems such as aggression. Gender differences have been observed in the nature of the psychological consequences observed. Research has also indicated that severity of abuse may mediate the relationship between CSA and psychological sequelae. These studies, have however, not been conclusive as a number of studies have also found different results. There have been a number of risk and protective factors that have been studied in relation to at risk children. One protective factor that has been identified in at risk children and which was examined in this study is intellectual functioning. As previous researchers have suggested, it may be that children with higher IQs are better able to cope effectively with being abused, have more positive academic and interpersonal experiences from which to draw during times of stress, or may in fact be less prone to abuse. Furthermore, a history of CSA and the sequelae that may follow from being abused during a child's formative developmental years may prove to be an obstacle to achieving one's cognitive potential, possibly by changing pathways in the brain, and thus result in lower IQ than otherwise may have been achieved. This lower IQ may then make future coping with stressful events more difficult and the likelihood of emotional and/or behavioral problems higher as well as having great difficulty with achievement when compared to children with lower IQ.

There may also be an association between IQ and severity as children with lower IQs may be less prone to reporting abuse and thus may suffer from prolonged abuse than children with lower IQs (Mansell, Moskal, & Sobsey, 1998). The number of foster care placements was also examined as a possible risk factor. Since many children who have been sexually abused are removed from the home, it may be that some of the negative consequences observed in sexually abused children may be moderated by the number of foster care placements that the children have experienced. As previously stated, many studies have identified a link between number of home placements and negative outcomes. While these factors have been previously studied extensively, little research has examined the relationship among these particular variables as the current study has attempted to do. While there were efforts made in the current study to derive a comparison group of non-sexually abused children, it is recognized that while the children in the non-abused sample do not have any reported sexual abuse history, they may have been sexually abused in the past without the abuse being reported to authorities.

Hypotheses

Based on the previous research, the following hypotheses are made to further existing research and address the limitations of some of the previous studies: (1) Children in the sexually abused sample will have higher scores on the clinical scales of the Achenbach Child Behavior Checklist (CBCL; Achenbach, 1991, 2001), specifically with regard to attention problems, aggression, anxiety, depression and somatic complaints; (2) Boys with CSA histories will demonstrate higher clinical elevations than girls on the aggression and rule breaking scales of the CBCL, while girls will demonstrate higher clinical elevations on the anxious and depressed scales of the CBCL (3) Children with histories of CSA will also have higher scores on the Children's Depression Inventory (CDI; Kovaks, 1992) than children without histories of CSA; (4) Children with histories of CSA will have significantly lower Full Scale IQ scores; (5) Children with histories of CSA will have lower total achievement scores; (6) Children with higher scores on intelligence tests will have lower Achenbach and CDI scores and higher achievement scores than children with lower intelligence scores; (7) Children who have been in fewer foster homes will have lower Achenbach and CDI scores and higher achievement scores than children who have been in more foster homes; (8) Children who have undergone more severe sexual abuse will have higher Achenbach and CDI scores and lower achievement scores than those with less sexual severe abuse; (9) History of previous psychological treatment will be associated with lower Achenbach and CDI scores and

higher achievement scores; (10) Intelligence will moderate the relationship between sexual abuse, CBCL, CDI and Achievement scores; (11) Number of foster homes will moderate the relationship between abuse, CBCL, CDI and Achievement scores; (12) age of child at testing will also moderate the relationship between abuse, CBCL, CDI and Achievement scores; (13) Severity of abuse will also moderate the relationship between abuse, CBCL, CDI and Achievement scores (please see below for definition of severity to be used).

Method

Measures

The Wechsler Intelligence Scales for Children (WISC; Wechsler, 1991, 2003) are instruments used to assess intellectual functioning for children aged 6-16. The two versions of the test that were used in this study were the WISC-III (1991) and the WISC-IV (2003). The WISC is an individually administered test. A full scale IQ is derived from both scales and this full scale IQ was used in the analysis. Both versions of this test have good validity and reliability and are widely used in research and practice (Kaufman, Flanagan, Alfonso, & Mascolo, 2006; Needelman, Schnoes, & Ellis, 2006; Sattler, 2001).

The CBCL (Achenbach, 1991, 2001) is a measure which is used to assess the competencies and problems of children and adolescents. The revised scale differs from the original scale with regard to some items and norming sample. Additionally, while the names of the scales differ between the versions, they are roughly equivalent. The CBCL/6-18 (Achenbach, 2001) uses parents to rate their children's problems and competencies. It is a revision of the CBCL/4-18 and consists of 113 items. It is designed for children aged 6-18 years and was normed on a national sample which was representative of the population. The CBCL scales have good reliabilities with alphas for the competence scales ("Activities", "Social", "School" and "Total Competence") ranging from .63 to .69. For the empirically based scales ("Anxious/Depressed", "Withdrawn/Depressed", "Somatic Complaints", "Social Problems", "Thought

Problems", "Attention Problems", "Rule-Breaking Behavior", "Aggressive Behavior", "Internalizing", "Externalizing" and "Total Problems" scales) alphas ranged from .78 to .97. Alphas for the DSM-Oriented scales ranged from .72 to .91. For the Competence scales, test-retest reliability ranged from .82 to .93 over a one week period. For the empirically based scales, test-retest reliabilities ranged from .82 to .94. Test retest reliabilities ranged from .80 to .93 for the DSM-oriented scales (Achenbach & Rescorla, 2001).

The authors of the manual state that the content validity of these scales is well supported by years of research and consultation. Additionally, multiple regressions, odds rations and discriminant analyses all showed significant ($p < .01$) discrimination between referred and non-referred children indicating good criterion-related validity. Good construct validity was also reported with the CBCL being significantly associated with other scales with similar dimensions and long term predictions of outcomes (Achenbach & Rescorla, 2001).

