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Multiple Determinants of Sexualized Behavior in Middle Childhood:

A Developmental Psychopathology Perspective

by

Natasha Elkovitch

A DISSERTATION

Presented to the Faculty of

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MULTIPLE DETERMINANTS OF SEXUALIZED BEHAVIOR IN MIDDLE
CHILDHOOD: A DEVELOPMENTAL PSYCHOPATHOLOGY PERSPECTIVE

Natasha Elkovitch, Ph.D.

University of Nebraska, 2010

Advisor: David J. Hansen

In order to adequately and appropriately intervene with children exhibiting problematic sexual behaviors, a comprehensive understanding of etiology is imperative. Although sexually abused children are observed engaging in more problematic sexual behaviors than their normative or psychiatric counterparts, it is clear that such behaviors may be the result of factors other than, or in addition to, sexual abuse. The goal of the present study was utilize a developmental psychopathology perspective in broadening our understanding of mechanisms associated with the development of problematic sexual behaviors in childhood. Participants for the study include 1, 149 children (51.8% female) drawn from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN), a large multi-site consortium investigating child health and development. Both variable-centered and person-centered approaches were used to examine factors across a number of developmental-ecological domains (e.g., child, parent, immediate interactional context, and broader social context) associated with the development of problematic sexual behaviors in middle childhood. Overall, results suggest that although sexual abuse constitutes a risk factor for sexualized behaviors, other factors – particularly those in the maternal domain and immediate interactional context – also contribute to the display of subsequent sexualized behaviors. Furthermore, subgroups of children appear to

demonstrate sexualized behaviors for different constellations of reasons, consistent with the concept of equifinality. Furthermore, results of both the variable-centered and person-centered analyses indicated that sexual abuse appears to be a more important etiological mechanism associated with the development of sexualized behavior for girls, versus boys. The present study fills an important void in both the child psychopathology and child maltreatment literatures and contributes to the ongoing discourse regarding treatment of children exhibiting problematic sexualized behaviors.

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INTRODUCTION

Child welfare and mental health systems have increasingly devoted attention to developmentally inappropriate and unexpected sexual behavior by children aged 12 years and younger (Chaffin, Berliner, Block, Johnson, Friedrich, Louis et al., 2008; Chaffin, Letourneau, & Silovsky, 2002). Increased attention was initially fueled by research demonstrating a significant association between child sexual abuse and subsequent sexualized behaviors (e.g., Friedrich, 1993; Kendall-Tackett, Williams, & Finkelhor, 1993). However, more recent research suggests that while sexual abuse is a significant etiological factor associated with the onset of problematic sexual behavior in children, it is not essential (e.g., Bonner, Walker, & Berliner, 1999; Silovsky & Niec, 2002). This research has emphasized the etiology and maintenance of problematic child sexual behaviors as including factors across a number of domains, including biological, familial, economic and cultural (Friedrich, Davies, Feher, & Wright, 2003; Friedrich, Fisher, Dittner, Acton, Berliner, Butler, et al., 2001). While researchers are in agreement that factors beyond child sexual abuse need to be considered, investigations doing so are scarce. Thus, there is a pressing need for prospective research designs examining potential etiological factors beyond child sexual abuse. Furthermore, such an examination would be especially beneficial if these factors were examined in concert. A better understanding of etiological mechanisms will provide a critical foundation for both prevention and intervention science. A perspective rooted in developmental psychopathology provides a framework for both understanding the current literature on the development of sexual behavior problems (SBP) and informing future work.

The purpose of the present investigation, utilizing a developmental psychopathology perspective, is to broaden our understanding of mechanisms associated with the development of problematic child sexual behaviors. Developmental psychopathology is an integrative discipline which attempts to understand psychopathology within a developmental, lifespan framework (Cicchetti, 1993; Rutter & Sroufe, 2000). As a “microparadigm” (Achenbach, 1990), developmental psychopathology strives to integrate knowledge across disciplines and domains, rather than supporting a single theory that would account for all developmental phenomena (Cicchetti, 1993; Rutter & Sroufe, 2000).

A guiding principle of developmental psychopathology is that to understand maladaptive behavior adequately, one needs to view it in relation to what may be considered normative for a given developmental period. Its main focus is to highlight developmental processes and how they operate by looking at extremes and variation in developmental outcome (Cicchetti, 1993). In so doing, this perspective highlights the complexity of risk and protective factors across a number of developmental-ecological domains (Belsky, 1993; Bronfenbrenner, 1979; Cicchetti & Lynch, 1993), including biological, familial, economic and cultural, in understanding developmental changes. Children’s development is conceptualized as having multiple, interrelated causal factors, rather than as being the direct outcome of single factors (Cicchetti & Rizley, 1981; Sameroff & Chandler, 1975). Consequently, an adequate model for conceptualizing the etiology of psychopathology or problematic behaviors must be complex and developmental, allowing for multiple pathways to both adaptive and maladaptive outcomes. This framework accommodates individual differences in patterns of adaptation

over time; thus, a single source of influence may lead to diverse outcomes (i.e., multifinality), and different patterns of early experience may lead to the same outcome (i.e., equifinality) (Cicchetti & Rogosch, 1996).

The following review of the literature will utilize a developmental psychopathology framework. First, what is known about normative and nonnormative sexual behavior in childhood is reviewed. Highlighted are definitional challenges, age-related developmental differences, and the contextual influence of culture. Second, we review literature regarding the influence of risk factors across a number of developmental-ecological domains in the development of child sexualized behaviors, drawing attention to the twin principles of multifinality and equifinality. Finally, this section concludes with a discussion of empirical implications of a developmental psychopathology perspective and the purpose of the present study.

Normative Sexual Behaviors in Childhood

Our understanding of normative sexual development and behaviors in childhood is rather limited. Historically, preadolescent children have been regarded as asexual, and any evidence of sexual expression has been questioned as a symptom of sexual abuse (Bancroft, 2006; Gordon & Schroeder, 1995). However, developmental research indicates that the display of certain sexual behaviors in childhood are expected and developmentally appropriate (Friedrich, Grambsch, Broughton, Kuiper, & Beile, 1991; Friedrich, Grambsch, Damon, Hewitt, Koverola, Lang et al., 1992; Friedrich et al., 2001; Larsson & Svedin, 2002; Lindblad, Gustafsson, Larsson, & Lundin, 1995; Sandfort & Cohen-Kettenis, 2000). A short review of this research is presented below; readers are urged to consult Bancroft (2003) for a more through review of normative sexual

development, including the historical progression of this work and related theoretical issues.

Empirical studies on sexual behavior in childhood have typically been approached in one of two ways: informant reports from parent/guardians or daycare providers and/or retrospective studies with adolescents or adults. Investigations of young children almost solely rely on informant reports, and typically utilize either the sexual behavior items from the Child Behavior Checklist (CBCL; Achenbach, 1991), or more commonly, one of the three versions of the Child Sexual Behavior Inventory (CSBI; Friedrich, 1991, 1993, 1997). The popularity of the latter measure, used in studies examining both normative and nonnormative sexual behavior, allows for comparisons among studies. Regardless of measure used, research clearly indicates that parents and daycare providers report a broad range of child sexual behaviors, from low-frequency specific behaviors, to high-frequency and more general behaviors (Friedrich et al., 1991, 1998; Friedrich, Sandfort, Oostveen, & Cohen-Kettenis, 2000; Lindblad et al., 1995; Schoentjes, Deboutte, & Friedrich, 1999).

Low-frequency behaviors found using parent reports include behaviors that are intrusive, aggressive, or more imitative of adult sexual behavior, such as attempted intercourse, oral-genital contact, masturbating with an object, and inserting objects into vagina/rectum (Friedrich et al., 1991, 1998; Schoentjes et al., 1999). While rare (typically <3% of children in community samples) throughout childhood, these behaviors are reported to occur in nearly all investigations utilizing the CSBI (Friedrich et al., 1991, 1998, 2000; Lindblad et al., 1995; Schoentjes et al., 1999). These behaviors, typically considered nonnormative or problematic, will be discussed further in the next section.

High-frequency child sexual behaviors reported by parents include self-stimulating behaviors (e.g., touching genitals in public/home), exhibitionism (e.g., exposing genitals to others), voyeurism (e.g., attempting to look at other people when nude) and behaviors related to personal boundaries (e.g., standing too close to others). Of these, solitary, self-stimulating behaviors are reported to be the most frequently observed. Touching of genital parts, in fact, has been observed before birth (Brenit & Broussin, 1996), and boys of 6 to 8 months of age and girls 8 to 11 months of age often discover their genitals by unintentionally touching them. During the first several years of life, this behavior appears largely related to general curiosity about one's body (Gordon & Schroeder, 1995).

However, there is some inconsistency regarding developmental trends in the incidence of genital touching. Studies utilizing parent observations tend to report a decline in sexual behavior in general, and self-stimulation in particular, with age. For example, in Friedrich and colleagues' (1998) normative sample of children ($n = 1114$), 60.2% of 2- to 5-year-old boys and 43.8% of girls of the same age range were reported by their female caregivers to engage in genital touching. The prevalence of these behaviors steadily dropped with age; 39.8% of the boys and 20.7% of girls in the 6- to 9-year-old age group were observed touching their genitals. Percentages were even lower in the 10- to 12-year-old age group (1.1% of boys, 2.2% of girls). Teachers at nursery and elementary schools, however, consistently report observing a lower frequency of genital touching than do parents (Larsson & Svedin, 2002; Lindblad et al., 1995; Lopez-Sanchez, Del Campo, & Guijo, 2002). For example, only 5% of a sample of Swedish daycare

teachers reported observing 3- to 6-year-old children engaging in genital touching, as compared to 43% of the parents of these children (Larsson & Svedin, 2002).

In contrast to informant ratings altogether, studies that utilize retrospective reports often find an increase in self-stimulating behavior in the years preceding puberty, particularly among boys (Bancroft et al., 2003; Lopez-Sanchez et al., 2002). It is likely that these conflicting results reflect the fact that older children are more aware of the “sexual taboo,” and exercise restraint in where and when they engage in these behaviors (Bancroft, 2006).

As noted above, some interpersonal sexual behaviors – exhibitionism, voyeurism, and behaviors related to personal boundaries – have been commonly reported by parents and daycare providers. In one Flemish (Schoentjes et al., 1999), two Dutch (Friedrich et al., 2000; Lindblad et al., 1995), and two American (Friedrich et al., 1991, 1998) samples, 25 to 63% of children age 2 to 6 years were reported trying to look at other people when nude or undressing, standing too close to others, and touching female breasts. These behaviors are also among the most commonly reported behaviors in 6- to 9-year-old children. In fact, 20 to 29% of children in this age group were reported trying to look at others when they were nude/undressing. Again, the prevalence of these behaviors declines with age with 6 to 19% of children aged 10 to 12 engaging in this behavior (Friedrich et al., 1998). Thus, based on parent and daycare provider report, it appears that behaviors in all three categories (exhibitionism, voyeurism, and personal boundaries) decrease with age.

In contrast, a number of other sexual behaviors have been found to become more frequent with age. These behaviors include showing interest in the opposite sex, asking

questions about sexuality, looking at nude pictures, drawing sexual parts, using sexual words, and expressing an interest in nudity on television (Friedrich et al., 1991, 1998; Sandfort & Cohen-Kettenis, 2000; Schoentjes et al., 1999). For example, in a sample of children aged 2 to 12 years, Friedrich and colleagues (1998) found that 5% of children aged 2 to 5 were reported by their female caregivers to express an interest in television nudity, whereas this behavior was reported in 15% of the children aged 10 to 12. To date, these behaviors have not been assessed via retrospective report.

Parent reports have also been used to assess the frequency of childhood interpersonal sexual behaviors often placed under the umbrella terms “sexual games” or “sexual play” (Gordon & Schroeder, 1995; Lamb & Coakley, 1993). Four international studies, all conducted within the last decade, included a single question about whether informants observed children playing “doctors-games” (Larsson & Svedin, 2002; Lopez-Sanchez et al., 2002; Sandfort & Cohen-Kettenis, 2000; Schoentjes et al., 1999). In all of these studies, sexual play was frequently observed, but with varying prevalence rates. The highest prevalence was found in a Spanish sample of children aged 0 to 11 years; 78% of parents reported having seen their child engage in a sexual game. In contrast, 55% of boys’ parents and 65% of girls’ parents in a Dutch sample of 0- to 11-year-olds reported observing their child engage in a “doctors-game” (Sandfort & Cohen-Kettenis, 2002). Larsson and Svedin (2002) examined a more specific age range; in their sample of 3- to 6-year-old Swedish children, 37% of boys and 48% of girls were reported by their parents engaging in this behavior. Only one study, utilizing a Flemish sample, examined developmental trends (Schoentjes et al., 1999). While 53% of children aged 2 to 5 years

were reportedly observed engaging in sexual play, this decreased to 39% and 15% in the 6- to 9-year-olds and 10-to 11-year-olds, respectively.

Nonetheless, it is plausible that these prevalence figures, determined via informant-report, underestimate the actual incidence of sexual contact between children, particularly in the older age groups. Some parents may be unwilling to report observed sexual behavior (Larsson & Svedin, 2002), or may have limited opportunity to observe their child engage in interpersonal sexual behaviors. Further, it has been found that mothers with more years of education are likely to report more sexual behavior in their children than are less educated mothers (Friedrich et al., 1991), and mothers with a history of sexual abuse may be even more prone to over- or under-report sexual behavior in their children (Friedrich et al., 2003). Finally, as noted above, older children may exercise more restraint and conceal these behaviors from adult view (Bancroft, 2006).

To address the potential limitations of informant-report, retrospective reports have been used to assess the frequency with which young adults remember engaging in sexual behaviors with other children (Goldman & Goldman, 1988; Haugaard, 1996; Kilpatrick, 1986; Lamb & Coakley, 1993; Larsson & Svedin, 2002b, Lopez-Sanchez et al., 2002; Reynolds, Herbenick, & Bancroft, 2003). Retrospective investigations have utilized a variety of methodologies and definitions of “sexual experience”: while some participants are asked to indicate, from a list, which sexual experiences they engaged in as a child (Haugaard, 1996; Kilpatrick, 1986; Larsson & Svedin, 2002b, Lopez-Sanchez et al., 2002; Reynolds et al., 2003), other participants are asked to describe any sexual experience during a certain age period (Goldman & Goldman, 1988; Lamb & Coakley, 1993). Despite methodological differences, these studies indicate that broadly defined

sexual experiences between children are common with 42 to 94% of young adults across a wide range of studies reporting sexual experiences as a child (Goldman & Goldman, 1988; Haugaard, 1996; Haugaard & Tilly, 1988; Kilpatrick, 1986; Lamb & Coakley, 1993; Larsson & Svedin, 2002b, Lopez-Sanchez et al., 2002; Reynolds et al., 2003).

When participants were asked to recall sexual experiences at young ages specifically, however, prevalence rates drop. For example, in Reynolds and colleagues' (2003) sample of 18- to 22-year-old college students, 24% of the males and 16% of the females recalled engaging in sexual play prior to the age of 6. This apparent discrepancy may be due to the difficulty inherent in obtaining clear memories of early childhood.

In general, the aforementioned research, obtained via both informant and retrospective report, indicates that experiences with no direct genital contact – such as exposure of genitals, talking about sex, and kissing and hugging – are the most commonly reported. Genital exposure tends to decrease toward the end of childhood, while behaviors such as talking about sex, looking at nude pictures and hugging and kissing tend to increase toward later childhood (approximately age 10 to 12). In Lamb and Coakley's (1993) study of college women, of those participants that reported engaging in childhood “sexual games,” only 56% reported that these experiences were ever discovered by parents or another adult.

It is clear from an examination of the extant literature that the type of informant (e.g., parent vs. daycare provider) and type of design (e.g., informant vs. retrospective) impacts the frequency of sexual behaviors reported. In addition, contextual factors, such as culture, may also impact the display and reported frequency of sexual behaviors, as culturally-specific values and expectations for children may influence and modify a

child's behavior (Rothbaum, Weisz, Pitt, Miyake, & Morelli, 2000). The possible role of culture has been examined in three cross-national studies, each of which compared rates of reported sexual behavior in European children to American children (Friedrich et al., 2000; Larsson et al., 2000; Schoentjes et al., 1999). Each of these studies found that behaviors that were relatively rare among the American children (e.g., inserts objects in vagina or rectum, asks to engage in sex acts), were also relatively unusual among the Dutch, Swedish and Flemish children (Friedrich et al., 2000; Larsson et al., 2000; Schoentjes et al., 1999). However, there are mixed findings with regard to more common sexual behaviors. Swedish and Dutch boys and girls were reported by their parents to exhibit significantly more sexual behavior, in general, as compared to the American boys and girls. However, no significant differences were found with regard to reported sexual behaviors when a sample of Flemish children (aged 2 to 12 years) were compared to Friedrich et al.'s (1991, 1998) samples of American children (aged 2 to 12 years; Schoentjes et al., 1999). While discrepant findings make conclusions concerning cultural difference across nations difficult, even less can be concluded about cultural differences within nations. The majority of studies, both American and international, have involved White participants from high socioeconomic backgrounds. To date, only one study has examined sexual behavior in ethnic minority youth. Thigpen, Pinkston, and Mayefsky (2003) found that African American parents reported that their children engaged in fewer solitary sexual behaviors than did children of White parents. More research on sexual behavior in minority youth is greatly needed. As will be discussed below, minority youth are rarely the subject of study, whether normative *or* nonnormative sexual behavior is under investigation.

Defining Child Sexual Behavior Problems

The limited understanding of normative development discussed above has posed a challenge to adequately understanding and defining abnormal or problematic child sexual behaviors. Nonetheless, using available information on normative sexual development outlined in the previous section, researchers have attempted to summarize and describe child sexual behavior problems (CSBP) to serve as basic guidelines for practitioners and caregivers. Building on the work of Hall and colleagues (1998) and Araji (1997), the Association for the Treatment of Sexual Abusers (ATSA) Children with SBP Task Force broadly defines the term as “children ages 12 and younger who initiate behaviors involving sexual body parts (i.e., genitals, anus, buttocks, or breasts) that are *developmentally inappropriate or potentially harmful to themselves or others*” (Chaffin et al., 2008, p. 200, italics added). *Developmentally inappropriate* sexual behaviors occur at a greater frequency or at a much earlier age than would be developmentally or culturally expected, become a preoccupation for the child, and/or reoccur after adult intervention/corrective efforts. *Potentially harmful behaviors* occur with the use of coercion, force or intimidation, cause physical injury or emotional distress in the child(ren) involved, appear to be interfering with the child(ren)’s social development, and involve children of substantially different ages or developmental levels. This definition reflects the fact that CSBP do not represent a psychological syndrome or a specific diagnosable disorder, but rather a broad continuum of behaviors (Chaffin et al., 2008). Typically, behaviors labeled as problematic include the low-frequency behaviors described in the previous section, such as attempted intercourse, oral-genital contact, and inserting objects into vagina/rectum (Friedrich et al., 1991, 1998; Schoentjes et al., 1999).

However, other more common childhood behaviors (e.g., genital touching, exhibitionism, voyeurism) may be problematic depending on the age of the child and the context in which they occur. For example, a 3-year-old boy who is observed frequently touching the breast of adult females is different from a 12-year-old boy who engages in the same behavior. Further, it is important to note that while the term sexual is used, the intentions and motivations for these behaviors may or may not be related to sexual gratification or sexual stimulation. The behaviors may be related to curiosity or anxiety, or may be imitative, attention-seeking or self-calming in nature (Chaffin et al., 2008; Silvosky & Bonner, 2003). This is an important contrast to the planning and callousness sometimes involved in the behaviors of sexually abusive adults (Seto & Barbaree, 1999).