The CDI is a 27 item self rating scale used to assess depressive symptomatology in children and adolescents aged 7-17. Items on the scale range from 0-2 with higher scores indicating higher levels of the particular symptom endorsed. A total score is derived by adding all the individual's responses and this total score will be used in the analysis. The CDI also produces five subscale scores – Negative Mood, Interpersonal Problems, Ineffectiveness, Anhedonia and Negative Self Esteem (Kovacs, 1992). The CDI is a widely used instrument with acceptable validity and reliability (Saylor, Finch, Spirito & Bennett, 1984). Saylor et al (1984) examined the psychometric properties of the

CDI in a group of psychiatric inpatients and normal controls. The CDI demonstrated acceptable inter-rater (r = .38 to .87) and split-half (r = .57 to .75) reliabilities and good internal reliability (r = .80 to .94). The CDI also demonstrated acceptable criterion validity with significant differences being found between psychiatric inpatients and controls (t (46) = 2.48, p<.05) and good construct validity, with significant correlations found between the CDI and the Piers-Harris Self Concept Scale (r (26) = .46, p<.05). There were some concerns about the specificity of the CDI with regard to depressive symptomatology, as it appeared to be better suited to identifying general psychopathology.

The Woodcock-Johnson Tests of Achievement-Third Edition (2001), its precursor, the Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-R; 1989) and the Wechsler Individual Achievement Tests (WIAT, 1992; WIAT II, 2002) are widely used tests designed to assess academic functioning. They each provide Reading, Math and Writing Composites and have good reliability and validity for all scales (Sattler, 2001). Martell and Smith (1994) examined the relationship between the WJ-R and the WIAT in a sample of children. They found that the Reading Composites for the two measures were highly and significantly correlated (r = .70, p< .001). Similarly, the Math Composites were significantly correlated (r = .54, p < .001). While the Writing Composites were also moderately correlated (r = .59), the relationship was not significant because of the small numbers of children that completed the writing composites for each test (n = 11).

Severity was assessed in a similar manner to Merrill et al (2003). They used a global index of CSA severity by assigning one point for (1) penetration (2) force or threats (3) father or stepfather as perpetrator (4) more than one perpetrator (5) more than five incidents. In this study, age at onset will also be included as a severity variable with abuse occurring before the age of 13 being assigned one point. Higher scores indicate more severe CSA. A global index of CSA severity was then determined based on the number derived from the above procedure after review of case files of the participants which were conducted by the examiner and a research assistant.

A "yes," "no" measure of previous psychological treatment was also compiled. In addition, information about the number of home placements each child had was gathered.

Procedure

Available information on the children with and without histories of sexual abuse at the collection sites was gathered by the researcher and/or the research assistant. This included scores on the WISCs, CBCLs, CDIs and WJs and WIATs. For the analyses conducted, Cohen (1992) suggested that to detect a medium effect size, approximately 84 participants would be required. A sample of 20 files was examined by both raters to assess inter-rater reliability ($r = .90$, $p < .01$) of the severity measure. Each record was identified by a number and there were no names associated with the records in the database to ensure confidentiality. The records of each child were screened for sexual abuse history. Records of children with CSA histories were examined for abuse characteristics and effects of CSA. The records were then compared with those of children who did not have a documented history of CSA in their files to test the

hypotheses. Attempts were made to match participants in the sexually abused and non-sexually abused group by age. Participants were stratified by age for analysis with children 7-12 being in one group and children 13-16 in the other group. Case files were examined in order from most recent to least recent. Once the data on sexually abused children was obtained, an equal number of children, matched by age and without documented histories of sexual abuse in order of most to least recent was gathered as a control group.

Descriptive statistics for the sample demographics were computed. A series of T-tests were carried out to test for sample differences, and to test hypotheses 1-5. Correlations were then carried out to test hypotheses 6-9. Hypotheses 10-13 were tested using the guidelines provided by Baron and Kenny (1986), Aiken and West (1991) and Holmbeck (2002) for testing moderator effects. The main analyses were conducted on the entire sample using the Total score on the CDI, the Total, Internalizing and Externalizing Scores of the CBCL, and the Total Achievement score of the WJ or WIAT. Within group differences for the sexually abused group were examined for hypothesis 6 and 7. Gender was statistically controlled for within SPSS, where relevant.

Participants

Data comprised existing records from The Children's Home, a group home for children who have been removed from the home due to abuse or neglect, The University of South Florida Psychological Services Center, and the University of Florida Division of Child and Adolescent Psychiatry both of which offer outpatient assessment and therapeutic services to the community, and the University of South Florida, Division of

Child Development, an outpatient clinic providing multidisciplinary evaluations to children (see Table 1). Participants were between the ages of 7 and 16. Information regarding ethnicity and gender was collected from each child's file, where available.

Table 1
Locations from which participants were drawn

Location	Group	N
Children's Home	Sexually Abused	95
	Non-Abused	0
University of South Florida Division of Child Development	Sexually Abused	1
	Non-Abused	2
University of South Florida Psychology Clinic	Sexually Abused	3
	Non-Abused	79
University of Florida Division of Child and Adolescent Psychiatry	Sexually Abused	18
	Non-Abused	0

There were a total of 198 participants and of these 59.1% (n = 117) had a history of sexual abuse, according to the above criteria, while 40.4% (n = 80) did not have a history of reported sexual abuse. Participants ranged in age from 7-16 (M = 10.89, SD = 2.65). When the sample was stratified by age, there were a total of 139 (70.2%) under the age of 13 at the time of testing and 59 (29.8%) who were 13 or older. Seventy percent of the sample was identified as Caucasian, 11.1% as Hispanic, 9.6% as African American, 0.5% as Asian, and 8.1% were identified as from another group, such as being of mixed

descent, and 0.5% of the participants did not have information available about their ethnicity. Ethnicity was not significantly associated with abuse history or the moderators of interest, that is, Full Scale IQ, age at time of testing, severity of abuse or history of previous treatment. The sample was made up of both male and female participants, with 53.5% being male and 46.5% being female. Fifty two percent of the sample had a received psychological treatment in the past while 16.2% had not. Psychological treatment history was not available for 31.3% of the sample.

Results

Given that multiple outcome variables were tested instead of a single outcome variable for each set of analyses, a Bonferroni correction is indicated to control for experiment-wise error. However, the relatively small sample size involved in these analyses, along with a Bonferroni correction, would reduce the likelihood of finding significant results and in turn inflate the possibility of committing a Type II error. Therefore, after examining the factors for and against using a Bonferroni correction, the present study analyzed the data according to plan by testing multiple criterion variables separately in each set of analyses. Given the aforementioned problems with using a strict, Bonferroni-adjusted alpha level, the results are discussed using the original, conventional alpha level of .05.

T-tests indicated that there were no significant differences between the sexually abused and non-sexually abused groups in terms of age ($t(151) = -.42$, $p > .05$) and ethnicity ($t(195) = -.47$, $p > .05$). However, the groups did differ significantly in terms of gender ($t(179) = -4.29$, $p < .05$), number of placements ($t(193) = -10.47$, $p < .05$) and history of previous psychological treatment ($t(134) = 12.15$, $p < .05$), with the sexually abused group containing more girls and children with larger number of home placements and children in the non-sexually abused group having a higher likelihood of having sought previous psychological treatment.

The results of the t-tests conducted to test hypothesis 1 indicated that having a history of sexual abuse was associated with higher levels of Total Behavior Problems (t (145) = 6.18, $p<.05$), Internalizing problems (t (145) = 4.63, $p<.05$), and Externalizing Behavior Problems (t (145) = 6.70, $p<.05$) on the CBCL (see Table 2). When the individual subscales of the CBCL were examined, having a history of sexual abuse was associated with greater problems with Anxious/Depressed Behavior (t (141) = 6.12, $p<.05$), Withdrawn/Depressed Behavior (t (133.56) = 4.15, $p<.05$), Social Problems (t (141) = 6.09, $p<.05$), Thought Problems (t (141) = 3.75, $p<.05$), Rule Breaking Behavior (t (141) = 7.11, $p<.05$), and Aggressive Behavior (t (141) = 5.66, $p<.05$) as measured by the CBCL (see Table 3).

Table 2
Independent Samples T-Test between Sexually Abused and Non-Sexually Abused Children on Demographics, IQ, CDI and Achievement

Variable	Group	N	Mean	SD	df	T
Age	Abused	117	10.97	2.48	151	-.42
	Non-Abused	80	10.78	2.90		
Ethnicity	Abused	117	1.72	1.33	195	-.47
	Non-Abused	80	1.63	1.11		
Gender	Abused	117	1.58	.50	179	-4.29*
	Non-Abused	80	1.29	.46		
Number of placements	Abused	115	7.5	5.5	193	-10.47*
	Non-Abused	80	1.1	.34		

Variable	Group	N	Mean	SD	df	T
History of Treatment	Abused	117	1.29	.56	134	12.15*
	Non-Abused	80	2.53	.78		
Full Scale IQ	Abused	117	89.44	14.40	195	3.55*
	Non-Abused	80	96.64	13.35		
Total CDI	Abused	81	50.89	11.05	153	-1.17
	Non-Abused	74	48.9	10.05		
Total Achievement	Abused	106	87.40	14.43	179	-4.30*
	Non-Abused	75	95.84	10.70		

* $p < .05$, two tailed

Table 3
Independent Samples T-Test between Sexually Abused and Non-Sexually Abused Children on CBCL Variables

Variable	Group	N	Mean	SD	df	T
Total Behavior Problems	Abused	67	69.30	9.53	145	6.18*
	Non-Abused	80	58.89	10.68		
Internalizing Problems	Abused	67	63.60	9.46	145	4.63*
	Non-Abused	80	55.71	10.93		
Externalizing Problems	Abused	67	68.42	9.80	145	6.70*
	Non-Abused	80	56.66	11.21		
Anxious/Depressed	Abused	63	65.29	10.02	141	6.12*
Behavior	Non-Abused	80	56.24	7.66		

Variable	Group	N	Mean	SD	df	T
Withdrawn/Depressed	Abused	63	64.32	9.37	133.56	4.15*
Behavior	Non-Abused	80	57.76	9.41		
Somatic Complaints	Abused	63	57.71	8.40	141	.36
	Non-Abused	80	57.21	8.38		
Social Problems	Abused	63	67.79	10.29	141	6.09*
	Non-Abused	80	58.15	8.64		
Thought Problems	Abused	63	64.10	11.57	141	3.75*
	Non-Abused	80	58.00	7.83		
Attention Problems	Abused	63	66.98	12.48	141	1.82
	Non-Abused	80	63.71	9.00		
Rule Breaking Behavior	Abused	63	68.08	9.39	141	7.11*
	Non-Abused	80	57.53	8.34		
Aggressive Behavior	Abused	63	68.63	10.93	141	5.66*
	Non-Abused	80	58.75	9.92		

* $p < .05$, two tailed

The results of the t-tests for the second hypothesis suggested that while, as previously discussed, there was a significant relationship between gender and abuse history, there was not a significant relationship between gender and the Total ($t(65) = -.63$, $p > .05$), Internalizing ($t(65) = -.80$, $p > .05$) and Externalizing ($t(65) = -.60$, $p > .05$) scales of the CBCL (see Table 4).

Table 4
Independent Samples T-Test between Sexually Abused Boys and Girls on CBCL Variables

Variable	Group	N	Mean	SD	df	T
Total Behavior Problems	Boys	28	68.43	9.75	65	-.63
	Girls	39	69.92	9.45		
Internalizing Problems	Boys	28	62.50	9.66	65	-.80
	Girls	39	64.38	9.37		
Externalizing Problems	Boys	28	67.57	11.32	65	-.60
	Girls	39	69.03	8065		
Anxious/Depressed Behavior	Boys	25	63.48	9.79	61	-1.16
	Girls	38	66.47	10.11		
Withdrawn/Depressed Behavior	Boys	25	63.72	9.48	61	-.41
	Girls	38	64.71	9.40		
Somatic Complaints	Boys	25	56.92	7.85	61	-.61
	Girls	38	58.24	8.81		
Social Problems	Boys	25	64.88	9.63	61	-1.86
	Girls	38	69.71	10.37		
Thought Problems	Boys	25	63.56	9.40	61	-.30
	Girls	38	64.45	12.90		
Attention Problems	Boys	25	65.12	12.12	61	-.96
	Girls	38	68.21	12.72		

Variable	Group	N	Mean	SD	df	T
Rule Breaking Behavior	Boys	25	67.84	9.71	61	-.16
	Girls	38	68.24	9.31		
Aggressive Behavior	Boys	25	67.64	12.26	61	-.58
	Girls	38	69.29	10.09		

* $p < .05$, two tailed

Results of the analysis for hypothesis 3 indicated that sexual abuse history was not significantly associated with the total depression score ($t(153) = -1.17$, $p>.05$) as measured by the CDI (see Table 2).