More research, including work with diverse samples, is greatly needed to more fully elucidate developmental deviations outside of the normative range. Nonetheless, the operational definition provided by the ATSA Task Force provides a necessary framework, critical for practitioners and caregivers charged with the task of identifying and intervening with children exhibiting potentially problematic sexual behaviors. In addition, this definition provides a framework for researchers to examine a broad range of factors associated with the development of CBSP as well as adaptive and maladaptive trajectories of CSBP.

Problems and Consequences Associated with Child Sexual Behavior Problems

Exhibiting sexual behavior problems (SBP) in childhood is associated with a number of problems related to adjustment and overall development. These include emotional and behavior problems (both externalizing and internalizing), skill deficits, placement disruptions, and legal interventions. These associated characteristics can be

organized into two groups. First, some features may simply be mutual developmental outcomes from the same process. For example, externalizing behaviors may be a concomitant of SBP in the sense that they arise out of the same experience (e.g., maltreatment) that may have contributed to the development of CSBP. Second, associated features might also be considered outcomes or consequences of CSBP.

Mutual Developmental Outcomes

Emotional and Behavioral Problems

A number of nonsexual emotional and behavioral problems have been described among children demonstrating problematic sexual behaviors. In a number of investigations, the CBCL Total Score, Externalizing Scale, and Internalizing Scale have been found to be strongly associated with CSBP (Bonner et al., 1999; Gray, Busconi, Houchens, & Pithers, 1997; Gray, Pithers, Busconi, & Houchens, 1999; Meyer-Bahlburg, Dolezal, & Sandberg, 2000; Silvosky & Niec, 2002). For example, Friedrich and colleagues (2001) found the CSBI-3 to be strongly associated with externalizing problems for both boys and girls in normative, psychiatric and sexually abused groups. This association was found across three age groups; children aged 2- to 5-years, 6- to 9-years, and 10- to 12-years. Some evidence suggests that the relationship between CSBP and externalizing behaviors is stronger for boys than it is for girls (Meyer-Bahlburg, Dolezal et al., 2000). Furthermore, for some children, it appears that SBP may be part of an overall pattern of disruptive behavior problems. Friedrich (2005) notes that this is “rather heartening,” as it suggests SBP may not be a specialized behavioral disturbance, but rather, may be better understood by examining the larger literature on the etiology of externalizing behaviors (p. 4).

Skill Deficits

Children with SBP appear to exhibit skill deficits, particularly those that are interpersonal in nature. Not surprisingly, children with sexual behavior problems often present with poor boundaries, which is often associated with socialization difficulties and stigmatizing reactions from peers (Silvosky & Niec, 2002). Indeed, Bonner and colleagues (2001) found that children with SBP had more self- and parent-reported difficulties at school and lower levels of self-reported peer acceptance and self-concept than children reported to demonstrate more normative sexual behaviors. More troubling, poor boundaries and indiscriminate friendliness may increase risk of future victimization (Pearce, 2003; Silvosky & Niec, 2002), particularly if the child has a history of prior sexual victimization (Boney-McCoy & Finkelhor, 1995).

Less is known about the academic functioning of children with SBP. One study, which lacked a control group, suggested children with SBP demonstrated poor school achievement (Pithers, Gray, Busconi, & Houchens, 1998a), while another study found that children with SBP are no more likely to demonstrate academic difficulties than their counterparts demonstrating more normative sexual behaviors (Bonner et al., 1999).

Consequences

Placement Disruptions

Children who demonstrate SBP often experience disruptions in placement, including removal from the home or changes in residential or foster care. With regard to the former, research indicates that externalizing behaviors are one of the strongest predictors of placement changes for children entering foster care (James, Landsverk, Slymen, & Leslie, 2004; Newton, Litrownik, & Landsverk, 2000; Ryan & Testa, 2005).

In fact, in a survey of foster parents, externalizing behaviors, including problematic sexual behaviors, were reported as the primary reasons they requested their foster children be placed in another home (U.S. Department of Health and Human Services, 1993). This may be particularly true when there are other children in the home or if the foster parent has not received adequate training regarding child sexual behavior (Hoyle, 2000). These placement disruptions are particularly concerning for these children as extant research indicates that children who experience either volatile placements or multiple changes in placement are particularly vulnerable to continued internalizing and externalizing symptomatology (Newton et al., 2000).

Legal System Involvement

In addition to problems related to placement disruptions, demonstration of sexual behaviors in later childhood, particularly those that are interpersonal and intrusive in nature, may also lead to more serious consequences, such as being classified as a sex offender and possible placement on public sex offender registries. Particularly troubling, these policies are inconsistent with available data suggesting that children with SBP pose a *low* long-term risk for future child sexual abuse perpetration and sexual crimes. In fact, the extant research indicates that these children are more likely to be future sexual abuse victims rather than perpetrators (Chaffin, 2008). Readers are urged to consult Chaffin (2008) for an excellent commentary on the disconnect between empirical research on children with SBP and the policies, including potential placement and legal consequences, that affect these children.

Development of Child Sexual Behavior Problems

The concepts of multifinality and equifinality are central to a developmental psychopathology framework (for a discussion, see Cicchetti & Rogosch, 1997).

Multifinality specifies that diverse outcomes are likely to develop from an initial starting point. That is, children sharing a single source of influence will exhibit diverse outcomes rather than the same pattern of development (Cicchetti & Toth, 1997; Cicchetti & Rogosch, 1997). Accordingly, the goal of multifinality is to explain how similar experiences may, across individuals, evolve into different behavioral, emotional, or psychological outcomes. For example, researchers have examined the array of biological and psychological outcomes, including problematic sexual behaviors, demonstrated by children who have experienced sexual abuse.

In contrast, equifinality specifies that a common outcome develops from different starting points, emphasizing diversity in process (Cicchetti & Toth, 1997; Cicchetti & Rogosch, 1997). While fewer in number, some recent studies, consistent with this notion, have examined the risk factors and developmental processes associated with SBP in both community samples and children referred for treatment for problematic sexual behaviors. This research has largely been precipitated by the finding that many children demonstrating problematic sexual behaviors do not have documented histories of sexual abuse (e.g., Silvosky & Niec, 2002), and thus, investigators have examined multiple factors and processes that may contribute to the development of these problem behaviors. This conceptualization draws attention to the importance of studying subgroups of children (Cicchetti & Rogosch, 1997) who may demonstrate SBP for different constellations of reasons.

Multifinality and equifinality both suggest that the study of CSBP should occur within a broad, developmental-ecological framework (Belsky, 1993; Bronfenbrenner, 1979; Cicchetti & Lynch, 1993) and consider risk and protective factors across multiple domains. Belsky's developmental-ecological (1993) framework provides a well-suited and organized conceptual framework for considering the network of findings related to the development of CSBP. While originally formulated to explain the influence of multiple risk factors for child maltreatment, this model is applicable to the study of development more broadly (e.g., Jaffee, 2007). In this model, the ecology of child development is conceptualized as a system of co-occurring domains of influence, including child characteristics, parent characteristics, factors in the immediate interactional context, and those existing in the broader social context. Each of these domains contains both risk factors, which increase the probability of poor outcomes, and protective factors, which buffer the risk for such outcomes (Belsky, 1993; Cicchetti & Toth, 2000). Furthermore, these factors may be transient, indicating a temporary state, or enduring, representing a more permanent condition or characteristic (Cicchetti & Toth, 2000). Whatever the type, risk and protective factors within a level of the model can influence outcomes and processes in surrounding levels.

The subsequent review of the literature will examine the multiple contextual influences affecting the development of problematic sexual behaviors utilizing a developmental-ecological framework. This review is split into two sections. First, studies examining the relationship between child sexual abuse and CSBP will be examined, followed by risk and protective factors that may impact the relationship between these two variables. The relationship between child sexual abuse and problematic child sexual

behaviors is given particular attention due to the historical emphasis, both theoretical and empirical, on sexual abuse as the principal cause of CSBP. Until relatively recently, demonstration of problematic sexual behaviors were often seen as an indicator of child sexual abuse, and presently, many popular textbooks on child psychopathology include a discussion of CSBP in chapters on child sexual abuse (e.g., Mash & Barkley, 1998; Mash & Wolfe, 2005; for an exception, see Chaffin, Letourneau, & Silvosky, 2002). Second, studies investigating the impact of factors across multiple ecological domains, beyond that of sexual abuse, will be examined. This review confirms the lack of a simple, unitary etiologic explanation for CSBP and highlights the dynamic interplay among and between risk factors both within and across ecological domains.

Sexual Abuse as a Risk Factor for the Development of Child Sexual Behavior Problems

Consistent with the concept of multifinality, extant research indicates that child sexual abuse (CSA) is associated with a number of emotional and behavioral problems that emerge during childhood, including posttraumatic stress symptomatology (e.g., fears, heightened startle reactions) (Deblinger, McLearn, Atkins, Ralphe, & Foa, 1989; Wells, McCann, Adams, Voris, & Ensign, 1995), depression (Fergusson, Horwood, & Lynskey, 1996; Ligezinska, Firestone, Manion, McIntyre, Ensom, & Wells., 1996; Lipovsky, Saunders, & Murphy, 1989), self injurious behaviors (Crowe & Bunclark, 2000), academic and behavior problems (Wolfe & Birt, 1995; Cohen & Mannarino, 1988) and SBP (Cosentino, Meyer-Bahlburg, Alpert, Weinberg, & Gaines, 1995; Friedrich et al., 2001; Kendall-Tackett et al., 1993; Mannarino & Cohen, 1996). Reviews of the literature, however, have indicated that with the exception of posttraumatic symptoms and SBP, the

majority of these symptoms characterize clinical samples in general and are not specific to sexual abuse (Kendall-Tackett et al., 1993).

Research consistently demonstrates that children who have been sexually abused engage in a higher frequency of problematic sexual behaviors than children who have not been sexually abused (Kendall-Tackett et al., 1993; Putnam, 2003). In a review of 45 empirical studies, Kendall-Tackett, Williams and Finkelhor (1993) found that sexual behaviors were the most commonly examined sequelae of child sexual abuse (examined in 23 studies). Of the eight studies that employed a comparison group comprised of *either* nonabused clinical *or* nonclinical children, all found that sexually abused children were significantly more likely to demonstrate problematic sexual behaviors than their nonabused counterparts. This relationship was also found in six of eight studies that specifically compared sexually abused children to other clinical, nonabused children. Specifically, 34% of the sexually abused children aged 12 and younger ($n = 351$) exhibited problematic sexual behaviors, and the youngest of these children (aged 3 to 5 years) were noted to have the highest prevalence of SBP (35%).

Since the publication of Kendall-Tackett et al.'s (1993) review, studies investigating the childhood sexual sequelae of CSA have predominately utilized comparison groups comprised of samples of nonabused, nonclinical children (Hibbard & Hartman, 1992; Inderbitzen-Pisaruk, Shawchuck, & Hoier, 1992; Mannarino & Cohen, 1996a; Mian, Marton, & LeBaron, 1996; Smith & Howard, 1994; Stern, Lynch, Oates, O'Toole & Cooney, 1995; Wells, McCann, Adams, Voris, & Dahl, 1997; Young, Bergandi, & Titus, 1994). Each of these studies support the robust and reliable finding that SBP are more frequently observed in sexually abused versus community samples of

nonabused children. However, as Friedrich (1998) notes, at this stage of research development, these findings do little to advance the field; without the use of psychiatric control groups, it is difficult to differentiate the specific effects of sexual abuse from other childhood psychopathology. Surprisingly, only three studies since the Kendall-Tackett et al. (1993) review have employed appropriate comparison groups, all of which found significant differences in sexual behavior between the sexually abused and nonabused psychiatric control groups. Friedrich and colleagues (1997) compared four groups of children (aged 7- to 11-, 12- to 14-, and 15- to 18-years): nonabused and nonpsychiatric ($n = 75$), nonabused and psychiatric ($n = 165$), suspected sexually abused and psychiatric ($n = 38$), and confirmed sexually abused and psychiatric ($n = 72$). In all age groups, the nonpsychiatric control children exhibited significantly fewer parent-reported SBP than did the three groups of clinically referred children. Further, those children with a suspected and confirmed sexual abuse history scored significantly higher on both the CSBI and Sex Problems Scale of the CBCL than did the nonabused psychiatric children.

Also utilizing appropriate comparison groups, Cosentino and colleagues (1995) compared 6- to 12-year-old girls with a documented sexual abuse history with two demographically comparable control groups: girls from a child psychiatry outpatient department and girls from a general pediatric clinic. Both the sexually abused girls and the psychiatric controls manifested more psychopathology symptoms (as measured by the CBCL) and more SBP (as measured by the CSBI-1) overall than the nonpsychiatric controls. Further, while the sexually abused girls did not show more psychopathology symptoms overall, compared with the psychiatric control group, the sexually abused girls

were more likely to demonstrate problematic sexual behaviors, particularly with regard to open and excessive self-stimulation, boundary violations, and sexual aggression. These findings are consistent with Friedrich et al.'s (1987, 1988) examination of sexually abused girls, nonabused psychiatric girls, and nonpsychiatric girls.

Finally, Friedrich and colleagues (2001) compared mother-reported child sexual behaviors in three samples of children, aged 2 to 12 years: a nonabused, nonclinical sample ($n = 1,114$), a nonabused, clinical psychiatric outpatient sample ($n = 577$), and a sample of children with substantiated sexual abuse histories ($n = 620$). Sexual behaviors, particularly behaviors relating to poor personal boundaries and sexual knowledge and interest, were reported significantly more often by mothers of children in the psychiatric outpatient group than mothers of the nonabused, nonclinical children. However, all problematic sexual behaviors were reported to be displayed by the sexually abused children more often than either the psychiatric outpatients or the nonclinical group. This relationship was found not only in the total sample, but also when specific age groups (2- to 5-, 6- to 9-, and 10- to 12-year-old boys and girls) were examined.

Another body of research has examined sexual abuse histories of children referred for treatment for SBP, as opposed to examining CSBP in samples of children referred due to sexual abuse. This research indicates that prior sexual abuse is often present in the histories of these children; however, it is also evident that it is not a necessary condition for the development of SBP, even the most intrusive behaviors. Bonner and colleagues (1999) compared 201 children (6- to 11-years-old) identified as having SBP to 52 demographically-matched children with no reported SBP, as measured by the CSBI-2. While children with SBP had significantly higher rates of sexual abuse histories than

children in the comparison group, more than half the children in both groups did *not* have a substantiated history of sexual abuse. Further, in a sample of 127 children aged 6 to 12 years referred for treatment for problematic sexual behaviors, Gray, Busconi, Houchens, and Pithers (1997) found rates of prior sexual abuse varied from 93% for females to 78% for males. However, it is important to note that these victimization rates were provided by mothers of the children, as opposed to cases substantiated by social service agencies.

Lower rates of sexual abuse have been found in samples of preschool-aged children. For example, in a sample of 37 children (age 3 to 7 years) referred by Child Protective Services and mental health clinics to a SBP-specific treatment program, 38% had a history of substantiated sexual abuse (Silovsky & Niec, 2002). In other words, the majority of the children (62%) did not have a history of substantiated sexual abuse, but nonetheless displayed a high frequency and severity of SBP. However, it is important to note that suspected sexual abuse was investigated in 76% of the cases. Thus, it is unclear whether the low incidence of substantiated sexual abuse is a product of the general difficulty substantiating sexual abuse in young children or is an accurate reflection of the abuse rate. Whichever the case, the fact that sexual abuse is not an experience always found in the histories of children with SBP cannot be ignored (Friedrich, 2007).

Risk Factors for Sexual Behavior Problems in Samples of Sexually Abused Children

The research reviewed above indicates that sexually abused children are more likely to demonstrate problematic sexual behaviors than are nonabused children from either community settings or psychiatric settings. It is also clear, though, that many children who have been sexually abused do not develop SBP, and likewise, many children with SBP have no known history of CSA. Given the consistency of the results of

studies in this area, some researchers have moved beyond an examination of whether sexually abused children are at risk for developing problematic sexual behaviors and have begun to identify factors that account for this association. While limited, this research is critical in helping to explain why some children who have been sexually abused develop psychopathology, including CSBP, whereas others are able to achieve a more adaptive level of functioning.

Abuse-specific factors. A number of studies have examined the influence of abuse characteristics that may mediate the relationship between CSA and CSBP (Cosentino et al., 1995; Friedrich et al., 1992, 2001, 2003). For example, Cosentino and colleagues (1995) found that sexual abuse perpetrated by fathers or stepfathers and that involved vaginal and/or anal intercourse was associated with particularly marked sexual behavior disturbances, including the most sexually aggressive behaviors. Similarly, Friedrich and colleagues (2001, 2003) found that more problematic sexual behavior was reported in children who were penetrated (orally, vaginally, or anally) by a family member or had multiple perpetrators, and who were abused frequently and over a longer duration. These associations are consistent with those found by Friedrich and colleagues' (1992) previous examination of the CSBI, with the exception of relationship to the perpetrator, which was not assessed. There are mixed findings with regard to the use of force or sadism (Friedrich et al., 1992, 2001; Hall et al., 1998).

These and other (e.g., Friedrich, Urquiza, & Beilke, 1986) studies indicate that relationship to the perpetrator appears to be an important factor, with a closer relationship usually associated with increased risk of developing problematic sexual behaviors, as well as greater psychopathology in general (Friedrich et al., 1992, 2001; Kendall-Tackett

et al., 1993; Mannarino et al., 1995; Noll, Trickett, & Putnam, 2003; Trickett, Noll, Reiffman, & Putnam, 2001). It is important to note that relationship to the perpetrator is confounded with age of onset, duration of abuse, and the use of physical force. For example, biological father-daughter incest is associated with an earlier onset and longer duration of abuse, but with less use of physical force (Mennen & Meadow, 1995; Trickett et al., 1997).

Child factors. More recently, research has also examined a number of factors, beyond that of abuse characteristics, which may also impact the relationship between victimization and subsequent CSBP. These studies have primarily investigated risk and protective factors at the level of the child, parent, and immediate interactional context. Developmental psychopathology, including developmental-ecological models (Belsky, 1993), acknowledges that children are not simply blank slates, shaped by outside forces (such as the experience of sexual abuse) but rather actors continuously affecting and being affected by their environment (Bronfenbrenner, 1979).

Child age has been the most widely investigated child-level factor relevant to the development of problematic sexual behavior following CSA. As noted earlier, in their review of the literature, Kendall-Tackett and colleagues (1993) reported that SBP were most prevalent in the youngest age group of children (aged 3 to 5 years) with a history of child sexual abuse. This finding is consistent with other studies (e.g., McClellan et al., 1996); for example, McClellan and colleagues (1996) found that onset of sexual abuse at an early age, particularly between ages 0 and 3 years, was the strongest predictor of all types of problematic sexual behaviors in a sample of both boys and girls. This trend is consistent with research on normative behaviors discussed earlier, indicating that younger

children are more likely reported to engage in *both* normative and nonnormative sexual behaviors than are older children.

It is not clear how child gender impacts the development of CSBP following CSA. While literature on gender differences in the manifestation of behavior problems suggests girls are more likely to experience internalizing problems than boys (Cutler & Nolen-Hoeksema, 1991), the findings for sexually abused samples are inconsistent (Friedrich, 1988; Friedrich, Urquiza, & Beilke, 1986; Kolko, Moser, & Weldy, 1988; Tong, Oates, & McDowell, 1987). This may be due, in part, to the fact that majority of studies to date have not examined boys and girls in the same study, making comparisons difficult (Feiring, Taska, & Lewis, 1999). Nonetheless, sexually abused girls may be more likely than boys to exhibit more PTSD symptoms following CSA (Friedrich, 1998; Wolfe, Gentile, Michienzi, Sas, & Wolfe, 1991), including sexual anxiety (the feeling that sex is dirty; Feiring, Taska, & Lewis, 1999). More research on the display of sexual behavior problems specifically is needed. For example, it is important that research examine whether the display of certain types of CSBP (e.g., interpersonal vs. intrapersonal) vary with gender.