Analyses conducted for hypothesis 4 that as predicted, children with histories of sexual abuse had significantly lower Full Scale IQ scores than children without sexual abuse histories ($t(195) = 3.55$ $p<.05$) (see Table 2).

Because the WJ and WIAT are highly correlated, analyses for hypothesis 5 were based on whichever test was administered to each participant. A Total Achievement Score for each child was computed by averaging their Broad Reading, Broad Math and Broad Written Language Composite Scores from either the WJ or the WIAT. Using this Total Achievement Score, children with sexual abuse histories scored significantly lower than children without sexual abuse histories ($t(179) = -4.30$, $p<.05$) (see Table 2).

Hypotheses 6-9 were tested using zero-order correlation analyses. Analyses to test hypothesis 6 suggested that for the overall sample, IQ was significantly associated with the Total CDI score with higher IQ scores being associated with significantly lower Total

scores (see Table 5). Additionally, higher IQ was significantly associated with lower Total Behavior Problems and Externalizing Problems of the CBCL (see Table 6). Higher IQ was also significantly associated with higher Total Achievement scores (see Table 7).

Table 5 Correlations between Full Scale IQ, Number of homes, Severity of Abuse, History of Psychological Treatment and Total CDI Score

Variable	Abuse History	FSIQ	# of homes	Severity	Hx of tx	Total CDI Score
Abuse History	1	-.25**	.60**	-	-.68**	.09
FSIQ		1	-.07	-.11	.07	-.21**
# of homes		-	1	.19*	-.24**	.00
Severity		-	-	1	-.10	.05
Hx of tx		-	-	-	1	-.04
Total CDI		-	-	-	-	1

Note. Dashes mean either already reported or not computed. FSIQ = Full Scale IQ; # of homes = Number of home placements; Severity = severity of abuse; Hx of tx = History of previous treatment
* $p < .05$, ** $p < .01$

Table 6
Correlations between Full Scale IQ, Number of homes, Severity of Abuse, History of Psychological Treatment and CBCL Scores

Variable	FSIQ	# of homes	Severity	Hx of tx	Total	Int.	Ext.	Anx./ Dep.	With./ Dep	Som. Comp.	Soc.	Thgh t.	Attn.	R. Break.	Agg.
FSIQ	1	-.07	-.11	.07	-25**	-.14	-.25**	-.12	-.09	-.10	-.29**	-.14	-.24**	-.16	-.21*
# of homes	-	1	.19*	-.24**	.27**	.22**	.34**	.32**	.19*	-.12	.30**	.14	-.02	.34**	.30**
Severity	-	-	1	-.10	.21	.14	.23	.11	.15	.13	.12	.21	.01	.06	.20
Hx of tx	-	-	-	1	-.07	-.07	-.10	-.04	-.10	-.04	-.12	.00	-.01	-.07	-.12
Total	-	-	-	-	1	.77**	.88**	.73**	.61**	.45**	.73**	.62**	.69**	.75**	.82**

Variable	FSIQ	# of homes	Severity	Hx of tx	Total	Int.	Ext.	Anx./ Dep.	With./ Dep	Som. Comp.	Soc.	Thgh t.	Attn.	R. Break.	Agg.
Int.	-	-	-	-	-	1	.55**	.84**	.73**	.61**	.64**	.46**	.40**	.48**	.51**
Ext.	-	-	-	-	-	-	1	.59**	.41**	.27**	.55**	.49**	.52**	.85**	.93**
Anx./ Dep.	-	-	-	-	-	-	-	1	.62**	.42**	.62**	.46**	.38**	.54**	.60**
With./ Dep	-	-	-	-	-	-	-	-	1	.31**	.45**	.43**	.38**	.46**	.39**
Som. Comp.	-	-	-	-	-	-	-	-	-	1	.34**	.25**	.31**	.18**	.28**
Soc.	-	-	-	-	-	-	-	-	-	-	1	.42**	.55**	.45**	.55**

Variable	FSIQ	# of homes	Severity	Hx of tx	Total	Int.	Ext.	Anx./ Dep.	With./ Dep	Som. Comp.	Soc.	Thgh t.	Attn.	R. Break.	Agg.
Thght.	-	-	-	-	-	-	-	-	-	-	-	1	.55**	.52**	.49**
Attn.	-	-	-	-	-	-	-	-	-	-	-	-	1	.44**	.51**
R. Break.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.78**
Agg.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

Note. Dashes mean either already reported. FSIQ = Full Scale IQ; # of homes = Number of home placements; Severity = severity of abuse; Hx of tx = History of previous treatment; Total = Total Behavior Problems; Int. = Internalizing Behavior Problems Composite; Ext. = Externalizing Behavior Problems Composite; Anx./Dep. = Anxious/Depressed subscale; With./Dep. – Withdrawn/Depressed subscale; Som. Comp. = Somatic Complaints subscale; Soc. = Social Problems subscale; Thght = Thought Problems subscale; R. Break. = Rule Breaking subscale; Agg. = Aggressive Behavior subscale
* $p < .05$, **$p < .01$

Table 7
Correlations between Full Scale IQ, Number of homes, Severity of Abuse, History of Psychological Treatment and Achievement Scores

Variable	FSIQ	# of homes	Severity	Hx of tx	Total Achievement
FSIQ	1	-.07	-.11	.07	.58**
# of homes	-	1	.19*	-.24**	-.13
Severity	-	-	1	-.10	-.04
Hx of tx	-	-	-	1	.06
Total Achievement	-	-	-	-	1

Note. Dashes mean already reported. FSIQ = Full Scale IQ; # of homes = Number of home placements; Severity = severity of abuse; Hx of tx = History of previous treatment.
**p < .01

For the sexually abused group only, IQ was also significantly associated with total CDI scores with higher IQ being associated with significantly lower Total scores. IQ was not significantly associated with the Total, Internalizing, or Externalizing scales of the CBCL. However, as with the overall sample, IQ was significantly associated with higher Total Achievement scores (see Table 8).

Table 8
Correlations between Full Scale IQ, Number of Homes, CDI, Achievement and CBCL Scores for the Sexually Abused Group

Variable	FSIQ	# of homes	CDI	Achievement	Total	Int.	Ext.	Anx./ Dep.	With./ Dep	Som. Comp.	Soc.	Thght.	Attn.	R. Break.	Agg.
FSIQ	1	.13	-.32**	.62**	-.01	.12	-.12	.12	.16	-.12	-.21	-.08	-.23	-.05	-.12
# of homes	-	1	-.09	.09	-.07	-.03	.03	.03	-.08	-.28*	-.01	-.11	-.23	-.02	.01
CDI	-	-	1	-.28**	.19	.06	.18	.08	.17	.19	.16	.26	.19	.25	.23
Achievement	-	-	-	1	-.07	.12	-.07	.19	.12	-.10	.12	-.13	-.28*	-.04	.01
Total	-	-	-	-	1	.70**	.84**	.71**	.61**	.46**	.60**	.64**	.69**	.70**	.80**

Variable	FSIQ	# of homes	CDI	Achievement	Total	Int.	Ext.	Anx./ Dep.	With./ Dep	Som. Comp.	Soc.	Thght.	Attn.	R. Break.	Agg.
Int.	-	-	-	-	-	1	.46**	.87**	.65**	.58**	.50**	.50**	.33**	.41**	.41**
Ext.	-	-	-	-	-	-	1	.53**	.35**	.25*	.35**	.49**	.47**	.82**	.95**
Anx./ Dep.	-	-	-	-	-	-	-	1	.57**	.48**	.42**	.41**	.35**	.44**	.51**
With./ Dep	-	-	-	-	-	-	-	-	1	.25*	.29*	.44**	.38**	.36**	.34**
Som. Comp.	-	-	-	-	-	-	-	-	-	1	.37**	.28*	.33**	.13	.27*
Soc.	-	-	-	-	-	-	-	-	-	-	1	.30*	.45**	.23	.33**

Variable	FSIQ	# of homes	CDI	Achievement	Total	Int.	Ext.	Anx./ Dep.	With./ Dep	Som. Comp.	Soc.	Thght.	Attn.	R. Break.	Agg.
Thght.	-	-	-	-	-	-	-	-	-	-	-	1	.54**	.48**	.49**
Attn.	-	-	-	-	-	-	-	-	-	-	-	-	1	.44**	.43**
R. Break.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.70**
Agg.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

Note. Dashes mean either already reported. FSIQ = Full Scale IQ; # of homes = Number of home placements; Total = Total Behavior Problems; Int. = Internalizing Behavior Problems Composite; Ext. = Externalizing Behavior Problems Composite; Anx./Dep. = Anxious/Depressed subscale; With./Dep. – Withdrawn/Depressed subscale; Som. Comp. = Somatic Complaints subscale; Soc. = Social Problems subscale; Thght = Thought Problems subscale; R. Break. = Rule Breaking subscale; Agg. = Aggressive Behavior subscale
* $p < .05$, ** $p < .01$

Results of the correlation analysis conducted to test hypothesis 7 revealed that number of home placements was not significantly associated with Total CDI scores (see Table 5) for the overall sample. However, number of home placements was significantly associated with higher Total Behavior Problems, Internalizing problems, and Externalizing Problems on the CBCL (see Table 6). Higher numbers of placements was not associated with Total Achievement (see Table 7). For the sexually abused group, number of home placements was not significantly associated with Total CDI scores, CBCL scores, or Total Achievement scores (see Table 8).

In order to conduct the correlation analysis to test hypothesis 8, severity was first assessed by two raters using Merrill et al's (2003) measure while reviewing subjects' charts. Inter-rater reliability for the severity measure was calculated for a subset of the sample and was found to be high (r = .90). Abuse severity was not significantly associated with Total CDI scores, CBCL subscale scores, nor with achievement scores (see Tables 5, 6, and 7 respectively).

Correlation analyses to test hypothesis 9 indicated that history of previous psychological treatment was not significantly associated with Total CDI, any of the scales of the CBCL, or with achievement (see Tables 5, 6, and 7 respectively).

A number of individual difference variables (age, number of placements, IQ and severity of abuse) were thought to be potential moderators of the effect of abuse on the outcome variables (CBCL, CDI and Achievement scores) and were presented as hypotheses 10-13. To establish whether these variables moderated the effects of abuse on the outcome variables, a series of hierarchical multiple regressions were conducted to test

for a significant interaction between each variable and abuse history. The main effects of abuse, age at time of testing, IQ and number of home placements on the dependent variables were also examined. Data were screened to ensure that all assumptions for hierarchical regression analysis were met. As recommended by Aiken and West (1991), variables of interest were centered prior to computing interaction terms in order to reduce the effect of multicollinearity. This was accomplished by subtracting the means for abuse, number of previous placements, age at time of testing (stratified), and Full Scale IQ. Because gender was associated with a number of the variables of interest, it was entered in the first step of regression analyses (after being centered) for the purposes of statistical control. Abuse was entered in the second step, the potential moderator was entered in the third step, and the interaction of the given variable and abuse was entered in the fourth step. A significant interaction occurs when the product term offers additional prediction above and beyond that provided by the main effects. Hierarchical multiple regression analyses were carried out for all potential moderators on all outcome variables. All significant interaction effects were further tested following the post hoc probing techniques recommended by Holmbeck (2002) using conditional moderators.

When Full Scale IQ was entered to test hypothesis 10, the overall models were significant ($p < .05$) for Total CBCL ($F(4, 142) = 10.62$) scores, Internalizing ($F(4, 142) = 6.77$) and Externalizing ($F(4, 142) = 11.97$) subscale scores of the CBCL, Total CDI scores ($F(4, 150) = 2.86$), and Total Achievement scores ($F(4, 176) = 29.50$). These variables accounted for 23%, 16%, 25%, 7%, and 40% of the variance in the models, respectively. Additionally, Full Scale IQ was shown to moderate the relationship between

abuse and Total Achievement (see Figure 1). There was also a trend toward significance noted for the Internalizing subscale of the CBCL (see Figure 2).