In addition to child age and gender, the larger literature on socioemotional and behavior outcomes following child sexual abuse has examined the mediational role of a number of other child factors, including physiological regulation (DeBellis, Lefter, Trickett, & Putnam, 1994; Jensen, Pease, ten Bensel, & Garfinkel, 1991), affect differentiation and regulation (Gaensbauer & Hiatt, 1984; Rieder & Cicchetti, 1989), coping style (Spaccarelli, 1994), attachment style (Toth & Cicchetti, 1996), and history of previous trauma and preexisting psychopathology, such as depressive symptomatology

(Toth & Cicchetti, 1996). However, only two studies have examined the role of child characteristics, beyond that of age, impacting the relationship between CSA and CSBP, specifically. In a sample of 100 sexually abused boys and girls, Hall, Mathews, and Pearce (1998) found blame attributions (i.e., who the child blames for the abuse) significantly differentiated between three groups of children: children demonstrating developmentally expected sexual behaviors tended to blame the perpetrator for the abuse, those exhibiting problematic intrapersonal sexual behaviors were primarily self-blaming, and those demonstrating problematic interpersonal sexual behaviors were significantly more ambivalent. Similarly, Mannarino, Cohen, and Berman (1994) found that decreases in reported CSBP were related to more appropriate blame attributions. Finally, with regard to child factors, it is important for future work to examine the role of temperament in the development of CSBP following CSA. Temperament has been implicated in the etiology and maintenance of almost every form of child psychopathology (Rothbart & Bates, 2006; Thomas & Chess, 1977), and while some have speculated that temperament may play a role in childhood outcomes following CSA (Mannarino & Cohen, 1990), this has yet to be investigated empirically.

Maternal risk factors. Other research has focused on the impact of maternal psychological and emotional functioning on the relationship between CSA and CSBP. While not widely examined, there is good reason to believe that maternal psychopathology would have a negative impact on the development of CSBP in children who have been sexually abused. Parental psychopathology, including depression, posttraumatic stress symptomatology, substance abuse and emotional distress, have repeatedly been found to negatively influence parenting quality (Rutter & Quinton, 1985)

and have served as predictive factors of various negative outcomes of sexually abused children, such as attention-deficit/hyperactivity disorder (ADHD), conduct disorder (CD), posttraumatic stress disorder (PTSD), and other behavior problems (Cohen & Mannarino, 1996; Famularo, Fenton, Kinscherff, & Ayoub, 1994; Leschied, Chiodo, Whitehead, & Hurley, 2005; Paredes, Leifer, & Kilbane, 2001). With regard to SBP specifically, research has only investigated the relationship between maternal PTSD and emotional distress and CSBP in samples of sexually abused children. For example, Paredes, Leifer, and Kilbane (1993) found that in a sample of sexually abused children (aged 6 to 13 years) and their mothers ($n = 47$), maternal-reported trauma symptomatology was positively associated with CSBP. In Hall and colleagues' (2002) sample, greater than 70% of the mothers of children demonstrating problematic interpersonal sexual behaviors were reported to have posttraumatic stress symptomatology, and approximately 40% of the mothers of children demonstrating problematic self-focused sexual behaviors were rated to have PTSD symptomatology.

Factors in the immediate interactional context. Studies examining the role of the microsystem have predominately focused on factors related to family circumstances/environment. Family dysfunction not only may increase the likelihood of sexual abuse, particularly intrafamilial, but also may exacerbate the effects of abuse once it has occurred (Alexander, 1992). Studies examining the influence of parenting practices have found that one of the best predictors of child outcome, broadly defined, is the response of the child's non-offending caregiver(s) following the sexual abuse (Cohen & Mannarino, 2000; Everson, Hunter, Runyan, Edleson, & Coutler, 1989; Finkelhor & Kendall-Tackett, 1997). Specifically, studies have investigated the effect of parental social support on the

development of SBP following child sexual abuse. In a sample of sexually abused girls (Leifer, Shapiro & Kassem, 1993), as well as a sample of both sexually abused girls and boys (Everson et al., 1989), low maternal support was associated with the display of significantly greater problematic child sexual behaviors. Hall and colleagues (2002) found that children demonstrating the most severe SBP (those that were interpersonal in nature, planned, and coercive) received significantly less maternal support than those children demonstrating self-focused or developmentally expected sexual behaviors. Further, several studies have found that mothers are least likely to support their children when the offender is a live-in boyfriend or husband (Everson et al., 1989; Elliot & Biere, 1994). In contrast, however, Mannarino and Cohen (1996) did not find any relationship between maternal support and SBP, or any other symptomatic behaviors in their sample of sexually abused girls, aged 7 to 12 years old. One possible explanation for this discrepancy may be that these authors measured the mother's perceptions of her level of support via paper and pencil self-report measures while Leifer and colleagues (1993) and Everson and colleagues (1989) measured maternal support via clinical interviews. The effect of parent social support on child functioning following sexual abuse has been hypothesized to vary as a function of age; specifically, caregiver response to younger children may be more influential than it is for older children, who may have additional opportunities for social support from peers or other adults (Finkelhor & Kendall-Tackett, 1997). The interaction between social support and age deserves further attention with regard to the development of CSBP.

Furthermore, Mannarino and Cohen (1996) found that, in their sample of 7- to 12-year-old sexually abused girls ($n = 77$), intensity of parental emotional reaction to the

abuse was positively related to child internalizing and externalizing symptomatology, including parent-reported CSBP, as measured by the CSBI-1. The authors speculate that this may be due to the possibility that parents who demonstrate strong emotional reactions to the abuse may be able to less effectively parent. On the other hand, SBP may arise if a child perceives that his/her parent is troubled by the abuse disclosure. This may be particularly true if the child blames themselves for the abuse (e.g., Hall, Mathews, & Pearce, 1998), suggesting that the interaction of child and parent characteristics may provide a more complete picture of the development of SBP following CSA than either domain alone.

On the other hand, several characteristics of the family environment have been demonstrated to serve as compensatory factors, protecting against the development of SBP following CSA. Using the same sample as Hall and colleagues (1998), Hall, Mathews and Pearce (2002) found that the sexually abused children who *failed* to demonstrate SBP were significantly more likely than their counterparts exhibiting SBP to come from a more functional family (marked by stability, support, problem-solving, etc.) with more functional caregivers, have a stronger parent-child relationship, and a less sexualized home environment. It is important to note, however, that all variables were coded from files; prospective research utilizing self-report measures and/or interviews would engender greater confidence in these findings.

Other maltreatment experiences have been found in the histories of sexually abused children demonstrating SBP. In a sample of sexually abused children (aged 3 to 7 years), children demonstrating interpersonal problematic sexual behaviors (defined by the authors as “sexual contact/touch with others”) were significantly more likely than

children demonstrating more normative sexual behaviors to have histories of physical and emotional abuse (Hall et al., 1998) and to have been exposed to domestic violence and sexualized interactions in the home (Hall et al., 2002).

One study has examined the impact of family adversity on the development of CSBP subsequent to CSA. Friedrich et al. (1992) found that family socioeconomic status was a significant predictor of SBP for older (age 7 to 12 years), but not younger (age 2 to 6 years) sexually abused girls.

Risk factors in the broader context. Consistent with the principle of multifinality, the impact of sexual abuse on the display of sexual behaviors varies across children and depends on a number of contextual factors across several ecological domains. However, the role of factors in the broader context has yet to be examined in the relationship between CSA and CSBP. Although these contexts may be less proximal, extant research indicates that broader contextual factors, including exposure to community violence, can serve as enduring vulnerability factors that can both increase risk for abuse (Cicchetti & Lynch, 1993) and have detrimental effects on children's socioemotional development and health (Jenkins & Bell, 1997). Furthermore, the impact of broader environmental factors, such as cultural beliefs and societal reactions to sexual abuse, has yet to be examined in the context of child sexual abuse and CSBP.

Factors beyond Child Sexual Abuse Associated with the Development of CSBP

As noted above, not all children with SBP have a history of CSA (Bonner et al., 1999; Gray, Busconi, Houchens, & Pithers, 1997; Silvosky & Niec, 2002). This finding highlights the importance of investigating the contribution of other variables to the emergence of CSBP (Friedrich & Trane, 2002; Laarson & Svedin, 2002). Empirical

studies that have attempted to do so have typically been approached in one of two ways: either examining samples of children referred for treatment for problematic sexual behaviors, or by examining problematic sexual behaviors in more heterogeneous samples of community children. Regardless of approach, this research, consistent with the concept of equifinality, highlights the diversity in processes involved in the development of CSBP. Risk factors within the various ecological domains will be discussed below.

Child Risk Factors

As noted above, child risk factors are ones that alone, or by interacting with environmental circumstances, contribute to the development of CSBP. Child factors investigated with regard to the development of CSBP include gender, age and biological factors. While not examined to date, the broader literature on child psychopathology suggests that temperament and cognitive functioning may be particularly fruitful areas for future investigation.

Gender. In general, boys are more likely to be referred for intervention for their SBP than are girls (Bonner et al., 1999; Carpentier, Silvosky, & Chaffin, 2006; Gray, Pithers, Busconi, & Houchens, 1999; Ray & English, 1995). One notable exception, however, is Silvosky and Niec's (2002) sample of preschool children where 65% of the children referred for treatment were girls. The literature, however, does not show pervasive gender differences in reported problematic sexual behaviors in samples of children referred for treatment or in the community.

Nearly all studies, many of which were described previously, find the more low-frequency, problematic sexual behaviors to occur at similar rates for both boys and girls (Friedrich et al., 1991, 1998; Friedrich, Sandfort, Oostveen, & Cohen-Kettenis, 2000;

Lindblad et al., 1995; Schoentjes et al., 1999). Along these lines, in a large sample of children ($n = 690$) without reported sexual abuse histories, boys and girls were reported to demonstrate similar prevalence rates of sexual behaviors as reported on a revised, 25-item version of the CSBI (Merrick, Litrownik, Everson, & Cox, 2008). Similarly, in a community sample of children aged 6 to 10 years, boys and girls were reported by their parents (on the CBCL) to engage in similar rates of SBP (1 in 6 boys and 1 in 7 girls; Meyer-Bahlburg et al., 2000). Finally, in a very large sample ($n = 2311$) of children, gender was not related to the prevalence and type of reported sexually intrusive behaviors (Friedrich et al., 2001). However, some research suggests that gender affects may vary depending on placement in alternate care. For example, in a sample of children in kinship and foster care, Tarren-Sweeney (2008) found girls were more likely to be reported to exhibit problematic sexual behavior, as measured by a caregiver-report psychiatric rating scale, even after controlling for sexual abuse.

Age. In general, the extant literature indicates that CSBP are correlated inversely with age (Friedrich et al., 2003; Gray et al., 1997; Letourneau, Schoenwald, & Sheidow, 2004). As noted earlier, this trend has also been found when normative sexual behaviors are examined, as well as when problematic sexual behaviors are examined in samples of sexually abused children. Several studies utilizing referred and/or community samples support this relationship. Gray and colleagues (1997) found that in their sample of 72 children referred for treatment, the majority (63%) were between the ages of 6 and 9, with 6-year-olds overrepresented in the sample relative to other ages. Additionally, more sexually intrusive behaviors have been found to be more prevalent among younger versus older children (Friedrich et al., 2003).

Some researchers have suggested that this inverse relationship suggests that, at least to some degree, SBP are due to immaturity (Friedrich et al., 2003). Nonetheless, it is also plausible that these prevalence figures, all determined via parent-report, underestimate the actual incidence of problematic sexual behaviors in older age groups. As noted earlier, some parents may have limited opportunity to observe their child engage in sexual behaviors (Larsson & Svedin, 2002), particularly those that may involve other children. Older children may exercise more restraint and conceal these behaviors from adult view (Bancroft, 2006).

Biological factors. Unfortunately, beyond age and gender, we know very little about individual biologically-based factors contributing to the development of SBP. The few examinations of this kind, though, have examined genetic factors and cognitive functioning. For example, Långström, Grann and Lichtenstein (2002) examined the relative importance of genetic and environmental factors for problematic masturbatory behavior in a sample of 1,106 Swedish monozygotic and dizygotic twins, aged 7 to 9 years. While there was a low base-rate of problematic masturbatory behavior, as assessed by two items on the CBCL, the genetic effect on these behaviors was substantial and accounted for 77% of the variation. Significant, but small contributions to variance in public or excessive masturbatory behavior were caused by shared environmental factors (10%) and nonshared environmental factors (13%). The latter finding indicates that family sexuality (e.g., child exposure to nudity) did not strongly affect twin similarity in the display of problematic masturbatory behaviors. This study has strong implications for the study of individual differences such a temperament which has been shown to be strongly genetically determined and is of great importance in existing theories of child

problem behavior (e.g., Caspi, Henry, McGee, Moffitt, & Silva, 1995; Frick & Morris, 2004).

There are mixed research findings regarding the cognitive functioning of children with SBP. Silvosky and Niec (2002) found that in their sample of preschoolers exhibiting more extreme problematic sexual behavior (mean score on the CSBI fell in the 99th percentile), receptive language capabilities fell in the low average range. On the other hand, the cognitive functioning of a sample of 6- to 11-year-old children with SBP was comparable to that of a demographically-matched comparison group (Bonner et al., 1999). The role of cognitive functioning deserves further empirical attention. A number of longitudinal studies have found low cognitive abilities, particularly those that are verbal, to be predictive of childhood maladjustment and behavior problems (McGee et al., 1991; Moffitt, 1990).

While not yet examined in the context of CSBP, temperament has been shown to play a role in the etiology and maintenance of psychopathology in both children and adults (Rothbart & Bates, 2006; Thomas & Chess, 1977). A difficult temperament—specifically, aspects of temperament related to disinhibition and emotional reactivity—has been associated with behavior problems, and aggression (Frick & Morris, 2004), while an early temperament characterized by oversensitivity to negative stimuli, high negative emotionality, and a disposition to feeling anxious may be more related to internalizing problems, such as anxiety and depression (Chorpita & Barlow, 1998). It appears that temperament may constitute a vulnerability that is actualized, along with other potential developmental risk factors, in the context of environmental situations

(Patterson, DeGarmo, & Knutson, 2000; Sanson & Prior, 1999), which may include maltreatment or other traumatic experiences, or the family or neighborhood environment.

Maternal Risk Factors

Maternal history of victimization. Maternal experience of violence victimization appears to be a key factor in the development of child behavior problems. While not yet examined with regard to CSBP, the broader literature suggests that mothers with experiences of childhood victimization (DiLillo & Damashek, 2003; Thompson, 2007) and/or ongoing domestic and other violence (Appel & Holden, 1998) typically interact differently with their children than do mothers with no history of victimization in several important ways. For example, mothers with histories of victimization are more likely to exhibit inconsistent use of discipline (DiLillo & Damashek, 2003) and harsh parenting (Dubowitz, Black, Kerr, Hussey, Morrel, Everson, et al., 2001).

Maternal psychopathology. There has been limited research investigating the relationship between maternal psychopathology, maternal distress, and CSBP. One study, based on a retrospective record review, found that children demonstrating problematic interpersonal sexual behaviors were significantly more likely than children with problematic self-focused or normative sexual behaviors to have mothers with chronic symptoms of PTSD (Hall, Mathews, & Pearce, 1998). The role of maternal psychopathology deserves further empirical attention. As noted earlier, maternal psychopathology, including depression, posttraumatic stress symptomatology and emotional distress, have repeatedly been found to negatively influence parenting quality (Rutter & Quinton, 1985), which, in turn, has been demonstrated to relate to the development of CSBP (e.g., Pithers, Gray, Busconi, & Houchens, 1998b). The adverse

effects (e.g., poor social competence, behavior problems) of maternal depression on children are particularly strong (see Gotlib & Goodman, 1999).

Risk Factors in the Immediate Interactional Context

As noted earlier, the immediate interactional context refers to the immediate environment in which a child resides. Similar to the research reviewed on the development of SBP in children with histories of sexual abuse, family environment/circumstances have received the most empirical attention in studies approached from a perspective consistent with equifinality. These factors include maltreatment, parenting, family circumstances, and family sexuality.

Maltreatment. Extant research indicates that child maltreatment, including and beyond that of sexual abuse, is a significant factor in the development of CSBP. In fact, research indicates that nearly all children referred for treatment for problematic sexual behaviors are victims of some form of maltreatment (Bonner et al., 1999; Gray et al., 1997; Silvosky & Niec, 2002). As reviewed above, sexual abuse is common among children referred for treatment, with prevalence rates ranging from 38% in a preschool sample (Silvosky & Niec, 2002) to 48% to 93% in school-age samples (Bonner et al., 1999; Gray et al., 1997). Other types of maltreatment, including physical abuse, emotional abuse, neglect and exposure to domestic violence, appear to be common as well. With regard to physical abuse, studies report prevalence rates ranging from 32% for substantiated CPS reports to 48% for parent report (Bonner et al., 1999; Gray et al., 1999; Silvosky & Niec, 2002). Similarly, rates of neglect and emotional abuse in children referred for SBP range from 16% to 18% and 29% to 39%, respectively, for CPS and parent reports (Bonner et al., 1999; Gray et al., 1997).

Exposure to domestic violence has received less empirical attention. However, at least two studies indicate that interpersonal violence is common in the both the families of young children demonstrating problematic sexual behaviors (Silvosky & Niec, 2002) and children exhibiting sexually intrusive behaviors specifically (Friedrich et al., 2002). In fact, in Silvosky and Niec's (2002) sample of preschool children with SBP, rates of both physical abuse and domestic violence exposure were greater than that of sexual abuse. These two types of maltreatment specifically may serve as a model of coercive behavior for the child (Friedrich et al., 2003), which may lead to coercive CSBP.

Consistent with research indicating there is substantial co-occurrence in victimization experiences (Finkelhor, Ormrod, & Turner, 2007; Saunders, 2003; U.S. Department of Health and Human Services, 2005), many children experience multiple forms of maltreatment. For example, 52% of the 6- to 9-year-olds and 63% of the 10- to 12-year-olds in Gray et al.'s (1997) study were victims of several forms of abuse, with the most frequent combination being sexual abuse and physical abuse. This is consistent with the accumulation of risk model (Rutter, 1989), which holds that almost all children are capable of coping with low levels of risk until the accumulation exceeds a developmentally determined threshold, or the risks outweigh the protection provided by compensatory factors (Sameroff, Seifer, Baldwin, & Baldwin, 1993). Along these lines, some research indicates that children entering foster care at later ages are significantly more likely to exhibit SBP than their younger counterparts (Tarren-Sweeney, 2008). For maltreated children, this provides an approximation of their length of exposure to adversity and accumulation of risk.