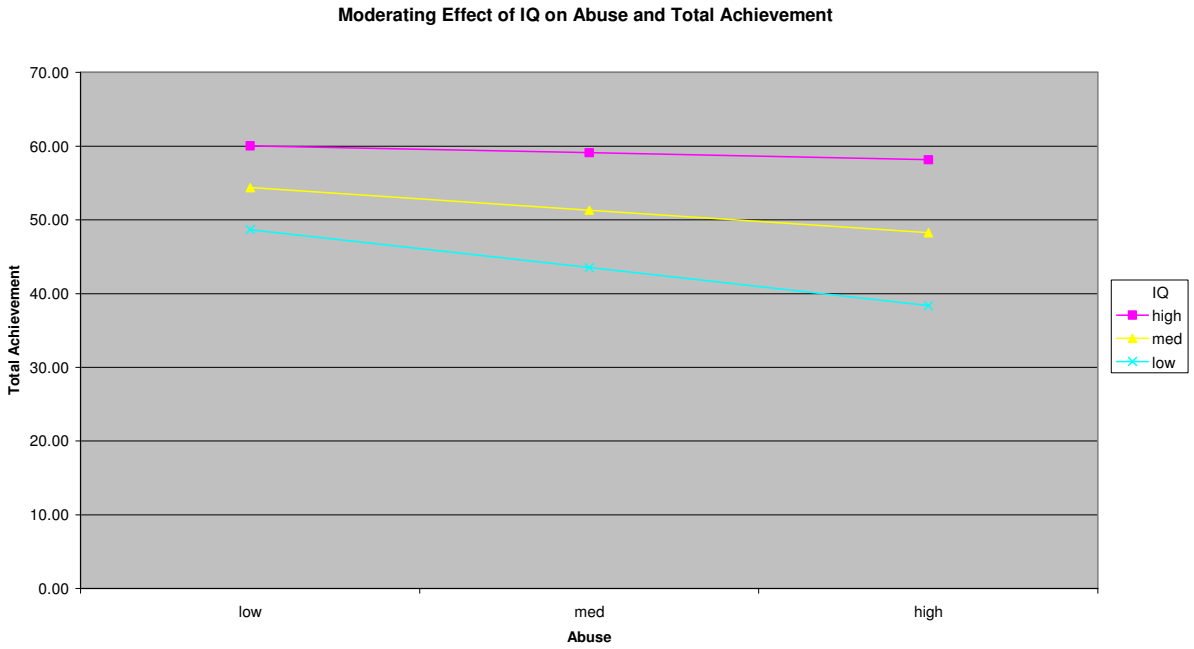

Figure1

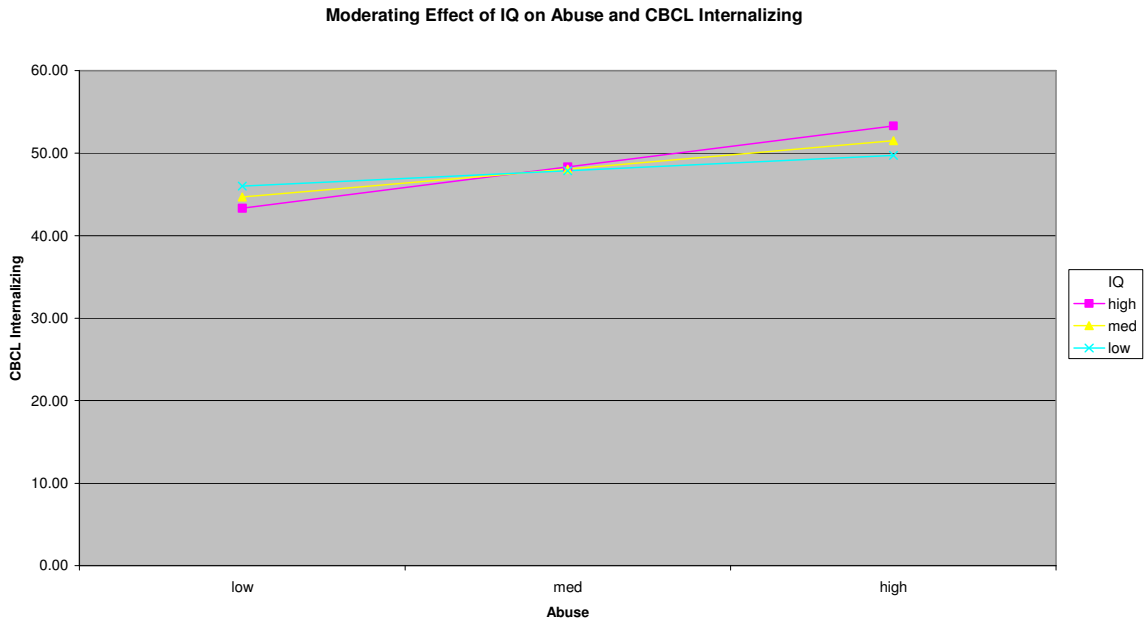

Figure 2

The post-hoc test of the interaction of abuse and FSIQ as a predictor of Total Achievement revealed a significant relationship between Abuse and Total Achievement at medium ($t = -2.80$, $p < .01$) and low ($t = -4.12$, $p < .01$) levels of IQ, but not at high ($t = -.82$, $p > .05$) levels of IQ. Similar post-hoc testing of the interaction of abuse and IQ as a predictor of the Internalizing subscale of the CBCL revealed a significant relationship between abuse and the Internalizing subscale of the CBCL at high ($t = 3.98$, $p < .01$) and medium ($t = 3.73$, $p < .01$) levels of IQ, but not significant at low ($t = 1.46$, $p > .05$) levels of IQ.

When number of placements was entered to test hypothesis 11, the overall models were significant ($p<.05$) for the Total ($F(4, 141) = 9.64$), Internalizing ($F(4, 141) = 6.12$), and Externalizing ($F(4, 141) = 11.10$) scales of the CBCL as well as the Total

Achievement score (F(4, 174) = 4.68). These variables accounted for 22%, 15%, 24%, 10% of the variance in the models, respectively. The model for the Total CDI score was not significant (F(4, 148) = 1.09, $p > .05$). Similarly, number of placements did not moderate the relationship between abuse and any of the variables.

When age at time of testing was entered to test hypothesis 12, the overall models were significant ($p < .05$) for the Total (F(4, 142) = 9.84), Internalizing (F(4, 142) = 6.02), and Externalizing (F(4, 142) = 11.64) scales of the CBCL as well the Total Achievement score (F(4, 176) = 4.72). These variables accounted for 22%, 15%, 25%, and 10% of the variance in the models, respectively. The model for the Total CDI score was not significant (F(4, 150) = 1.46, $p > .05$). In addition, age at time of testing did not moderate the relationship between abuse and any of the variables.

Hypothesis 13, which aimed to test whether abuse severity would moderate the relationship between abuse and the outcome variables, could not be tested because children who had not been abused did not have a severity score.

Discussion

In summary, this study examined differences between children with and without histories of CSA with regard variables such as behavioral and emotional functioning and achievement. The role of risk and protective factors such as gender, IQ, abuse severity, number of foster home placements and history of previous psychological treatment were also examined as potentially affecting outcomes in children with CSA histories. The results of this study revealed a number of findings which were consistent with expectations based on previous research as well as some unexpected findings.

Results of the analyses of the hypotheses indicated that as predicted children with CSA histories were rated by their caregivers as exhibiting significantly more total behavior problems, including both internalizing and externalizing behavior problems. In particular, having a history of sexual abuse was associated with greater problems with anxious/depressed behavior, withdrawn/depressed behavior, social problems, thought problems, rule breaking behavior and aggressive behavior, as measured by caregiver reports. It should again be noted, that the comparison group for this study consisted of a clinical population of children and so, even in comparison to other clinical populations, children with CSA histories were rated as demonstrating significantly more problems. The differences between the CSA and non-CSA groups on these dimensions were generally large and those that were statistically significant may also be considered to be clinically significant as means for the CSA group generally fell close to the “clinically

significant" range for problems on the CBCL, while means for the non-CSA group generally fell further away from the "clinically significant" range. This finding is consistent with the large body of research which suggests that children with histories of sexual abuse exhibit significantly more internalizing and externalizing behavioral problems than children without sexual abuse histories (Browne & Finkelhor, 1986; Chaffin, Silovsky, & Vaughn, 2005; Inderbitzen-Pisaruk, Shawchuck & Hoier 1992; Johnson & Kenkel, 1991; Kendall-Tackett, Williams, Finkelhor, 1993; Martin, Bergen, Richardson, Roeger & Allison, 2004; Monahan & Forgash, 2000; Newman, Clayton, Zuellig, Cashman, Arnow, Dea, & Taylor, 2000; Paolucci, Genuis, & Violato, 2001; Saywitz, Mannarino, Berliner & Cohen, 2000; Spaccarelli & Fuchs, 1997). While CSA was not associated with increased attention problems on the CBCL, it should again be noted that the control sample was a clinical sample, which was heavily drawn from ADHD evaluations. It may be that instead of interpreting these results to suggest that children with CSA do not exhibit attention problems, to infer that children with sexual abuse histories are not significantly different than children presenting with attention problems.

The current study also found that there was not a significant relationship between gender and the CBCL scales. This is contrary to expectations based on Garnefski and Arends' (1998) research which suggested that there were differences with regard to emotional problems and in which boys demonstrated more behavioral problems, particularly aggressive behavior and rule-breaking than girls. The results of this study are, however, consistent with research by Dube, Anda, Whitfield, Brown, Felitte, Dong and

Giles (2005) who found no gender differences in adult survivors of CSA when examining factors such as suicide attempts and interpersonal relationships. Similarly, Banyard, Williams and Siegel (2004) in examining a number of mental health outcomes such as anxiety, depression, anger, and suicidality found that males and females differed only with regard to sexual concerns, which was not specifically measured in the current study.

Contrary to expectations, CSA was not significantly associated with overall self reported depression when using the CDI, although this result is not altogether surprising in the context of the sample from which this data was drawn. These results suggest that sexually abused children do not appear to be significantly different than another sample of clinic referred children on the dimension of self reported depression. In addition, it should again be noted that while children with CSA did report somewhat higher ratings on the CDI, the relatively small data available may not have provided sufficient power to detect significant effects.

While the results suggest that CSA is not associated with self-reported depression, as previously discussed, results from the CBCL suggested that CSA was associated with depression as reported by caregivers. It may be that these seemingly conflicting results are due to the different sources of the information (i.e. self versus caregiver) and/or that there was more data available for the CBCL than for the CDI to detect significant results as there was more power for the analysis of the CBCL data.

As expected, children with histories of sexual abuse had significantly lower IQ's than children without sexual abuse histories, an over 7 point difference in means which is both statistically and clinically meaningful. This is consistent with research by Trickett, et

al (1994) who suggested that the abuse experience can negatively impact cognitive functioning. Another possible explanation may be that children with lower IQ's may be more susceptible to being abused than children with higher IQ's and may be less likely to report abuse which may result in the abuse persisting for a longer period of time (Mansell, et al., 1998). While the nature of the difference in IQ cannot be determined from the current study, there are important implications of this difference for prevention and treatment programs which are discussed below as well as important implications for future research to examine possible pathways to the lower IQs of these children.

Consistent with expectations, IQ did serve as a protective factor with higher IQ being significantly associated with lower overall self reported depressive symptoms for both the overall and the CSA only groups. IQ was also significantly associated with the lower overall behavior problems and in particular lower reports of externalizing problems by caregivers for the overall group, although it was not significantly associated with caregiver reports of behavior problems for the CSA group only. There was a trend toward significance noted for the caregiver reports of internalizing problems when IQ was entered as a moderator, particularly for high and medium levels of IQ. This finding is consistent with a number of studies suggesting that IQ can serve as an overall protective factor (Luthar, Zigler, & Goldstein, 1992; Masten & Coatsworth, 1998) and in particular be associated with lower rates of specific types of psychopathology (Cederblad, Dahlin, Hagnell, & Hansson, 1995; Tiet, Bird, Davies, Hoven, Cohen, Jensen, & Goodman 1998). The results suggesting that low levels of IQ, however, may not play a moderational role are, however, novel.

Consistent with research by Buckle, Lancaster, Powell and Higgins (2005) and Jones, Trudinger, and Crawford (2004), the current study found that the overall academic achievement of children with sexual abuse histories was significantly lower than children without sexual abuse histories. Additionally, as expected, higher IQ was significantly associated with higher overall achievement in both the overall sample and the CSA only group. IQ was shown to moderate the relationship between abuse and Total Achievement, particularly at medium and low levels of IQ.