Nonetheless, because of the high co-occurrence in maltreatment experiences, it is difficult to determine the relative contribution of maltreatment type to the development of CSBP. It is also unclear the extent to which the severity, age of onset, chronicity and recency of various maltreatment experiences influence the development of problematic sexual behaviors. Merrick and colleagues (2008) attempted to address these limitations by examining the timing and impact of physical abuse, neglect, and emotional abuse on SBP in a prospective study of high-risk children (all 8-years-old) *without* a sexual abuse allegation ($n = 690$). Instead of relying on substantiated reports (which likely underestimates the actual incidence of maltreatment), maltreatment allegations were used, which may more accurately capture the actual maltreatment experiences of children (e.g., Drake, 1996; Leiter, Meyers, & Zingraff, 1994). Both early (before age 4 years) and late (between age 4 and 8 years) reports of physical abuse consistently increased the odds of both boys and girls engaging in problematic sexual behaviors, as measured by a shortened form of the CSBI-3. The pattern differed by gender, however, with physical abuse predicting sexual intrusiveness and exhibitionism in boys and boundary problems (e.g., hugging adults they don't know well) in girls. On the other hand, early reports of neglect and emotional abuse were associated with significantly fewer sexualized behavior in boys, whereas girls with early reports of emotional abuse were more likely to evidence inappropriate sexual knowledge than their counterparts. These findings concerning neglect and emotional abuse are consistent with Bonner et al.'s (1999) finding that children with SBP were significantly older than their counterparts displaying normative sexual behavior when both emotional abuse and neglect reportedly occurred. These results provide evidence that both maltreatment, beyond that of sexual abuse, and the

developmental periods in which it occurs, are important factors in the development of problematic child sexual behaviors.

Stressful familial and life events. Limited research has investigated the role of stressful familial events, beyond that of maltreatment, in the development of CSBP. Those that have, however, indicate that children with SBP are more likely than their normative and psychiatric counterparts to have experienced stressful life events (Friedrich et al., 1991, 1992, 2001). This is consistent with the finding that life stress in children is associated with many psychosocial and behavioral problems (Achenbach, 1982). For example, in a sample of Finnish children, an increase in all types of sexual behaviors, as assessed by a project developed measure similar to that of the CSBI-3, was found for both boys and girls who had at least one life stressor present in their lives (Santtila, Sandnabba, Wannas, & Krook, 2005). Similarly, in Friedrich and colleagues' (2001) large sample of normative, psychiatric, and sexually abused children, life stress intensity (defined as the total number of life events experienced by the child, except for sexual abuse, divided by the child's age in years) was directly related to CSBI-3 total scores across all ages and genders.

Furthermore, Bonner and colleagues (1999) found that children demonstrating SBP were more likely than their at-risk counterparts to have experienced parental divorce and a death in the immediate family. Further, a substantial portion (43%) of the preschool children in Silvosky and Niec's (2002) sample were in foster care. However, as noted earlier, the direction of the association between SBP and foster care is unclear. Children may be removed from their families and placed in foster care due to the display of problematic sexual behaviors. On the other hand, removal from the home due to

maltreatment often serves as a source of stress and disruption (Melton, 1990), which, in turn, may serve as a potentiating factor for the development of CSBP. Along these lines, research indicates that among children in kinship or foster care, placement instability is related to an increased likelihood of reported CSBP (Tarren-Sweeney, 2008).

Parenting. Broadly defined, parenting practices have been consistently linked with children's developmental outcomes and well-being (Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000). Coercive parenting (Patterson, 1982, 2002), rejection (Rothbaum & Weisz, 1994), poor monitoring (Loeber & Stouthamer-Loeber, 1986), and violent discipline (Strassberg, Dodge, Pettit, & Bates, 1994) have all been linked to the development of child externalizing behaviors. On the other hand, extant research indicates that regardless of ethnic and socioeconomic status, positive parental involvement and the provision of structure (e.g., limits) are associated with healthy child development (e.g., Joussement, Vitaro, Barker, Cote, Nagin, Zoccolillo et al., 2008; Patterson, 1982). Unfortunately, very little research has examined these factors with regard to the development of CSBP. The research that has, however, indicates that parents of children exhibiting SBP are more likely than other parents to view their children as excessively demanding of their attention and time, view interactions with their child as unrewarding, and be more emotionally distant from their children (Pithers et al., 1998b). Furthermore, in this sample, the parent-child relationship was more likely to be dominated by conflict (Pithers et al., 1998b). These characteristics may result in decreased parental monitoring and support. Furthermore, in Gray and colleagues' (1999) sample of 6- to 12-year-old children referred for treatment for SBP, modeling of socially maladaptive behaviors extended beyond that of family violence. At least one parent had a

history of arrest in 35% of the families and 45% of the families contained at least one additional perpetrator of sexual abuse.

Exposure to sexual activity and media. Child sexual behavior problems are consistently associated with early, age-inappropriate exposure to sexual behavior or knowledge (Bonner et al., 1999; Friedrich et al., 1991, 1992, 2003). In all of Friedrich and colleagues' (1991, 1992, 2001) samples, parents who endorsed family sexuality, which includes items related to nudity, opportunities to witness sexual intercourse and look at pornographic magazines/movies, co-sleeping, and co-bathing, also reported higher levels of sexual behavior in their children. Furthermore, modeling of sexuality (consisting of both family sexuality and sexual abuse) has been found to be significant predictor of sexually intrusive behavior specifically (Friedrich et al., 2003).

Family circumstances. Children from impoverished families are at considerably increased risk for a number of adverse experiences and outcomes, including, for example, maltreatment (Pelton, 1994), aggression (Loeber & Dishion, 1983), and school failure (O'Donnell, Hawkins, Catalano, & Abbott, 1995). Along these lines, nearly all of the families in Gray and colleagues' (1997, 1998) samples were living at or below the poverty line, and Friedrich and colleagues (2003) found family poverty to be one of the strongest predictors of sexually intrusive behaviors, above and beyond that of sexual abuse. Of course, poverty is confounded with a number of other familial risk factors, including stressful life events, and parenting. Nonetheless, the stress caused by fiscal disadvantage is apparent and it will be important for future work to examine the effect of adverse family circumstances on CSBP at differing developmental time points. For example, statistics indicate that the children at greatest risk for maladaptive outcomes are

those who experience economic hardship when they are young and children who experience severe and chronic hardship (Lynch, Kaplan, & Shema, 1997).

Broader Contextual Risk Factors

There has been a paucity of research examining the relationship between broader contextual factors and CSBP in samples of children referred for treatment and more normative or at-risk samples. Promising areas for future work include the influence of daycare, school, and larger neighborhood and community.

Daycare and school. The role of daycare and for older children, school, and the development of CSBP deserves empirical attention. Some research indicates that hours per week in daycare is related to an increase in parent-reported child self-stimulatory behavior, exhibitionism, boundary problems, sexual intrusiveness, and voyeuristic behavior, indicating this setting may provide opportunities for social learning (Friedrich & Trane, 2002). In addition, the school setting, outside the immediate family, has been identified as having one of the largest impacts on child development (Cicchetti & Toth, 1997). Exposure to violence at school, whether as a witness or victim, is related to a number of emotional and behavioral problems, including posttraumatic stress symptomatology, anxiety, depression, and aggression (Breslau, Davis, Andreski, & Peterson, 1991; Hurt, Malamud, Brodsky, & Gianetta, 2001; Schwab-Stone, Ayers, Kaspro, Voyce, Barone, Shriver et al., 1995). On the other hand, school may serve as a buffer of the effects of the many psychosocial stressors present in the lives of children with SBP. For example, Rutter (1979) found that positive experiences in the classroom could buffer the impact of a stressful family environment. Further, school may help to

increase a child's sense of self-efficacy and control over their life (Herrenkohl, Herrenkohl, & Egolf, 1994).

Along these lines, the setting in which sexual behavior is displayed is a particularly important area for research. Studies of normative child sexual behavior indicate that children are less likely to be reported engaging in sexual behaviors at daycare than they are at home (Larsson & Svedin, 2002). It is unclear whether this is due to the informant (daycare provider versus parent), or the nature of the setting, which may impact behavioral or emotional control.

Community. The larger communities in which children and their families live also constitute important factors; communities may provide support to parents in being effective caregivers to their children (Bronfenbrenner, 1979). Violent communities, as well as those with a large number of single-parent households, a low number of high school graduates, and neighborhood child care burden have all been factors implicated in poor child outcomes, including maltreatment (Garbarino & Crouter, 1980). There is also evidence that community-level factors, when paired with microsystem factors, are associated with especially poor outcomes. For example, Cicchetti and Lynch (1998) found that community violence, paired with child maltreatment, was associated with a significantly greater risk for child problems such as depression, deficits in self-esteem, and traumatic stress.

Conclusions from Literature Reviewed

While growing, it is clear that the literature on childhood sexual behavior, both normative and problematic, is in its infancy. Nonetheless, research indicates that the display of certain sexual behaviors in childhood are expected and appropriate (Friedrich

et al., 1991, 1992, 2001; Larsson & Svedin, 2002; Lindblad, Gustafsson, Larsson, & Lundin, 1995; Sandfort & Cohen-Kettenis, 2000), whereas others are more problematic, or “developmentally inappropriate or potentially harmful to themselves or others” (Chaffin et al., 2008, p. 200). It is clear that children with SBP are a complex, heterogeneous group, more so than adolescents with SBP and adult sexual offenders (Chaffin et al., 2002). This heterogeneity is apparent in samples of children who have been sexually abused, referred for treatment for CSBP, as well as in community samples.

Although sexually abused children are observed engaging in more problematic sexual behaviors than their normative or psychiatric counterparts, it is clear that such behaviors may be the result of factors other than sexual abuse (Merrick et al., 2008). The review of the literature confirms the lack of a simple explanation for CSBP and highlights the need for research to examine the relationships among risk factors both within and across ecological domains.

Present Study

The overarching aim of the present study was to utilize a developmental psychopathology perspective in broadening our understanding of mechanisms associated with the development of more problematic sexualized behaviors. While there are well-designed studies of both child maltreatment and children referred for sexualized behavior, relatively few are longitudinal in nature, and even fewer include the necessary ecological data to investigate contextual influences on the development of sexualized behavior in childhood. One exception is the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN; Runyan, D. K., Curtis, P. A., Hunter, W. M., Black, M. W., Kotch, J. B., Bangdiwala, S., et al., 1998). Informed by developmental-ecological theory, this

consortium of studies includes information on child sexual behavior problems and has extensive prospective data on child health and development. The dataset includes risk and protective factors related to child characteristics, parent characteristics, the immediate interactional context, and the broader context. Data for the present study are drawn from the LONGSCAN consortium.

The methodology employed in the present investigation varies from extant research in several important ways. First, child sexual behavior is examined dimensionally. To date, most studies examining more problematic sexual behaviors have used clinical cut-off scores to classify children into two groups: those that exhibit CSBP, vs. those that do not, or have dichotomized CSBI domain scores to create two groups: children with at least one report of sexualized behavior, vs. no reports of sexualized behavior (e.g., Merrick et al., 2008). Examining sexual behavior dimensionally allows for an examination of the degree to which sexualized behaviors are exhibited. Along these lines, latent variable modeling work has suggested that common forms of psychopathology (e.g., externalizing behaviors) are best conceptualized as continuous in nature (Krueger & Markon, 2006; Markon & Krueger, 2006). In other words, discrete cut points do not exist, therefore making dichotomous groupings rather arbitrary.

Second, the present study examined a specific age group: 8-year-old boys and girls. Researchers have tended to study children exhibiting sexualized behaviors in broad age ranges such that two or more distinct developmental stages are included (e.g., Letourneau, Schenwald & Sheidow, 2005) whereby confounding developmentally relevant information.

Third, the present study utilized a large longitudinal database consisting of a diverse group of children in terms of geographic location, race, and socioeconomic status. While the majority of the extant research on child sexual behavior utilizes cross-sectional designs (for an exception, see Merrick et al., 2008), questions of both etiology and course are best examined in prospective, longitudinal research designs.

Fourth, the present study examined all ecological domains in concert. Although still nascent, research examining the complex relationship between ecological domains and the development of sexualized behaviors is beginning to explain some of the heterogeneity in both process (e.g., equifinality) and outcome (e.g., multifinality). In terms of examining ecological domains, the majority of studies in this area have focused on the impact of both abuse and children's immediate family environment. Given the proximal nature of the family and the importance of the caregiving process on children's development, this tendency is not surprising. However, the relative paucity of research examining child characteristics is surprising. Gender, temperament and cognitive functioning have been implicated in various forms of child psychopathology (Rothbart & Bates, 2006) and are likely also critical in understanding the development and persistence of child sexualized behaviors. Furthermore, there is a crucial need for more research on the impact of schools and neighborhoods in the development of sexualized behaviors, as well as in the development of problematic sexual behaviors subsequent to sexual abuse specifically. Although these contexts may be less proximal, extant research indicates that broader contextual factors, particularly exposure to community violence, can serve as enduring vulnerability factors that can both increase risk for abuse (Cicchetti & Lynch, 1993) and have detrimental effects on children's socioemotional development and health

(Jenkins & Bell, 1997). Discernment of broader contextual factors and their influences on the development of sexualized behaviors will provide a substantial contribution to theory and practice.

Fifth, the present investigation utilized both variable-centered and person-centered approaches. Most research on child sexual behavior, as well as other forms of child psychopathology, has used a variable-centered approach in which risk factors are related to outcomes. In so doing, the correlation matrix of variables becomes the center of study, with relations among variables (rather than within individuals) as the focus. Questions that concern the relative contributions that predictor variables make to an outcome are particularly well-suited to variable-centered strategies. However, a variable-oriented approach to child sexual behavior problems may tend to overlook subgroups of children who may exhibit sexual behavior problems as a result of processes that are less typical. In contrast, person-centered approaches view individuals as “organized wholes” (Berman & Magnusson, 1997, p. 291) and search for groups of individuals characterized by patterns of association among variables that are similar within groups and different between groups (Laursen & Hoff, 2006). Thus, person-centered approaches for studying child sexual behavior are particularly advantageous for describing unique pathways to child sexualized behavior among discrete subgroups of children. As noted by Laursen and Hoff (2006), variable- and person-centered approaches do not compete with each other. Rather, both approaches are equally necessary and provide different perspectives on human development. Variable-oriented analytic approaches are a logical starting point from which to understand relationships among variables (Thornberry, Ireland, & Smith,

2001) and serve as the foundation for person-centered analyses. Both approaches were taken in the current study.

The specific aims and corresponding hypotheses of the present study are as follows:

Aim 1: Examine the frequency of and relationships among risk factors in four domains (child, parent, immediate interactional context, broader context).

The relationship between Time 1 risk factors for sexualized behaviors within the four domains was examined. These domains include: child factors (fussy/difficult temperament in infancy, intellectual functioning), maternal factors (depression, history of victimization, stressors), immediate interactional context (physical abuse, neglect, emotional abuse, sexual abuse, domestic violence exposure, socioeconomic status, family sexuality, home environment), and broader context (community violence exposure, school safety, neighborhood risk). Because risk factors often co-occur and interact across levels of the ecology in a transactional manner, it was expected that significant associations will be found between risk factors both within the same domain and across domains. It was expected, however, that associations will be stronger between factors within the same domain.

Aim 2: Examine the relationship among risk factors across the four domains (child, parent, immediate interactional context, broader context) at Time 1 and child sexualized behavior at Time 2.

It was expected that significant correlations will exist between each risk factor in the four domains (child, parent, immediate interactional context, broader context) at Time 1 and child sexualized behavior at Time 2. Specifically, it was expected that for both

boys and girls, factors in domains most proximal to the child will have the strongest associations with child sexualized behavior.

Aim 2a: In a subsample of children with sexual abuse histories, examine the relationship between abuse-specific characteristics (number of reports, maximum severity of abuse, relationship to perpetrator) and child sexualized behavior at Time 2.

It was expected that abuse-specific characteristics will be significantly related to the sexual behavior domains. Specifically, it was expected that those children with a higher number of reports to CPS, more severe abuse, and a close relationship with the perpetrator (intrafamilial) will display higher levels of sexualized behavior at Time 2.

Aim 3: Examine whether the ecological domains (child, parent, immediate interactional context, broader context) increment with each other to support a multiple-risk model in the prediction of child sexualized behavior.

Two competing hypotheses were explored. First, risk domains may be empirically redundant with each other and child sexual abuse will account for all of the variance in risk. In such a case, child/parent/contextual domains would be correlated with child sexualized behaviors in bivariate analyses but would not provide any incremental prediction of child sexualized behavior beyond that afforded by child sexual abuse.

Second, child sexualized behaviors may develop as a result of a multivariate process in which multiple domains of risk factors operate in conjunction with each other to produce child sexualized behaviors. According to this hypothesis, the four risk domains will provide incremental prediction above and beyond that of child sexual abuse. This increment occurs because one of two processes: multiple domains of risk are

necessary for child sexualized behaviors to develop, or child sexualized behaviors can develop through several distinct etiologies (equifinality).

Aim 4: Examine whether there is evidence of equifinality – that is, examine whether different patterns of risk predict similar outcomes.

Children will be grouped based on similarities in their profiles across multiple risk variables (e.g., maltreatment, parent discipline strategies). It was expected that several profiles of risk will be evident in the sample of children. However, it is unclear whether certain profiles will be more or less predictive of CSBP. If only one subgroup of children demonstrate significantly higher mean levels of sexualized behavior at Time 2, then multifinality in developmental pathways can be demonstrated. Alternatively, if different subgroups of children evidence sexualized behaviors at Time 2, then equifinality can be demonstrated, with an outcome of interest attained through different processes. Separate analyses were conducted for boys and girls to examine whether risk factor profiles, and subsequent relationship with sexualized behavior, vary by gender. These analyses are largely exploratory and there are no existing studies from which to base hypotheses. Therefore, only Time 1 factors associated with the Total Score on the CSBI at Time 2 were examined.

METHOD

Participants

Recruitment

The sample for this study was drawn from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) consortium, which was established in 1990 with grants from the National Center on Child Abuse and Neglect. The LONGSCAN consortium, coordinated at the University of North Carolina – Chapel Hill, consists of five satellite sites across the United States: East, South, Midwest, Northwest, and Southwest. LONGSCAN is a proposed 20-year longitudinal study examining child health and development as well as the antecedents and consequences of child maltreatment. While each site is conducting a separate and unique longitudinal research project, through the use of common protocols and procedures, and pooled analyses, LONGSCAN is a collaborative effort. Recruitment strategies and target children/families vary among LONGSCAN sites, although all families shared unfavorable environmental factors contributing to identification of these children as at-risk for child abuse or neglect (for a more complete description of LONGSCAN, see Runyan et al., 1998). Site recruitment strategies differed in the following ways:

East (EA) – This cohort ($n = 327$) were drawn from inner-city pediatric clinics and separated into three groups: (a) children with non-organic failure to thrive; (b) children of drug-abusing or HIV-positive mothers; and (c) children with no overt risk factors other than low socioeconomic status. Thus, participants from this site of LONGSCAN were *not* recruited based on a substantial history of child maltreatment, but do represent a population that is at risk for maltreatment.

South (SO) – This cohort of children ($n = 207$) includes children from urban, suburban and rural communities identified as high risk at birth by a state public health tracking effort. At the time of recruitment for LONGSCAN (age 4), this sample was divided into “reported for maltreatment” and “not reported” and for every child selected in the reported group, two matched controls were selected from the non-reported group. Thus, four strata were formed: high-risk/reported, high-risk/not reported, non-high-risk/reported, non-high-risk/not reported.

Midwest (MW) – This cohort ($n = 206$) consists of three groups of children residing in an urban community: (a) infants whose families were receiving comprehensive services after a report of child maltreatment; (b) infants of similarly-reported families who had only received follow-up by the state child welfare agency; and (c) neighborhood controls matched for gender, race, social class, and family composition.

Northwest (NW) – This cohort ($n = 219$) of children were reported to social services for suspected maltreatment prior to the age of 5 and, based on a state risk assessment instrument, were classified as “moderate risk” for future maltreatment.

Southwest (SW) – Children in this cohort ($n = 280$) all had substantiated maltreatment histories and were placed into foster care in the first 18 months of life. They were then followed until age 4 with a National Institute of Mental Health grant examining factors predicting family reunification and child developmental outcomes. This sample was recruited into the LONGSCAN consortium when the children were approximately 4 years old, at which time approximately one-third had been reunified with their biological parent(s). The Southwest site is therefore akin to the Northwest site in that all children were recruited based on having an early, documented maltreatment history.