Number of foster care placements was not found to be significantly associated with any of the variables of interest except for higher number of home placements being significantly associated with more total behavior problems, including both internalizing and externalizing behavior problems as reported by caregivers for the overall sample. While it could be expected that number of foster care placements would have less of an influence on intelligence and achievement, it is somewhat surprising that number of foster care placements was not significantly associated with self reported depressive symptomatology. Again, while these results should be interpreted in the context of the relatively low power of the measure assessing self reported depressive symptoms, these findings are consistent with research by Stanley, et al, 2005 and Pecora, et al (2005) who did not find a relationship between self reported depression and number of home placements.

Abuse severity, history of previous psychological treatment and age at time of testing were, contrary to expectations not shown to be significantly associated with any of the variables of interest. To date, the research on severity appears to be equivocal. While

Feinauer and Stuart (1996) and Morrow and Sorell (1989) found abuse severity to be associated with poorer functioning, Paradise, et al (1994) and Feiring, Taska, and Lewis (2002) have, like the current study found no relationship between severity and outcome. It may be that, as with Paradise et al (1994), when examining cases with particularly severe abuse, such as this study, the role of severity becomes a less important factor when examining outcome. While history of treatment and age at time of abuse would also seem to contribute to outcomes, the current study did not support this hypothesis. While there have been few studies examining these variables, research by Cavanaugh (2005) similarly found there to be no association between age of onset and outcomes as well as treatment history and outcomes.

As a group, children with CSA histories demonstrated significantly more emotional and behavioral problems than children without CSA histories. However, given the previous discussion of resilience as positive adaptation in the face of adversity; in the present study, many individuals with CSA histories did appear to be resilient to the abuse experience with regard to many of the outcomes measured in the current study. In particular children with higher IQs appeared to demonstrate positive adaptation with regard to fewer psychological problems per caregiver report, fewer self reported depressive symptoms, and higher achievement than their counterparts with lower IQs. These results indicate, therefore, that IQ does serve an important protective role for children, both with and without CSA histories. This has important implications for prevention and treatment which are discussed below. Although this study did identify the importance of IQ as a protective factor in high risk children, it does not explain the nature

of this relationship, that is, whether the abuse experience played a role in cognitive development or whether these children could have been identified as having lower IQs prior to being abused and future research could shed light on this area.

Several limitations should be considered when interpreting the results of the current study. As previously mentioned, because of the relatively large number of analyses conducted on the data, the possibility of committing Type I errors may have been inflated. Additionally, causal relationships cannot be ascertained from the current study given its correlational nature. The archival nature of this study may have influenced the consistency with which data was collected. For example, achievement measures included two different versions of two different achievement measures, which may have had some differences in reliability and validity which were not be controlled for in this study. The problem of missing data was also particularly problematic for the current dataset, in part due to its archival nature. The small sample size of some of the measures used, serve as another limitation of this study. Ascertaining abuse severity from chart reviews may also prove to be a limitation of the current study, as there may have been other factors that influenced severity score that was not available through chart reviews. While the CSA sample in the current study was drawn from DCF identified cases of sexual abuse and the non-CSA from clinic charts of children presumed to have no sexual abuse history, it is possible that there may have been children in the non-sexually abused group that were actually abused. Furthermore, because it was not possible in the current study to examine familial factors such as parental IQ and personality, it is possible that

some of the results seen in the study were due to genetic rather than environmental factors.

There are, however, a number of strengths to this study including the relatively ethnically diverse sample that was used for both the CSA and non-CSA groups. Additionally, a number of studies on children with abuse histories have included either males or females and the current study included both sexes. These factors increase the generalizability of these findings. Additionally, the current study represents a real world sample of children with abuse histories who were assessed within a relatively short time frame of their abuse, which can aid our understanding of possible short term implications of CSA.

The current study can also be considered clinically meaningful by helping practitioners to examine intellectual, academic and psychological factors that should be considered when working with children with CSA histories. Furthermore, this study also adds to the literature on characteristics that affect the abuse experience and as such can aid in the development of prevention and treatment programs. For example, given previous research suggesting that children with lower IQ's may be at higher risk for sexual abuse and have more negative consequences once abused prevention programs could be targeted at this population. Specifically, teaching this population about sexuality and sexual abuse and teaching them strategies to prevent abuse could be an important step toward decreasing rates of abuse and the negative sequelae of abuse. Additionally, close monitoring of agencies serving these populations should be conducted to decrease the likelihood that individuals with lower IQ's will be subjected to abuse perpetrated by

and within these agencies. Furthermore, teaching individuals with lower IQ's who may lack assertiveness skills so as to decrease the likelihood that they will be victimized may also prove useful. With regard to treatment programs, cognitive behavioral treatments have often been found to be effective for many of the negative consequences of CSA. However, screening for IQ may be an important adjunct to treatment to more effectively individualize treatment plans based on cognitive functioning to determine the extent to which more cognitive aspects of treatment can be effectively utilized in treatment.

Given the limitations placed on this study by its archival nature, replicating this study with a sample of identified children with abuse histories would likely provide important insights. As this study was not able to tease apart the influence of environmental versus genetic factors because of the lack of availability of family members for participation, future studies will likely benefit from a more thorough exploration of these influences. It would likely be beneficial to examine these variables with a more matched sample of children, either inpatient or outpatient.

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About the Author

Kelli-Lee Harford is originally from Kingston, Jamaica and received her Bachelor of Science in Psychology and Management Studies from the University of the West Indies, Mona Campus. After completing her degree she moved to the United States and began to work in the field of psychology in Virginia. To further develop her skills and knowledge, she pursued a Masters degree in Psychology at Teachers College, Columbia University in New York, and later her Doctoral degree at the University of South Florida. Her primary research interest is in the area of resilience in survivors of childhood sexual abuse. Her clinical area of interest is working with children and families, particularly those with chronic or life threatening illnesses. After completing her Doctoral degree, she will be assuming a clinical postdoctoral fellowship in pediatric psychology at Arkansas Children's Hospital in Little Rock, Arkansas.