Sample Demographics

Participants for current study were drawn from the 1,354 children that comprise the five sites of the LONGSCAN consortium. Participants were excluded if they were missing data on gender and/or were not interviewed at the age 8, the time at which the sexual behavior outcome variables were assessed. The sample for the current study, therefore, included 1,149 children. The subsample used for the current study did not differ on basic demographic characteristics (gender, race, income) from the larger sample of children in LONGSCAN, and was 51.8% female, 54.4% Black, 26.9% White, 7.3% Hispanic, 10.1% racially mixed and 1.3% identified as another race. Over sixty-two percent (62.3%) of the families received governmental support upon recruitment into the LONGSCAN consortium studies (Hunter, Cox, Teagle, Johnson, Mathew, Kinght, & Leeb, 2003a). Overall, this multi-site sample represents a diverse ethnic, cultural, and sociodemographic population of children who were identified as being at-risk for maltreatment, or having experienced maltreatment before three and a half years of age.

Procedure

When participants were approximately four years of age, baseline developmental assessments were conducted and the first standardized interviews were administered to their caregivers. After this initial meeting, participants were tracked and interviewed at regularly scheduled intervals, with annual contact interviews conducted over the phone with primary caregivers at odd years of age (i.e., age 5), and face-to-face interviews at even years of age (i.e., age 4, 6, 8).

Face-to-face interviews were conducted separately with the children and their primary caregivers. All interviews were conducted by project trained interviewers after

consent was obtained from the primary caregiver, and assent was obtained from minor children. Each interviewer had to meet an interrater reliability standard (Kappa = .90) before they could proceed with administering the interview protocol with the caregiver and child. Participants were informed that the purpose of the study was to examine the different ways in which children grow and develop and the challenges they may experience along the way. The interviews were approximately 2 hours in duration. After completion of the interview, caregivers were compensated monetarily for their time (\$20 to \$40 depending on the site) (see Hunter et al., 2003a).

Data collected via interviews at the sites are uploaded at the Collaborative Studies Coordinating Center (CSCC) at the University of North Carolina – Chapel Hill, where standard and derived variables are computed and established error-checking protocols are implemented. The Institutional Review Boards (IRB) at each LONGSCAN site and the Coordinating Center have approved all procedures in the present study. In addition, the present investigations have the approval of the IRB at the University of Nebraska-Lincoln. In conjunction with the National Data Archive on Child Abuse and Neglect (NDACAN), the LONGSCAN consortium makes available a restricted dataset to members of the research community who meet eligibility criteria and agree to requirements of the data license. The data for the present study were obtained in this manner.

Measures and Variables of Interest

Demographic Information

Standard demographic information on the child participants was collected from caregivers; of particular interest in the current study are the demographic variables child

gender, child race, and family income. Family income was assessed categorically with a response set of 11 levels beginning at less than \$5,000 per year and increasing by \$5,000 increments to the highest level (>\$50,000 per year) (see Hunter et al., 2003a). Race was dichotomized into minority and nonminority (white). Age 6 demographic data was used in the present study.

Child Characteristics

Intellectual Functioning

Wechsler Preschool and Primary Scale of Intelligence – Revised (WPPSI-R; Wechsler, 1989). At age 6, children’s cognitive abilities were assessed via the Vocabulary and Block Design subtests of the WPPSI-R. The Vocabulary subtest assesses language development, learning ability, and fund of information, while Block Design assesses visual-motor abilities and perceptual organization. The correlation between this 2-subtest short form and the Full-Scale IQ has been shown to be high ($r = .83$; Sattler, 1992). Raw subtest scores and the Estimated Full-Scale IQ were used in the current study.

Temperament

Infant Characteristics Questionnaire – 6 Month Form (ICQ-6; Bates, Freeland, & Lounsbury, 1979). The ICQ-6 is a 24-item parent-report measure is designed to assess parental perception of infant temperament. The parent or primary caregiver is instructed to rank each item on a 7-point scale, indicating the level of perceived difficulty in dealing with the described behavior. Factor analytic procedures have revealed four subscales: Fussy/Difficult, Unadaptable, Dull, and Unpredictable. In the LONGSCAN consortium, the ICQ-6 was administered to caregivers whose child was 24 months of age or younger

during their earliest LONGSCAN interview. For children between the ages of 0 and 8 months, the primary caregiver was asked to respond based on the child's current behavior. For children between the ages of 9 and 24 months, the caregiver was asked to give a retrospective report of the child based on behavior at around 6 months of age (see Hunter et al., 2003a).

Research indicates the ICQ-6 has good internal consistency and test-retest reliability (Bates, Freeland, & Lounsbury, 1979). Further, convergence has been noted between ICQ factors and comparable variables in other parent report temperament instruments (Bates et al., 1979). In the current study, the four subscales and the total score were utilized.

Maternal Characteristics

Measures examining factors in the maternal domain can be categorized into two broad domains: Maternal Distress and Maternal History of Victimization.

Maternal Distress

Maternal distress was measured using the following two measures.

Depression: Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). The CES-D is a 20-item self-report measure of depressive symptomatology. The items assess depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, loss of energy, and sleep and appetite disturbances (Radloff & Teri, 1986). Respondents rate the severity of each of the symptoms (experienced during the last week) on a 4-point scale, from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). Scores are summed to produce a total score and higher scores on the CES-D indicate greater severity of symptomatology. The CES-D has

been widely used and extensively validated. Acceptable reliability and concurrent validity has been found across a wide variety of demographic characteristics, including age, education, geographic area, and racial, ethnic, and language groups (Radloff, 1977; Radloff & Locke, 1986; Radloff & Teri, 1986). The CES-D was administered to mothers at the Age 6 interview. The total score was used in the current study.

Maternal Stressors: Everyday Stressors Index (ESI; Hall, 1983). The ESI was designed to assess stressors faced on a daily basis by mothers and primary caregivers of young children. This measure includes 20 items covering five problem domains: role overload, financial concerns, parenting worries, employment problems, and interpersonal conflict. The measure is interview-administered and respondents are asked to rate how much each problem bothers them, on a 4-point scale ranging from 0 (*not bothered at all*) to 4 (*bothered a great deal*). A composite score of everyday stressors is derived by summing responses to all items and a higher composite score indicates a higher level of daily stress. A composite has been shown to operate better to capture daily stressors than single items asking about life events or levels of stress (Crnic & Greenberg, 1990; Hall & Farel, 1988).

Good internal consistency has been reported (Hall, Williams, & Greenberg, 1985) and construct validity of the ESI was supported by discrimination of everyday stressors from measures of maternal depression and psychosomatic symptoms using factor analytic procedures (Hall, 1983). In LONGSCAN, the ESI was administered at the Age 6 face-to-face interview. In the current study, the ESI total score was used.

Maternal History of Victimization

Caregiver's History of Loss and Harm (Hunter & Everson, 1991). The Caregiver's History of Loss and Victimization is a project-developed measure to assess caregiver history of loss and victimization. This measure was administered via an interview when the children were 4 to 5 years old. Items are grouped into the following categories: Loss and Separation (8 items), Child and Adolescent Physical Maltreatment (2 items), Childhood Sexual Abuse (3 items), Adolescent Sexual Abuse (3 items), Adult Physical Assault (2 items) and Adult Sexual Assault (2 items).

The respondent is asked if an abusive event occurred (e.g., "Were you ever physically hurt by a parent or someone else?"). When victimization of any type is endorsed, follow-up questions are asked regarding the relationship of victim to perpetrator. Limited psychometric properties are available about this instrument. Two investigations have utilized the measure in the LONGSCAN sample and provide evidence for the measure's predictive validity. A study utilizing the full measure in the Midwest LONGSCAN sample found that maternal history of childhood victimization was related to child behavior outcomes at age 4 (Thompson, 2007). Furthermore, maternal history of victimization was found to be related to both child internalizing and externalizing problems at age 6 in the Eastern LONGSCAN sample (Morrel, Dubowitz, Kerr, & Black, 2003).

The items concerning victimization were utilized in the present study. Five dichotomous scales (present/not present) were created from the 12 victimization questions. If a caregiver endorsed *any* of the two or three items assessing a certain type of victimization (Child and Adolescent Physical Maltreatment, Adult Physical Assault,

Adult Sexual Assault, Childhood Sexual Abuse, Adolescent Sexual Abuse), then the response was coded “present.”

Immediate Interactional Context

Measures examining factors in the immediate interactional context can be categorized into three broad domains: Child Maltreatment, Home Environment, and Parent Discipline Strategies.

Child Maltreatment

Maltreatment characteristics were measured using the following two measures.

Modified Maltreatment Classification System (MMCS; English & the LONGSCAN Investigators, 1997; as modified from Barnett, Manly, & Cicchetti, 1993). A LONGSCAN modified version of Barnett, Manly, and Cicchetti’s (1993) Maltreatment Classification System (MCS) was utilized to code official CPS records of child maltreatment. Reports made to CPS in the form of narrative accounts for suspected maltreatment from birth to 8 years of age were reviewed, abstracted, and coded from county level files at each of the LONGSCAN sites. Each report was coded by type and severity of maltreatment: sexual abuse, physical abuse, neglect (failure to provide and/or lack of supervision), and emotional abuse. Because there are few differences in the behavior and development of children with substantiated and unsubstantiated reports (Drake, 1996; Hussey et al., 2005), we considered any report as representing maltreatment. The MMCS has been used extensively in coding maltreatment data across studies and is accepted as a reliable classification of maltreatment experiences based on CPS records. LONGSCAN coders across sites were trained to 90% agreement with a gold standard coder, and a subsequent reliability assessment utilizing a sample of reports

from all the sites indicated good overall agreement on the coding of type (all Cohen's kappa values $> .70$) (Hunter et al., 2003b).

Child physical abuse, emotional abuse and neglect were assessed solely by coding guided by the MMCS. In the large majority of analyses (exceptions discussed below), child sexual abuse was assessed by both MMCS reports, as well as parent report. At the end of the LONGSCAN-modified Child Sexual Behavior Inventory (CSBI), which will be discussed in detail below, three items were included to assess caregiver-reported suspected/reported sexual abuse. One item asks about suspected sexual abuse (e.g., "Has he/she ever been evaluated by a doctor or a mental health professional for possible sexual abuse?") and two items ask about reported sexual abuse (e.g., "To the best of your knowledge has _____ ever been sexually abused?") (Hunter et al., 2003b). If a child had a report made to CPS for sexual abuse and/or if a parent endorsed any of these three items, a child was coded to have a history of sexual abuse.

For analyses examining characteristics of the child's sexual abuse experience abuse-specific characteristics, only children with CPS reports of sexual abuse were examined, as the parent-report of child sexual abuse does not contain abuse-specific variables. Abuse-specific variables examined include:

Number of Reports: This is a count variable measuring the number of separate sexual abuse reports made to CPS between the ages of 0 and 8.

Severity of the abuse: This is coded on a 1 to 5 scale. Based on the procedures outlined in the MMCS, the following indicators of severity are utilized:

1 – The caregiver exposes the child to explicit sexual stimuli or activities, although the child is not directly involved.

2 – The caregiver makes direct requests for sexual contact with the child. The caregiver exposes his/her genitals for the purposes of adult sexual gratification or in an attempt to sexually stimulate the child.

3 – The caregiver engages the child in mutual sexual touching, or has the child touch the caregiver for sexual gratification. The caregiver touches the child for sexual gratification.

4 – The caregiver physically attempts to penetrate the child or actually penetrates the child sexually. This includes coitus, oral sex, anal sex, or any other form of sodomy.

5 – The caregiver has forced intercourse or other forms of sexual penetration. Force includes the use of manual or mechanical restraint for the purpose of engaging the child in sexual relations. Force also includes weapons, physical brutality, and physically overpowering the child, specifically for engaging in sexual relations. The caregiver prostitutes the child. This includes using the child for pornography, allowing, encouraging or forcing the child to have sex with other adults.

Relationship to perpetrator: This variable includes 13 categories of relationships, including biological, step or foster parent, parent's partner, sibling, cousin, daycare provider, etc. In the present study, relationship to the perpetrator will be examined by intrafamilial versus extrafamilial offenders.

Home Environment

Interviewer Rating of the Home Environment: Interviewer Ratings of Caregiver Respondent and Home Environment (LONGSCAN, 1991, see description in Hunter et al., 2003b). This project-developed measure was designed to assess the interviewer's

impression of the interview, the respondent, the neighborhood environment in which the interview took place, and the respondent's home. The latter domain (respondent's home environment) was utilized in the present study. Three items are relevant to this domain. The interviewer was instructed to rank the items on a 5-point scale ranging from 1 (the most positive impression) to 5 (the most negative impression). For example, responses for "condition of the residence" ranged from 1 (*well-maintained*) to 5 (*dilapidated*). LONGSCAN research utilizing this measure supports its validity. Interviewer's rating of the residence has been found to be positively related to Neighborhood Pride and inversely related to neighborhood quality (Hunter et al., 2003b)..

Exposure to Sexual Activity & Sexually Explicit Media. A LONGSCAN-modified version of the CSBI-II asks the child's primary caregiver two additional questions related to exposure to sexual activity (e.g., "Has s/he ever seen people having sex in real life?") and two questions related to sexually explicit media (e.g., "Has s/he seen adult magazines like Playboy, Penthouse or Hustler?") (Hunter et al., 2003b). These items have yet to receive empirical attention in the LONGSCAN dataset. In the current study, the four items were summed to create a scale, Exposure to Sex.

Child Social Support: Inventory of Supportive Figures (Hunter & Everson, 1990). Adapted from the Purdue Social Support Scale (Burge & Figley, 1987), the Inventory of Supportive Figures is a project-developed measure designed to identify children's key supportive figures and assess the perceived amount and type of support provided by these figures. It is administered in an interview-format. Children are asked about the most helpful three adults in their lives. Interviewers also query about mother and father-figures if they are not mentioned among the first three adults. For each supportive figure, the

interviewer asks five additional questions: relationship to the child, and one question each regarding the amount of Emotional Support, Practical Support, Companionship, and Instrumental Support that person provides. For each question, the child rates the amount of support received on a 4-point scale ranging from 0 (*not at all*) to 3 (*a lot*). An index of total support is obtained by summing values for all supportive figures reported.

Administered at the age 6 interview, this total score was utilized in the present study.

Because the measure is project-developed, there has not been a great deal of research on its psychometric properties. Some research, though, does indicate that the internal consistency reliability of the four support items is somewhat low (Cronbach's alpha coefficient. = .58). This is not surprising given that the number of items is small and that each item taps a different type of support which are largely exclusive of one another. As a preliminary assessment of the validity of the Inventory of Supportive Figures, LONGSCAN investigators compared mean scores on this instrument to the mean scores on a measure of father involvement. The measures were significant correlated, particularly the measure of Instrumental Support with the mother's overall report of father support (Hunter et al., 2003b).

Domestic Violence Exposure: Things I Have Seen and Heard (Richters & Martinez, 1992). Things I Have Seen and Heard is a 20-item measure that examines young children's exposure to violence or violence-related events in three settings: home, school, and neighborhood. A pictorial format is used to facilitate child comprehension of response options. On the response form five stacks of balls are depicted below each description of violence, each with a different number of balls, ranging from no balls (an empty circle) to four balls (representing many times). Prior to responding, children were

instructed to focus on events in “real life” and not things that may have been seen on television or movies. Children were asked to indicate their response to the item by pointing to one of the five pictured options. After obtaining responses to all items, the interviewer was instructed to probe any responses that seem unusual (including the witnessing of extreme violence), by asking the child to talk more about what was seen. The purpose of this probe is to ascertain the validity of the child’s report by attention to the details the child provides about the event.

Over the past decade, either in the original or a modified form, this measure has been the most widely used approach to assessing child exposure to violence (Trickett, Duran, & Horn, 2003). Research has established its test-retest reliability and validity (Farrell & Bruce, 1997; Gorman-Smith & Tolan, 1998; Richters & Martinez, 1990, 1993; Schwab-Stone, Chen, Greenberger, Silver, Lichtman, & Voyce, 1999) and has demonstrated adequate internal consistency in the LONGSCAN sample (Hunter et al., 2003b). Examination of the factor structure in the LONGSCAN sample at Age 6 and 8 suggested two subscales: community violence and violence occurring in the home (Thompson et al., 2007), suggesting that children as young as 6-years-old were able to distinguish between incidents in the home and in the community within a single measure of violence exposure. In the present study, domestic violence exposure was assessed via the Home Violence subscale, comprised of two items.

Discipline Strategies

Conflict Tactics Scale-Parent-Child (CTS-PC; Straus, Hamby, Finkelhor, Moore, & Runyan, 1998). The CTS-PC was administered to caregivers at the Age 6 face-to-face interview to assess the extent to which reasoning, nonviolent discipline, verbal aggression

and physical aggression are used in response to their child's behavior. The CTS-PC measures the extent to which a caregiver has carried out specific acts of physical and psychological aggression, regardless of whether the child was injured. The core scales of the CTS-PC include: Nonviolent Discipline, Psychological Aggression, and Physical Assault. The Physical Assault Scale is further categorized into Minor Assault, Severe Assault, and Very Severe Assault. The LONGSCAN consortium omitted the Severe and Very Severe Assault items because of concerns that participants would need to be reported to a child protective services agency if they endorsed any of these items (Hunter, Cox, Teagle, Johnson, Mathew, Knight, Leeb, & Smith, 2003b). The core scales of the CTS-PC have adequate internal consistency (Straus et al., 1998) and Straus and colleagues (1998) report that the interrelations of the scales and their correlations with selected demographic variables support the construct validity of the scales. In the current study, the Nonviolent Discipline, Psychological Aggression and Physical Assault (Minor Assault) subscales were utilized.

Broader Social Context

School Safety

School Safety Questionnaire (Hunter et al., 2003b). The School Safety Questionnaire is a project-developed measure designed to assess teachers' perception of the amount of violence and antisocial behavior present in the participant child's school environment. The instrument consists of 10-items, 8 of which are related to the safety of the school environment (e.g., "There are students in this school that carry weapons, such as knives and guns"), and 2 of which ask about the number of times students and teachers were victimized while on school property over the last academic year. All teacher

respondent forms were sent by mail to the participant child's teacher with specific instructions. In a LONGSCAN investigation, the School Safety Questionnaire significantly correlated with caregiver report of the quality of the home neighborhood, providing initial evidence for the measure's validity (Hunter et al., 2003b). The Age 6 total score, consisting of a sum of the 8 items related to the safety of the school environment, was used in the current investigation.

Neighborhood Characteristics

Neighborhood Risk Assessment (Hunter et al., 2003b). The Neighborhood Risk Assessment is a project-developed instrument designed to assess potential neighborhood risk factors for family stress. The instrument includes 32-items that comprise four scales: Tangible Support, Child-Friendliness, Safety, and Attachment. The caregiver is asked to rate each statement (e.g., "People trust each other in this neighborhood") on a 5-point Likert-type scale from 1 (*never true*) to 5 (*always true*). Two questions are open-ended and ask questions about the caregiver's feelings toward the neighborhood. Utilizing LONGSCAN data, the Child-Friendliness and Tangible Support scales were found to be significant correlated with the Duke-UNC Functional Social Support Scale (Broadhead, Gehlbach, DeGruy, & Kaplan, 1988), which assesses caregiver's report of social support. Furthermore, caregiver report of Neighborhood Safety was correlated with child report of violence exposure on the Things I Have Seen and Heard measure (Hunter et al., 2003b). These results provide preliminary evidence for the measure's validity. The total score of Neighborhood Risk Assessment at the Age 6 interview was utilized in the current study.

Community Violence Exposure

Things I Have Seen and Heard (Richters & Martinez, 1993). Described above, Things I Have Seen and Heard is a 20-item measure that examines young children's exposure to violence or violence-related events in three settings: home, school, and neighborhood. Exposure to community violence will be assessed via the 10-item Community Violence subscale (Thompson et al., 2007). Data from the Age 6 interview was utilized.

Outcome of Interest

Child Sexual Behaviors

Child Sexual Behavior Inventory-II (CSBI-II; Friedrich, 1997). A LONGSCAN-modified version of the CSBI-II was used to assess the frequency of child sexual behaviors in the past six months. After consultation with the instrument author, William Friedrich, the 35-item CSBI-II was shortened in the interest of administration time by keeping the 25 items that best discriminate between sexually abused and non-sexually abused children. Some questions were rewritten to make them more clear for the low SES sample (e.g., "Talks in a flirtatious way" was changed to "Talks in a flirty way"), and items were rearranged to place the most sexually explicit items toward the end of the measure (Hunter et al., 2003b). The frequency of behaviors observed by caregivers are indicated on a 4-point scale ranging from 0 (*never*) to 3 (*at least once a week*). Consistent with previous work utilizing this measure in the LONGSCAN sample (Merrick et al., 2008), five domains of sexual behavior will be examined in the present study: Sexual Intrusiveness (seven items; violation of another person's sexual privacy), Exhibitionism (two items; displaying private parts to others), Boundary Problems (four items; difficulties maintaining interpersonal distance or space), Sexual Interest (four items;

curiosity in sex) , Sexual Knowledge (three items; age-inappropriate sexual awareness), and the Total Score (20 items). This measure was administered at the age 8 face-to-face interview.

Internal consistency reliability coefficients for the 35-item CSBI were .82 for a normative sample and .93 for a clinical sample. The 4-week test-retest correlation for 70 children from the normative sample was .85 (Friedrich et al., 1992). Furthermore, research indicates that parent report on the CSBI is correlated with teacher report on a different, brief measure of sexual behavior (Friedrich et al., 1992).

RESULTS

Specific Aim 1: Relations among Independent Variables

The first aim was to examine the frequency of and relationships among risk factors in the four domains (child, maternal, immediate interactional context, and broader context) at Time 1. Descriptive analyses were run to examine the frequency and/or level of each of the risk factors across the four domains. Domains include child factors (temperament, intellectual functioning), maternal factors (depression, history of victimization), immediate interactional context (child maltreatment, home environment, parent discipline strategies), and broader context (community violence exposure, school safety, neighborhood risk). Bivariate correlations were first conducted among risk factors within each ecological domain, and then between risk factors across ecological domains.

Correlations within Ecological Domains

Correlations among individual level variables are presented in Table 1. Descriptive statistics (*M*/percentage and standard deviation/*N*) are presented in this table below the correlation matrix. Scores within each of the temperament subscales and total score were all significantly positively related. Similarly, scores within each of the intellectual functioning subscales and estimated full scale were significantly positively related. However, only one significant correlation was found between these two measures: Unadaptable temperament was significantly negatively associated with the subtest Block Design.

Correlations among maternal level variables are presented in Table 2. Descriptive statistics (*M*/percentage and standard deviation/*N*) are presented in this table below the correlation matrix. All forms of maternal victimization were significantly positively

related, with r ranging from .35 to .55. Further, maternal depression was also significantly positively related to all forms of maternal victimization; though the association was not as strong (r ranging from .11 to .17).

Table 3 presents correlations among variables in the immediate interactional context. Descriptive statistics (M /percentage and standard deviation/ N) are presented in this table below the correlation matrix. Of note, there were significant positive correlations among all forms of child maltreatment and all types of parent discipline strategies. Correlations between home environment scales were less consistent. Similarly, correlations among forms of child maltreatment, parent discipline strategies, and the home environment were also inconsistent. For example, parent use of psychologically aggressive parenting was significantly related to child physical abuse, emotional abuse, neglect, interviewer rating of the home environment, child exposure to sex and maternal stressors, but not sexual abuse, domestic violence exposure, or child rating of a supportive network of caregivers.

Correlations among community level variables are shown in Table 4. Descriptive statistics (M /percentage and standard deviation/ N) are presented in this table below the correlation matrix. All forms of community risk were significantly related, with the strongest relationship between school safety and neighborhood risk.

Correlations between Ecological Domains

Correlations between individual and maternal level variables are presented in Table 5. Maternal depression was significantly negatively related to the child's obtained scores on Block Design and the Estimated Full Scale IQ, but not the Vocabulary subtest or any temperament subscale or the total score. Furthermore, with the exception of adult

physical assault, all forms of maternal victimization were positively related to intellectual functioning; however, these correlations were weak (r ranging from .06 to .10).

Correlations between maternal victimization and temperament were less consistent; only maternal history of adolescent sexual abuse and adult sexual assault were significantly related to aspects of child temperament.

Correlations between individual level and immediate interactional context variables are presented in Table 6. The strongest (negative) relationship was found between child intellectual functioning (Block Design, Vocabulary, and Estimated Full Scale) and neglect. Relationships between intellectual functioning and other forms of child maltreatment and aspects of the home environment and parental discipline strategies were less consistent. Child Dull and Unpredictable temperament was most strongly related to the interviewer rating of the home environment and all temperament subscales were unrelated to child maltreatment and parent discipline strategies.

Table 7 presents correlations between individual level variables and the broader context. Intellectual functioning (Block Design, Vocabulary, Estimated Full Scale) was significantly negatively related to all variables in the broader context (community violence, school safety, neighborhood risk). No temperament subscales or the total score, however, were significantly related to any variables in the broader context.

Correlations between maternal level variables and the immediate interactional context are presented in Table 8. All forms of maternal victimization were significantly negatively related to child physical abuse, emotional abuse, neglect, and parental use of the discipline strategy reasoning, and significantly positively related to three aspects of the home environment (interviewer rating of the home environment, child exposure to

sex, and maternal stressors). Findings were less consistent with maternal depression. However, of note is the large correlation between maternal depression and maternal stressors ($r = .58$).

Correlations between maternal level variables and the broader context are presented in Table 9. Maternal depression was significantly positively related to community violence exposure, significantly negatively related to neighborhood risk (reverse scored), and unrelated to school safety. Four types of maternal victimization (child physical abuse, child sexual abuse, adolescent sexual abuse, and adult physical assault) were significantly negatively related to school safety. No significant relationships were found between maternal victimization and community violence or neighborhood risk.

Correlations between the immediate interactional and broader contexts are found in Table 10. A consistent pattern of results did not emerge. Of note, however, the strongest relationships were found between domestic violence exposure and community violence ($r = .38$) and maternal stressors and neighborhood risk (reverse scored; $r = -.34$).

Specific Aim 2: Relations between Independent Variables and Child Sexual Behavior

The second aim was to examine the relationship between risk factors in the four domains (child, maternal, immediate interactional context, and broader context) at Time 1 and child sexual behavior at Time 2. Several preliminary analyses were first conducted. First, to allow for comparisons between sexual behavior domains, each of the CSBI scales and the Total Score were transformed to a common metric. This was done by dividing each child's score on the specific scale by the number of items on that scale

(e.g., the Sexual Intrusiveness scale has 7 items; therefore, each child's score on this scale was divided by 7). Second, descriptive analyses were conducted to examine the mean level of each of the CSBI scales and the Total Score. Third, t-tests were used to test gender group mean differences on the CSBI scales and total score. Fourth, bivariate correlations between demographic factors and child sexual behavior domains were examined. Fifth, to determine whether correlations obtained in the girls' and boys' samples were significantly different, Fisher's z-test was utilized. This test was only used in cases where relations were significant ($p < .05$) for boys and not for girls ($p > .05$) (and vice versa).

Bivariate Pearson correlations between risk factors and the CSBI scales and the Total Score were then examined. For a subsample, bivariate correlations were also conducted between sexual-abuse specific characteristics (number of reports to CPS, severity of abuse, relationship to perpetrator) and the sexual behavior domains and Total Score. Analyses were conducted separately for boys and girls to illuminate possible moderating effects of gender regarding the development of sexualized behaviors (for examples of this approach with regard to the development of child externalizing behaviors, see Hill, Degnan, Calkins, & Keane, 2006; Keenan & Shaw, 1997). Fisher's z-test was used to examine whether correlations obtained in the girls' and boys' samples were significantly different. Again, this test was only used in cases where relations were significant ($p < .05$) for boys and not for girls ($p > .05$) (and vice versa).

Preliminary Analyses

Mean Levels and Gender Differences in Child Sexual Behavior

As seen in Table 11, Sexual Interest and Sexual Knowledge were the most commonly reported sexual behavior domain for both boys and girls, followed by Boundary Problems, Exhibitionism, and Sexual Intrusiveness. Boys scored significantly higher than girls on the scales measuring Exhibitionism and Sexual Interest. However, the effect sizes of these differences were small (Cohen's $d = .16$ and $.21$ for Exhibitionism and Sexual Interest, respectively).

Relations between Key Demographic Variables and Child Sexual Behavior

Table 12 presents correlations between the child sexual behavior domains and key demographic factors: recruitment site, race, and family income. Correlations for boys and girls were conducted separately to determine if there were different patterns of relations as a function of gender. Consistent with prior research with the LONGSCAN dataset (e.g., Black et al., 2009; Merrick et al., 2008), site was dichotomized into two categories on the basis of recruitment criteria: at-risk children (0 = SO & EA samples) and children with a CPS documented history of maltreatment (1 = SW, NW and MW samples). As seen in Table 12, no site differences were found for the sexual behavior domains.

Girls' race evidenced a small, but significant positive association with Sexual Interest, Sexual Knowledge, and the Total Score. Fisher's z -tests indicated that the correlations between race and the three sexual behavior domains for the two genders were statistically different (Fisher's z ranged from 2.03 to 2.72, all p 's < .05). A one-way ANOVA was used to examine the relationship between girls' race and these three sexual behavior domains. As expected, the display of Sexual Interest, $F(3, 505) = 15.02, p < .001$, Sexual Knowledge, $F(3, 505) = 6.26, p < .001$, and the Total Score, $F(3, 505) = 10.31, p < .001$, differed significantly by race. Post-hoc LSD pairwise comparisons

indicated that girls identified as multiracial (versus White, Black, or Hispanic) were reported to display higher levels of these behaviors. Furthermore, Hispanic girls reported to display higher levels of total sexual behaviors than Black girls, and White girls were reported to display higher levels than both these groups.

Finally, for girls, family income was significantly positively associated with Sexual Interest and the Total Score; these correlations were statistically different from those obtained in the boys' analyses (Fisher's z ranged from 2.58 to 2.73, p 's < .01). Youth race and income were included in all subsequent multivariate analyses predicting sexualized behavior.

Relations Between Ecological Domains and Child Sexual Behavior

Boys

Correlations of the factors in each of the four ecological domains with the boys' sexual behavior subscales and total score are shown in Table 13. Of note, child sexual abuse, exposure to sex, maternal depression, and maternal stressors were all significantly positively associated with every CSBI subscale as well as the CSBI total score. Furthermore, aspects of maternal victimization were related to Sexual Interest, Sexual Knowledge, and the Total Score. In fact, Fisher's z -test indicated that the correlations obtained in the boys' sample were significantly higher than correlations obtained in the girls' sample for the following variables: Maternal Depression and Sexual Intrusiveness ($z = 2.54, p < .05$), Sexual Interest ($z = 2.06, p < .05$), and the Total Score ($z = 2.56, p < .05$), Maternal Stressors and Sexual Intrusiveness ($z = 2.00, p < .05$), Exhibitionism ($z = 4.03, p < .01$), Sexual Interest ($z = 2.32, p < .05$), Sexual Knowledge ($z = 2.02, p < .05$), and the Total Score ($z = 3.00, p < .01$), and Adult Sexual Assault and Sexual Knowledge

($z = 2.34, p < .05$). Use of the discipline strategy of psychological aggression was also significantly positively related to every aspect of child sexual behavior except Sexual Intrusiveness. Fisher's z-test indicated that the correlations obtained in the boys' sample between Psychological Aggression and Exhibitionism ($z = 2.45, p < .05$), Sexual Interest ($z = 2.17, p < .05$), and the Total Score ($z = 2.18, p < .05$) were significantly higher than correlations obtained in the girls' sample (z 's ranged from 2.17 to 2.45, p 's $< .05$). Further, interviewer rating of the home environment evidenced significant positive correlations with all sexual behavior domains with the exception of Boundary Problems and Sexual Interest, and the strength of the correlation with Exhibitionism and Sexual Knowledge was significantly higher in the boys' (versus girls') samples ($z = 1.93$ and 2.53 , respectively, p 's $< .05$). Finally, although domestic violence exposure and child social support were significantly correlated with aspects of boys' (but not girls') sexualized behavior, the differences between the correlations were not statistically significant (z 's ranged from .73 to 1.12, p 's $> .05$). Factors in neither the individual level nor the broader context were associated with the child sexual behavior domains.

Girls

Correlations of the factors in each of the four ecological domains with the girls' sexual behavior subscales and total score are shown in Table 14. In the individual domain, intellectual functioning was associated with Boundary Problems and Sexual Interest. However, only the difference of the correlations between genders for the Estimated Full-Scale IQ and Sexual Interest ($z = 2.04, p < .05$) was statistically significant. In the maternal domain, child sexual abuse and child physical abuse were associated with Boundary Problems, Sexual Interest, Sexual Knowledge and the Total

Score, and Boundary Problems, Sexual Knowledge, and the Total Score, respectively. In fact, Fisher's z -test indicated that the correlations obtained in the girls sample were significantly higher than correlations obtained in the boys sample for Child/Adolescent Physical Abuse and Boundary Problems ($z = 2.00, p < .05$), and Child Sexual Abuse and Boundary Problems ($z = 2.15, p < .05$). Similar to results with the boys, child sexual abuse and exposure to sex were both significantly positively associated with every CSBI subscale as well as the CSBI Total Score. Of note, although reports of physical abuse were significantly related to several aspects of girls' (but not boys') sexualized behavior, the differences between the correlations was not statistically significant (z 's ranged from 1.11 to 1.43, p 's $> .05$). No factors in the broader context were associated with the child sexual behavior domains.

Specific Aim 2a: Relations between Abuse-Specific Characteristics and Child Sexual Behavior

The second part of aim two was to examine the relationship between abuse-specific characteristics (number of reports, maximum severity of abuse, and relationship to perpetrator) and child sexualized behaviors at Time 2. These analyses were conducted on a subsample of children with histories of sexual abuse reports made to CPS ($N = 57$). Bivariate correlations were conducted between the three abuse-specific characteristics and the sexual behavior domains and Total Score. Separate correlations will be conducted for boys and girls to examine whether risk factors for various forms of child sexual behavior vary by gender.

Boys

Correlations of the abuse-specific variables (number of reports, maximum severity of abuse, and relationship to perpetrator) and the sexual behavior subscales and Total Score are shown in Table 15. None of the correlations were significant.

Girls

Correlations of the abuse-specific variables (number of reports, maximum severity of abuse, relationship to perpetrator) and the sexual behavior subscales and Total Score are shown in Table 16. The only significant correlation was between relationship to the perpetrator and Sexual Knowledge. Specifically, girls who had been abused by individuals outside of the family were significantly more likely than girls abused by family members to exhibit heightened levels of sexual knowledge.

Specific Aim 3: Prediction of Child Sexual Behavior

The third aim was to examine whether the ecological domains increment with each other to support a multiple-risk model in the prediction of child sexual behavior. To examine the incremental validity of the ecological domains above and beyond demographic factors and child sexual abuse in the prediction of child sexual behavior, a series of hierarchical multiple regressions were conducted. To examine the potential effects of gender on the prediction of CSBI scales, separate models were run for boys and girls. Analyses were conducted separately for boys and girls to illuminate possible moderating effects of gender regarding the development of sexualized behaviors (for examples of this approach with regard to the development of child externalizing behaviors, see Hill, Degnan, Calkins, & Keane, 2006; Keenan & Shaw, 1997; and with sexualized behaviors specifically, see Merrick et al., 2008). This approach was chosen, versus examining

interactions between hypothesized risk factors and gender, due to the large number of independent variables (29 total).

The following order of entry was used: (1) Step 1 – Demographic factors; (2) Step 2 – Child sexual abuse; (3) Step 3 – Variables in the domain of interest (i.e., child, maternal, immediate interactional context) that had significant zero-order correlations ($p < .05$) with the child sexual behavior subscale of interest. F-statistics were computed to test the significance of adding Step 3 in predicting the CSBI scale of interest.

Next, to examine the relative contribution of each of the risk domains in the prediction of each CSBI scale and the Total Score, hierarchical multiple regressions were utilized. The following order of entry was used: (1) Step 1 – Demographic factors; (2) Step 2 – Child sexual abuse; (3) Step 3 – Variables in the risk domain with the largest variance accounted for, beyond demographics and CSA, in prior analysis; (4) Step 4 – Risk domain with the 2nd largest variance accounted for, beyond demographics and CSA, in prior analysis; (5) Step 5 – Risk domain with the 3rd largest variance accounted for, beyond demographics and CSA, in prior analysis. Again, F-statistics will be computed for each step to test the significance of adding that step in predicting the CSBI scale of interest.

Predicting Sexual Intrusiveness from Demographics, Sexual Abuse, and Ecological Domains

Hierarchical multiple-regression analyses were performed to determine whether maternal level variables and/or variables in the immediate interactional context contributed incremental variance beyond demographics and child sexual abuse in predicting Sexual Intrusiveness.

Boys

For boys, demographic factors predicted a non-significant 0% of the variance in Sexual Intrusiveness (Table 17), and child sexual abuse predicted a significant additional 1% of the variance. When maternal variables were added in Step 3, a significant additional 4% in variance was explained, with a significant unique contribution from maternal stressors. When variables in the immediate interactional context were entered in Step 3, an additional 7% of the variance was explained, with a unique contribution from child social support.

Next, the relative contribution of each risk domain in the prediction of Sexual Intrusiveness was examined. Factors in the immediate interactional context were entered in Step 3, which explained the largest variance in prior analyses, and maternal factors were entered in Step 4, which explained the next largest variance in prior analyses. The addition of maternal factors did not significantly contribute to the prediction of Sexual Intrusiveness beyond demographics, sexual abuse, and factors in the immediate interactional context, $F(1, 169) = .68, p > .40$.

Girls

For girls, demographic factors predicted a non-significant 1% of the variance in Sexual Intrusiveness (Table 18), child sexual abuse predicted a significant additional 2% of the variance. When variables in the immediate interactional context were entered in Step 3, an additional 1% of the variance was explained, with a significant unique contribution from exposure to sex. Because no other Time 1 risk factors had significant zero-order correlations ($p < .05$) with girls' Sexual Intrusiveness, no other ecological domains were examined.

Predicting Exhibitionism from Demographics, Sexual Abuse, and Ecological Domains

Hierarchical multiple-regression analyses were performed to determine whether maternal level variables and/or variables in the immediate interactional context contributed incremental variance beyond demographics and child sexual abuse in predicting Exhibitionism.

Boys

For boys, demographic factors predicted a non-significant 0% of the variance in Exhibitionism (Table 19), and child sexual abuse predicted an additional 1% of the variance. When maternal variables were added in Step 3, an additional 3% in variance was explained, with a significant unique contribution from maternal stressors. When variables in the immediate interactional context were entered in Step 3, exposure to sex, interviewer rating of the home environment, and parental use of the discipline strategy psychological aggression predicted an additional 6% of the variance.

Next, the relative contribution of each risk domain in the prediction of Exhibitionism was examined. Factors in the immediate interactional context were entered in Step 3, which explained the largest variance in prior analyses, and maternal factors were entered in Step 4, which explained the next largest variance in prior analyses. The addition of maternal factors significantly contributed to the prediction of Exhibitionism beyond demographics, sexual abuse, and factors in the immediate interactional context $F(2, 422) = 5.61, p < .01$, with a significant unique contribution from maternal stressors, $\beta = .16, t = 2.87, p < .01$.

Girls

For girls, demographic factors predicted a non-significant 1% of the variance in Exhibitionism (Table 20), and child sexual abuse predicted a significant additional 2% of the variance. When maternal variables were added in Step 3, a non-significant additional 0% in variance was explained. When variables in the immediate interactional context were entered in Step 3, an additional 2% of the variance was explained, with a significant unique contribution from exposure to sex.

Next, the relative contribution of each risk domain in the prediction of Exhibitionism was examined. Factors in the immediate interactional context were entered in Step 3, which explained the largest variance in prior analyses, and maternal factors were entered in Step 4, which explained the next largest variance in prior analyses. The addition of maternal factors did not contribute to the prediction of Exhibitionism beyond demographics, sexual abuse and factors in the immediate interactional context, $F(1, 435) = 2.60, p > .10$.

Predicting Boundary Problems from Demographics, Sexual Abuse, and Ecological Domains

Hierarchical multiple-regression analyses were performed to determine whether individual level variables, maternal level variables and/or variables in the immediate interactional context contributed incremental variance beyond demographics and child sexual abuse in predicting Boundary Problems.

Boys

For boys, demographic factors predicted a non-significant 0% of the variance in Boundary Problems (Table 21), and child sexual abuse predicted an additional 2% of the variance. When maternal variables were added in Step 3, an additional 3% in variance

was explained, with a significant unique contribution from maternal stressors. When variables in the immediate interactional context were entered in Step 3, an additional 5% of the variance was explained, with unique contributions from exposure to sex and the parental discipline practice of psychological aggression.

Next, the relative contribution of each risk domain in the prediction of Boundary Problems was examined. Factors in the immediate interactional context, which explained the largest variance in prior analyses, were entered in Step 3, and maternal factors, which explained the next largest variance in prior analyses were entered in Step 4. The addition of maternal factors significantly contributed to the prediction of Boundary Problems beyond demographics, sexual abuse, and factors in the immediate interactional context, $F(2, 423) = 4.93, p < .01$, with a significant unique contribution from maternal stressors, $\beta = .12, t = 2.08, p < .05$.

Girls

For girls, demographic factors predicted a non-significant 1% of the variance in Boundary Problems (Table 22), and child sexual abuse predicted an additional 5% in variance explained. When individual variables were added in Step 3, a significant additional 2% of the variance was explained and when maternal variables were added in Step 3, a significant additional 4% in variance was explained with a unique contribution from maternal stressors and maternal child physical abuse. When variables in the immediate interactional context were entered in Step 3, an additional 7% of the variance was explained, with significant unique contributions from exposure to sex.

Next, the relative contribution of each risk domain in the prediction of Boundary Problems was examined. Factors in the immediate interactional context were entered in

Step 3, which explained the largest variance in prior analyses, maternal level factors were entered in Step 4, which explained the next largest variance in prior analyses, and individual level factors were entered in Step 5, which explained the least amount of variance in prior analyses. The addition of maternal level factors contributed to the prediction of Boundary Problems beyond demographics, child sexual abuse, and factors in the immediate interactional context, $F(3, 305) = 3.82, p < .05$. Further, individual level factors contributed to the prediction of Boundary Problems beyond demographics, child sexual abuse, factors in the immediate interactional context and maternal level factors, $F(2, 303) = 3.82, p < .05$.

Predicting Sexual Interest from Demographics, Sexual Abuse, and Ecological Domains

Hierarchical multiple-regression analyses were performed to determine whether individual level variables, maternal level variables and/or variables in the immediate interactional context contributed incremental variance beyond demographics and child sexual abuse in predicting Sexual Interest.

Boys

For boys, demographic factors predicted a non-significant 0% of the variance in Sexual Interest (Table 23), and child sexual abuse predicted a significant additional 2% of the variance. When maternal variables were added in Step 3, an additional 4% in variance was explained, with a significant unique contribution from maternal stressors. When variables in the immediate interactional context were entered in Step 3, an additional 9% of the variance was explained, with unique contributions from exposure to sex and the parental discipline strategy of psychological aggression.

Next, the relative contribution of each risk domain in the prediction of Sexual Interest was examined. Factors in the immediate interactional context were entered in Step 3, which explained the largest variance in prior analyses, and maternal factors were entered in Step 4, which explained the next largest variance in prior analyses. The addition of maternal factors did not contribute to the prediction of Sexual Interest beyond demographics, sexual abuse, and factors in the immediate interactional context, $F(3, 306) = 2.13, p > .05$.

Girls

For girls, demographic factors predicted a non-significant 2% of the variance in Sexual Interest (Table 24), with a significant contribution from family income and child race. Child sexual abuse predicted an additional 2% in variance explained. When individual variables were added in Step 3, a significant additional 2% of the variance was explained. When maternal variables were entered in Step 3, a significant additional 1% of variance was explained, with a significant contribution from maternal history of child sexual abuse. When variables in the immediate interactional context were entered in Step 3, an additional 6% of the variance was explained, with a significant unique contribution from exposure to sex.

Next, the relative contribution of each risk domain in the prediction of Sexual Interest was examined. Factors in the immediate interactional context were entered in Step 3, which explained the largest variance in prior analyses, maternal level factors were entered in Step 4, which explained the next largest variance in prior analyses, and individual level factors were entered in Step 5, which explained the least amount of variance in prior analyses. Neither maternal level factors $F(1, 307) = 2.38, p > .10$, nor

individual level factors, $F(1, 306) = 1.12, p > .20$, contributed to the prediction of Sexual Interest beyond demographics, child sexual abuse and factors in the immediate interactional context.

Predicting Sexual Knowledge from Demographics, Sexual Abuse, and Ecological Domains

Hierarchical multiple-regression analyses were performed to determine whether individual level variables, maternal level variables and/or variables in the immediate interactional context contributed incremental variance beyond demographics and child sexual abuse in predicting Sexual Knowledge.

Boys

For boys, demographic factors predicted a non-significant 0% of the variance in Sexual Knowledge (Table 25), and child sexual abuse predicted a significant additional 5% of the variance. When maternal variables were added in Step 3, a significant additional 5% in variance was explained, with a unique contribution from maternal stressors. When variables in the immediate interactional context were entered in Step 3, an additional 15% of the variance was explained, with unique contributions from exposure to sex and interviewer rating of the home environment.

Next, the relative contribution of each risk domain in the prediction of Sexual Knowledge was examined. Factors in the immediate interactional context were entered in Step 3, which explained the largest variance in prior analyses, and maternal factors were entered in Step 4, which explained the next largest variance in prior analyses. The addition of maternal factors did not significantly contribute to the prediction of Sexual

Knowledge beyond demographics, sexual abuse, and factors in the immediate interactional context, $F(6, 297) = 1.39, p > .20$.

Girls

For girls, demographic factors predicted a significant 2% of the variance in Sexual Knowledge (Table 26), with a significant contribution from child race. Child sexual abuse predicted an additional 6% in variance explained. When maternal variables were entered in Step 3, a non-significant additional 3% of variance was explained. When variables in the immediate interactional context were entered in Step 3, an additional 5% of the variance was explained, with a significant unique contribution from exposure to sex.

Next, the relative contribution of each risk domain in the prediction of Boundary Problems was examined. Factors in the immediate interactional context were entered in Step 3, which explained the largest variance in prior analyses, and maternal level factors were entered in Step 4, which explained the next largest variance in prior analyses. Maternal level factors did not contribute to the prediction of Sexual Knowledge beyond demographics, child sexual abuse, and factors in the immediate interactional context, $F(3, 306) = 1.82, p > .10$.

Predicting CSBI Total Score from Demographics, Sexual Abuse, and Ecological Domains

Hierarchical multiple-regression analyses were performed to determine whether maternal level variables and/or variables in the immediate interactional context contributed incremental variance beyond demographics and child sexual abuse in predicting the Total Score on the CSBI.

Boys

For boys, demographic factors predicted a non-significant 0% of the variance in the Total Score (Table 27), and child sexual abuse predicted a significant additional 2% of the variance. When maternal variables were added in Step 3, a significant additional 8% in variance was explained with a unique contribution from maternal stressors. When variables in the immediate interactional context were entered in Step 3, an additional 17% of the variance was explained, with unique contributions from exposure to sex, interviewer rating of the home environment, and parental use of the discipline strategy psychological aggression.

Next, the relative contribution of each risk domain in the prediction of the Total Score was examined. Factors in the immediate interactional context were entered in Step 3, which explained the largest variance in prior analyses, and maternal factors were entered in Step 4, which explained the next largest variance in prior analyses. The addition of maternal factors significantly contributed to the prediction of the Total Score beyond demographics, sexual abuse, and factors in the immediate interactional context, $F(3, 305) = 3.82, p < .01$, with a significant unique contribution from maternal stressors, $\beta = .15, t = 2.44, p < .05$.

Girls

For girls, demographic factors predicted a significant 3% of the variance in the CSBI Total Score (Table 28), with a significant contribution from child race. Child sexual abuse predicted an additional 7% in variance explained. When maternal variables were entered in Step 3, a significant additional 3% of variance was explained. When variables in the immediate interactional context were entered in Step 3, an additional 11%

of the variance was explained, with a significant unique contribution from physical abuse and exposure to sex.

Next, the relative contribution of each risk domain in the prediction of the Total Score was examined. Factors in the immediate interactional context were entered in Step 3, which explained the largest variance in prior analyses, and maternal level factors were entered in Step 4, which explained the next largest variance in prior analyses. Maternal level factors, $F(4, 304) = 3.42, p < .05$, significantly contributed to the prediction of Sexual Knowledge beyond demographics, child sexual abuse, and factors in the immediate interactional context.

Specific Aim 3: Profiles of Risk for Child Sexual Behavior

The third aim of the present study was to identify diverse profiles of risk for sexualized behaviors within a group of at-risk children. The cluster analysis approach is well suited for exploring groupings of individuals from heterogeneous populations and has been used recently to examine child symptomatology in community (e.g., Kamphaus, DiSefano, & Lease, 2003) and clinical samples (e.g., Ezpeleta, Graner, de la Osa, & Domenech, 2008) as well as symptomatology within samples of child sexual abuse victims (Hebert et al., 2006; Sedlar, 2001; Trickett et al., 2001). This is a logical next step in research on risk for child sexualized behaviors as variable-centered approaches have increasingly indicated that children demonstrating sexualized behaviors are a complex, heterogeneous group (e.g., Chaffin, 2008).

Cluster Formation

A series of Two-Step Cluster Analyses were conducted to identify groups of children with distinct risk profiles. Cluster analysis is a statistical technique that

reorganizes data into homogeneous groups based on similarity of characteristics (Aldenderfer & Blashfield, 1984; Everitt, Landau, & Leese, 2001). Two-Step Cluster Analysis was used as this specific technique enables data with both continuous and categorical attributes to be clustered. This is derived from a probabilistic model in which the distance between two clusters is equivalent to the decrease in log-likelihood function as a result of merging. All continuous variables were transformed to standardized z-scores prior to the cluster analysis.

In the first step, original cases are grouped into preclusters that are then used in place of the raw data in the hierarchical clustering. Based upon its similarity to existing preclusters, each successive case is added to form a new precluster, using a likelihood distance measure as the similarity criterion. Cases are assigned to the precluster that maximizes a log-likelihood function. In the second step, the preclusters are grouped using the standard agglomerative clustering algorithm, producing a range of solutions, which is then reduced to the best number of clusters on the basis of Schwarz's Bayesian inference criterion (BIC).

To identify groups of children with distinct risk profiles, cluster analysis procedures were performed on risk measures (standardized prior to clustering) that evidenced significant bivariate relationships ($p < .05$) with the CSBI Total Score. Separate analyses were conducted for boys and girls to examine whether risk factor profiles vary by gender. To examine the reliability of the final boys' and girls' cluster solutions, the entire study sample, by gender, was first randomly split in half and a Two-Step Cluster Analysis was performed on each resulting subsample. The results of each cluster analysis, including the proportion and structure of clusters, were similar to the

original cluster and to each other. Specifically, there was an 85.0 to 87.1% and 82.7 to 86.3% overlap in cluster membership for the boy and girl subsamples, respectively.

These results suggest the cluster solutions for both the boy and girl samples are robust and not an artifact of the clustering technique. The following presentation of results is based on clustering of the full sample for each gender.

Cluster Description

Boys

As noted previously, variables included in the cluster analysis include those that were shown in the variable-centered analyses to be significantly associated ($p < .05$) with the CSBI Total Score. For boys, variables clustered include: child sexual abuse, maternal history of child physical abuse, maternal depression, maternal stressors, interviewer rating of the home environment, and parental discipline strategies of psychological aggression and physical assault.

Based on ratios of the BIC and distance measures, a four-cluster solution was determined to be the best cluster solution. For this solution, 100 youth (29.2%) fell into the first cluster, 46 youth (13.5%) comprised the second cluster, 155 (45.3%) were included in the third, and 41 youth (12.0%) comprised the fourth. Table 29 shows, by cluster, the percentage of youth with sexual abuse histories and with mothers endorsing a history of childhood physical abuse. Table 29 also depicts, by cluster, the mean level and standard deviations of the continuous variables: maternal depression, maternal stressors, interviewer rating of the home environment, exposure to sex, and parental discipline strategies of psychological aggression and physical assault.

The first cluster was labeled “Moderate Risk.” Youth in this group all had mothers who endorsed being physically abused as a child and lived in homes rated by the interviewer to be more negative in quality. The second cluster, “Moderate Risk/Sexually Abused” was characterized by children who had been sexually abused (100%) and had moderate levels of risk across all other domains. The third cluster, “Low Risk” was the largest of the four clusters ($N = 144$). This cluster was characterized by children without sexual abuse histories, an absence of maternal childhood physical abuse, and scores on the remaining risk domains approximately one-half standard deviation below the mean. The last cluster, “High Risk,” was characterized by children without a sexual abuse history, but elevated levels of risk on all other domains.

To examine cluster distinctness, the four groups were compared on the risk variables used in the clustering procedure. Table 29 presents the results of Chi-squares and one-way ANOVAs on the four groups for each measure used in the cluster analysis, including percentages/means, standard deviations, and LSD pairwise comparisons. Chi-squares and ANOVAs revealed significant differences across the profiles on all variables. LSD pairwise comparisons results indicated multiple significant differences across the profiles, suggesting that the clusters differ in multiple different areas of risk. Child sexual abuse, maternal history of childhood physical abuse, and interviewer rating of the home environment differentiated the Moderate Risk cluster and the Moderate Risk/Sexually Abused cluster. All other areas of risk were comparable between these two clusters. Children in the Low Risk cluster scored significantly lower than the other three groups on variables tapping maternal depression, maternal stressors, exposure to sex and parental discipline strategies. As expected, the Low Risk and High Risk clusters were significantly

different on all areas of risk, with the exception of child sexual abuse and maternal history of childhood physical abuse. Maternal stressors, interviewer rating of the home environment, exposure to sex, and use of the discipline strategies psychological aggression and physical assault differentiated the Moderate Risk clusters from the High Risk cluster.

To determine whether cluster differences might be a function of differences in demographic characteristics, we examined associations between cluster and child race and socioeconomic status. Chi-square tests indicated that neither race, $X^2(12, N = 442) = 22.18, p > .20$, nor family income, $X^2(30, N = 385) = 35.28, p > .30$, was associated with cluster membership.

Girls

Variables included in the cluster analysis include those that were shown in the variable-centered analyses to be significantly associated ($p < .05$) with the CSBI Total Score. For girls, variables clustered include: child sexual abuse, child physical abuse, child emotional abuse, and maternal history of childhood sexual and physical abuse.

The Two-Step Cluster Analysis revealed a three-cluster solution. For this solution, 166 youth (45.4%) fell into the first cluster, 270 youth (26.9%) comprised the second cluster, and 179 (27.7%) were included in the third. Table 30 shows, by cluster, the percentage of youth with sexual abuse, physical abuse and emotional abuse histories, and the percentage of youth with mothers who endorsed a history of childhood sexual or physical abuse. Table 30 also depicts the mean level and standard deviation, by cluster, of exposure to sex.

The first cluster was labeled “Maternal Victimization.” Youth in this group had a high percentage of mothers who endorsed a childhood history of sexual and/or physical abuse. The second cluster, “Low Risk” was the largest of the three clusters ($N = 270$). This cluster was characterized by children without a history of maltreatment, an absence of maternal childhood physical or sexual abuse and a low mean level of exposure to sex. The last cluster, “High Maltreatment” was characterized by a high percentage of children with histories of sexual, physical, and emotional abuse.

To examine cluster distinctness, the three groups were compared on the risk variables used in the clustering procedure. Table 30 presents the results of chi-square analyses (for the dichotomous variables) and one-way ANOVAs (for the continuous variables) conducted on the three groups for each measure used in the cluster analysis. Chi-square analyses revealed significant differences across the profiles on all categorical variables, suggesting that the clusters differ in multiple different areas of risk. Follow-up analyses revealed that child sexual abuse differentiated all three clusters. Further, child physical abuse and emotional abuse differentiated the High Maltreatment Cluster from the other two clusters, which did not differ on these indices. Maternal history of child physical abuse and child sexual abuse differentiated the Maternal Victimization cluster from the other two clusters, which did not differ on these indices. The one-way ANOVA indicated that the three groups did not differ with regard to exposure to sex.

Finally, to determine whether cluster differences might be a function of differences in demographic characteristics, we examined associations between cluster and child race and socioeconomic status. Chi-square tests indicated that neither race, $X^2(12, N = 442) = 22.18, p > .20$, nor socioeconomic status, $X^2(30, N = 385) = 32.52, p > .20$,

were associated with cluster membership.

Association between Cluster Membership at Time 1 and Sexualized Behaviors at Time 2

After cluster formation, one-way ANOVA was run to examine the relationship between cluster membership at Time 1 and Total Score on the CSBI at Time 2. Pairwise follow-up comparisons based on LSD *t* tests were conducted for significant ANOVAs to explicate the nature of the differences. Separate analyses were conducted for boys and girls.

Boys

Total levels of sexualized behavior at Time 2 differed significantly across the four boys' clusters, $F(3, 383) = 4.67, p < .001$. LSD post-hoc comparisons of the four groups indicate that the Low Risk cluster ($M = -.27, 95\% \text{ CI } [-.37, -.17], p < .001$) had significantly lower CSBI Total Scores than the Moderate Risk Cluster ($M = .24, 95\% \text{ CI } [.02, .46]$), Moderate Risk/Sexually Abused cluster ($M = .42, 95\% \text{ CI } [-.03, .88]$), and the High Risk cluster ($M = .18, 95\% \text{ CI } [.01, .37]$). Comparisons between the Moderate Risk, Moderate Risk/Sexually Abused, and High Risk clusters were not statistically significant.

Girls

Total levels of sexualized behavior at Time 2 differed significantly across the four girls' clusters, $F(2, 512) = 12.67, p < .001$. LSD post-hoc comparisons of the three groups indicate that the Low Risk cluster ($M = -.27, 95\% \text{ CI } [-.35, -.20], p < .001$) had significantly lower CSBI Total Scores than the Maternal Victimization cluster ($M = .23, 95\% \text{ CI } [-.05, .30]$), and the High Maltreatment cluster ($M = .13, 95\% \text{ CI } [-.07, .33]$). The Maternal Victimization and High Maltreatment clusters had similar levels of total

sexualized behavior at Time 2. That is, these two distinct subgroups of children evidenced similar levels of sexualized behavior at Time 2, indicating that this outcome was attained through different processes.

DISCUSSION

In order to adequately and appropriately intervene with children displaying sexualized behaviors, a comprehensive understanding of etiology is imperative. The goal of the present study was to utilize a developmental psychopathology perspective to broaden our understanding of mechanisms associated with the development of sexualized behaviors in middle childhood. The current investigation is the first to independently and simultaneously examine risk factors across four ecological domains (child, maternal, immediate interactional context, and broader context) associated with the development of sexualized behaviors in childhood in both at-risk and sexually abused samples. Overall, results suggest that although sexual abuse constitutes a major risk factor for sexualized behaviors, other factors – particularly those in the maternal domain and immediate interactional context – also contribute to the display of sexualized behaviors. Furthermore, subgroups of children appear to demonstrate sexualized behaviors for different constellations of reasons, consistent with the concept of equifinality.

Relationships between Risk Factors

A developmental psychopathology perspective conceptualizes development as having multiple, interrelated causal factors, rather than as being the direct outcome of a single factor (Cicchetti & Rizley, 1981; Sameroff & Chandler, 1975). Therefore, the first aim was to examine the relationship between hypothesized Time 1 risk factors both within and across the four developmental-ecological domains (child, maternal, immediate interactional context, and broader context). Analyses revealed significant correlations between factors within the same domain, and between factors across domains. This is consistent with Eckenrode, Laird, and Doris' (1993) contention that adversity is not

randomly distributed and risk factors often co-occur. As hypothesized, associations were generally stronger between factors within the same domain. That is, child factors were most strongly associated with other child factors, maternal factors were most strongly associated with other maternal factors, and so on.

However, it is important to note that child temperament did not evidence significant associations with intellectual functioning and evidenced small and inconsistent associations with factors in other levels of the ecology. This is not surprising, given (a) the inconsistent findings linking temperament to intellectual functioning in the larger literature (see e.g., Lewis, 1993; Robinson & Acevedo, 2001) and (b) the large time period between temperament assessment (age 2 and younger) and the age at which other risk factors were measured (age 6).

Demographic Characteristics and Sexualized Behaviors

Compared to girls, boys were reported to display higher mean levels of Exhibitionism, Sexual Interest and overall sexualized behaviors, as measured by the CSBI Total Score. It is important to note, though, that the effect sizes of these differences were small (Cohen's d ranged from = .10 to .21). Boys and girls were reported to engage in similar mean levels of Sexual Intrusiveness, Boundary Problems and Sexual Knowledge. This is consistent with research indicating that the more low-frequency, problematic sexual behaviors (e.g., sexual intrusiveness) occur at similar rates for both boys and girls (Friedrich et al., 1991, 1998; Friedrich, Sandfort, Oostveen, & Cohen-Kettenis, 2000; Lindblad et al., 1995; Merrick et al., 2008; Schoentjes et al., 1999). These and our results are in contrast to the adolescent literature, which suggests that male gender is a robust risk factor for sexual behavior and offending (Worling & Curwen,

1990). The relative absence of gender effects, even for the most intrusive behaviors (e.g., attempted sexual intercourse with another child or adult), indicates sexualized behaviors in children must not be considered as parallel to intrusive sexual behavior in adolescents or adults.

Although child race was not associated with boys' sexualized behaviors, it was associated with girls' Sexual Knowledge, Sexual Interest, and the Total Score. Specifically, girls identified as multiracial were more likely to exhibit sexual behaviors in these three domains. Further, White girls were more likely than Hispanic girls, who were in turn more likely than Black girls to display higher levels of overall sexual behaviors. These findings contribute to the extremely limited literature on sexual behavior in minority children and parallel Thigpen, Pinkston, and Mayefsky's (2003) finding that Black parents reported that their children engaged in fewer sexual behaviors (solitary sexual behaviors, specifically) than did children of White parents. As noted previously, more research on sexual behavior in minority youth, including examinations of gender differences, is greatly needed.

Similarly, family income was unrelated to boys' sexualized behaviors and positively associated with girls' Sexual Interest and Total Score. That is, mothers with a higher family income reported heightened sexual interest and more overall sexual behaviors in their daughters than mothers reporting a lower family income. Both sets of findings – insignificant results for boys, and negative correlations for girls - were unexpected, given the literature on poverty and general adverse child outcomes (e.g., Loeber & Dishion, 1983) and child sexualized behaviors more specifically (e.g., Friedrich et al., 1998, 2003; Gray et al., 1997, 1998). It is possible that we failed to find a

negative relationship between family income and sexualized behaviors due to our dimensional measurement of sexual behaviors, versus examining solely children with more extreme sexual behavior problems. Additionally, it is possible that mothers reporting a higher family income are more comfortable reporting sexual behavior in their children; along these lines, some research indicates that maternal education is positively associated with report of offspring sexual behaviors (Friedrich et al., 1991). Future research is needed to examine this question, as well as gender differences in the relationship between income and sexual behavior, more precisely.

Sexual Abuse and Sexualized Behaviors

Correlational analyses indicated that for both boys and girls, child sexual abuse prior to age 8 was significantly positively related to child sexualized behaviors at age 8 (r 's ranged from .11 to .28). When a subsample of children with sexual abuse histories was examined, relationship to the perpetrator was the only abuse-specific characteristic that emerged as having a significant relationship with sexualized behavior. Consistent with hypotheses, girls who were sexually abused by a family member were more likely than those abused by someone outside of family to display heightened levels of Sexual Knowledge. In fact, this was the case for all types of sexualized behaviors, though these correlations did not reach statistical significance. It is important to note that these analyses were conducted on very small samples (N s = 17 and 14 for boys and girls, respectively) greatly limiting our power for detecting significant correlations. Future work with larger samples is needed. Furthermore, future work should also focus on identifying factors that mediate the relationship between intrafamilial abuse and sexualized behaviors.

In multivariate analyses predicting child sexual behaviors, sexual abuse accounted for a significant 1% to 6% of the variance explained, after controlling for child race and family income. Furthermore, sexual abuse was a particularly strong predictor of both boys' and girls' Sexual Knowledge and the CSBI Total Score, even when simultaneously considering demographics and factors in the maternal domain and immediate interactional context. Interestingly, though, sexual abuse no longer predicted boys' Sexual Intrusiveness, Exhibitionism, and Interest after considering factors in other ecological domains.

These results are surprising given the historical emphasis, both theoretical and empirical, on sexual abuse as the principal cause of child sexualized behaviors (e.g., Friedrich, 1993; Kendall-Tackett, Williams, & Finkelhor, 1993). There are several possible explanations for the small associations. First, the MMCS assesses Child Protective records only; thus, it is possible that there are instances of sexual abuses that were either not reported to CPS or were processed through a different system (Hunter et al., 2003a). For example, sexual abuse that occurs outside of the home perpetrated by nonfamily members is typically investigated solely by criminal courts, and consequently, may not be accessible. However, it is likely that the parent-report measure of sexual abuse captured some of these cases. A second explanation is that compared to our use of a heterogeneous, at-risk sample, the majority of the extant literature focuses on extreme groups: children referred for treatment for sexual abuse and/or for high levels of sexual behavior problems. Sexual abuse histories may be more common in children in one of these two extreme groups. Third it is possible that for boys there may not be a direct effect of sexual abuse on certain types of sexualized behaviors. Although not examined in

the present study, this effect may be mediated by factors within the maternal domain and/or immediate interactional context (e.g., home environment, parent discipline practices). This is an important avenue for future work to explore.

Other Factors/Ecological Domains and Sexualized Behaviors

Child Domain

The developmental-ecological model proposes that some levels of the ecology (e.g., child level, immediate interactional context) are more proximal to the individual than are other levels. These proximal levels are hypothesized to exert more direct influence on individual functioning (Bronfenbrenner, 1979). In the child domain, both temperament and intellectual functioning were examined. Results of correlational analyses indicated that for both boys and girls, temperament was unrelated to all aspects of sexualized behavior. As noted previously, it is possible that the lack of findings with regard to temperament are due to the large interval between ICQ assessment (age 2 and younger), the age at which other risk factors were measured (age 6), and the age at which sexualized behaviors were assessed (age 8). Furthermore, only two sites (MW and NW) were administered temperament measures, resulting in a small sample size ($N = 110$ for boys, 114 for girls), which reduced the power to detect significance.

The broader literature on child development indicates that children with low cognitive abilities are at risk for childhood maladjustment and behavior problems (McGee et al., 1991; Moffitt, 1990). However, the small literature on intellectual functioning and child sexualized behavior has revealed mixed results on whether this domain serves as a risk factor for sexualized behavior specifically (e.g., Bonner et al., 1999; Silvosky & Niec, 2002). Our findings suggest that only for girls does intellectual

functioning serve as a risk factor for sexualized behavior. In fact, intellectual functioning (Block Design and Estimated Full Scale IQ) contributed to the prediction of Boundary Problems even after considering demographics, child sexual abuse, and factors in both the maternal domain and immediate interactional context. These girls may be less able to generally engage in flexible thinking and behavior which may result in higher levels of indiscriminate friendliness and poor boundaries. These results suggest promising avenues for future work and highlight the importance of examining both gender and specific aspects of sexualized behavior. It is possible that previous work failed to find significant associations between intellectual functioning and sexual behavior because boys and girls were examined simultaneously and general sexualized behavior, rather than specific aspects of this behavior, were examined.

Maternal Domain

For boys, both factors tapping maternal distress – depression and stressors – were significantly positively associated with all types of sexualized behavior. That is, mothers who reported higher levels of depression and everyday stressors (e.g., financial concerns, employment problems) reported higher levels of all types of child sexualized behavior at follow-up. In contrast, maternal stressors were only related to girls' Boundary Problems. When these two factors were considered in multivariate analyses, maternal stressors emerged as having a unique contribution to the prediction of every sexualized behavior domain for boys and Boundary Problems for girls after controlling for race, family income and sexual abuse. Furthermore, maternal stressors maintained the ability to predict boys' Exhibitionism, Boundary Problems, and the Total Score even after controlling for race, family income, sexual abuse, and factors in the immediate

interactional context. This suggests that there is something unique about persistent life strain and everyday problems that are not captured by family income, maternal depression or a poor family environment. These results are consistent with literature indicating that social stressors embedded in adults' occupational and family roles affect not only their own well-being (in our study, correlation between maternal stressors and depression = .58) but the well-being of their children as well (e.g., Menaghan & Parcel, 1995). Relations between mothers and their children may form a critical pathway for such effects, as mothers distressed by chronic stressful circumstances find it more difficult to engage in adequate supervision or positive, supportive interactions with their children (McLoyd, 1990). In turn, such experiences may increase child anxiety and emotional dysregulation, resulting in various self-soothing behaviors, including for example, indiscriminate friendliness. Future work is needed to further explore gender differences and the differential impact of maternal psychopathology (e.g., depression) and chronic stress.

Findings with regard to maternal history of victimization were inconsistent and varied depending on gender and the specific sexual behavior domain under investigation. Of note, all types of maternal victimization (with the exception of adult physical assault) were significantly positively associated with boys' Sexual Knowledge. Additionally, maternal history of *child/adolescent* victimization was significantly positively associated with girls' Boundary Problems, Sexual Interest, Sexual Knowledge, and the Total Score. When considered in multivariate analyses, maternal history of *child/adolescent* physical abuse and *child* sexual abuse uniquely contributed to the prediction of girls' Boundary Problems and Sexual Interest, respectively. Although this is the first examination of

maternal victimization with regard to child sexualized behaviors, the broader literature suggests mothers with histories of childhood victimization typically interact differently with their children than do mothers who no history of victimization; for example, mothers with histories of childhood abuse are more likely to exhibit inconsistent use of discipline (DiLillo & Damashek, 2003) and harsh parenting (Dubowitz, Black, Kerr, Hussey, Morrel, Everson, et al., 2001). Thus, it will be important for future work on etiological mechanisms associated with child sexualized behaviors to examine maternal victimization and parenting practices in concert.

Immediate Interactional Context

For boys, four factors in the home environment - exposure to sex, domestic violence exposure, rating of the home environment, and a lack of supportive figures – were significantly related to aspects of sexualized behavior. Importantly, these factors span parent (exposure to sex, domestic violence exposure), interviewer (home environment), and child report (supportive figures) indicating convergence among various informants and aspects of the home environment. Furthermore, several of these factors remained unique predictors of various sexualized behavior domains after considering demographic factors and sexual abuse. Specifically, lower levels of child social support uniquely predicted Sexual Intrusiveness and a poor quality of the home environment uniquely predicted Exhibitionism, Sexual Knowledge, and the Total Score.

For girls, the only factor in the home environment which was consistently associated with sexualized behavior was exposure to sex. Furthermore, after considering race, family income, and sexual abuse, this factor emerged as having a significant unique contribution to the prediction of every sexual behavior domain for girls and every domain

except Sexual Intrusiveness for boys. These results parallel the consistent finding that sexualized behavior is consistently associated with early, age-inappropriate exposure to sexual behavior or knowledge in both normative and nonnormative samples (Bonner et al., 1999; Friedrich et al., 1991, 1992; 2003). As noted earlier, some sexualized behaviors – curiosity in nudity, boundary problems, showing private parts – are both expected and appropriate parts of early child development. However, such overt behaviors typically decline with age, in part because of the socialization process whereby children tend to adopt cultural and societal mores as they enter middle childhood (Friedrich, 1998; Friedrich et al., 1991, 1998; Lindblad et al., 1995; Sandnabba, Santilla, Wannas, & Krook, 2003). Modeling of sexuality via exposure to sexual activity and sexually explicit media may represent less adaptive socialization of children regarding societal rules (Friedrich, 1997).

Two specific types of parental discipline practices, psychological aggression (e.g., shouting or screaming at one's child) and physical assault (e.g., corporal punishment), were significantly positively related to various sexual behavior domains in the sample of boys. For girls, none of the three parent discipline strategies were significantly associated with sexual behavior. Parental use of psychological aggression emerged as having a significant unique contribution to the prediction of boys' Exhibitionism, Boundary Problems, Sexual Interest and total level of sexualized behavior after considering race, family income, and sexual abuse. These findings are consistent with retrospective research demonstrating higher levels of conflict and negative interactions between parents of children exhibiting sexual behavior problems, versus nonreferred children (Pithers et al., 1998). Both Pithers and colleagues (1998) and our findings may

be explained in the context of the broader literature on the emotional influence of harsh parenting on child behavior and development. This literature indicates that children's emotion regulation is affected by their parents' punitive emotions and, in turn, affects an array of social behaviors, including both externalizing and internalizing problems (e.g., Chang, Schwartz, Dodge, & McBride-Chang, 2003; Parke, Cassidy, Burks, Carson, & Boyum, 1992; Davies & Cummings, 1994). It is unclear, however, why this parent discipline strategy only predicted specific sexual behavior domains for boys and was unrelated to girls' sexual behavior domains.

Physical abuse and emotional abuse were positively associated with girls' Sexual Interest, Sexual Knowledge and total sexual behaviors. When considered in multivariate analyses, physical abuse, but not emotional abuse, provided a unique contribution to the prediction of girls' total sexualized behaviors beyond demographics and sexual abuse. Contrary to expectations, no forms of child maltreatment beyond sexual abuse were significantly related to boys' sexual behavior domains. This is surprising, given the high rates of physical abuse, emotional abuse, and neglect in children referred for treatment for sexual behavior problems (e.g., Bonner et al, 1999; Gray et al., 1999; Silvosky & Niec, 2002). Furthermore, previous work with both a mixed sample of community, psychiatric and sexually abused children (Friedrich et al., 2003) and a sample of at-risk boys (Merrick et al., 2008) found a positive relationship between physical abuse and sexualized behaviors. Thus, our weak findings with girls and non-significant findings with boys warrant further empirical attention. In particular, it will be important for future work to examine abuse-specific characteristics, as a growing body of research indicates that the severity, age of onset, chronicity and recency of various maltreatment

experiences influence the development of subsequent psychopathology, including problematic sexual behaviors (e.g., Merrick et al., 2008).

Broader Social Context

None of the variables in the community domain – community violence, school safety, and neighborhood risk – were significantly correlated with sexualized behavior for either boys or girls. This is not entirely surprising, given that community contexts are more distal to the child and development when compared to other ecological domains. It is possible, however, that in the context of other risk factors (e.g., sexual abuse), community factors may potentiate or attenuate the risk for sexualized behaviors. Therefore, it will be important for future work to examine the interactive relationship between more proximal risk factors and factors in the broader context.

Profiles of Risk for Sexualized Behaviors

The third aim of the present study was to examine whether there is evidence of equifinality – that is, whether different patterns of risk predict similar levels of sexualized behaviors. In so doing, the current investigation is the first of its kind to utilize person-centered analyses to describe unique pathways to sexualized behaviors among discrete subgroups of children. Consistent with expectations, cluster analyses supported the existence of several distinct risk profiles for both boys and girls. For boys, four replicable clusters were identified: “Moderate Risk” (29.2%), “Moderate Risk/Sexually Abused” (13.5%), “Low Risk” (45.3%), and “High Risk” (12.0%). For girls, analyses revealed three replicable clusters: “Maternal Victimization” (45.4%), “Sexually Abused” (26.9%), and “Low Risk” (27.7%). Furthermore, results indicated that there were significant and meaningful differences among the profiles on the measures used in the

cluster analyses, which verified the existence of the four and three clusters. For example, children in both the boys and girls Low Risk clusters scored significantly lower than the other three and two groups, respectively, on variables in both the maternal domain and immediate interactional context.

The present study also revealed important associations between risk profiles and later functioning. As might be expected, both the boys' and girls' Low Risk groups displayed significantly fewer total sexualized behaviors than all other groups. Furthermore, the boys' Moderate Risk, Moderate Risk/Sexually Abused and High Risk clusters and the girls' Maternal Victimization and High Maltreatment clusters evidenced similar levels of sexualized behaviors at follow-up. That is, these distinct subgroups of children displayed similar levels of sexualized behavior at Time 2, indicating equifinality, or different developmental pathways leading to the same outcome.

Consistent with the variable-centered analyses, results of the person-centered analyses indicate that sexual abuse appears to be a more important etiological mechanism associated with the development of sexualized behavior for girls, versus boys. Approximately one-quarter of the girls in the Maternal Risk and one-half of the girls in the High Maltreatment clusters had histories of sexual abuse. However, less than 2% of the Moderate Risk and High Risk clusters had histories of sexual abuse. Nonetheless, these groups evidenced comparable levels of sexualized behavior at follow-up when compared to the Moderate Risk/Sexually Abused cluster (in which 100% of youth had histories of sexual abuse). This underscores recent research which indicates that sexual abuse, while important, is not essential to the development of sexualized behaviors in

middle childhood (e.g., Friedrich, 2007; Merrick et al., 2008; Silvosky & Niec, 2002), especially for boys.

Furthermore, the link between risk profiles and sexualized behavior suggests the potential utility of developing prevention strategies tailored to different risk groups. For example, the Maternal Victimization cluster may benefit from an adjunctive parent-focused intervention focused on enhancing the parent-child relationship and parenting practices. The High Maltreatment group may benefit from abuse-specific interventions that address, for example, healthy boundaries and interpersonal relationships and emotional regulation strategies (e.g., for relevant reviews, see Chaffin & Friedrich, 2004; Chaffin & Hanson, 2000). It is important to note, however, that the cluster solutions are sample dependent and replication would bolster confidence in these findings.

Strengths

The results of the current study are an important contribution to the extant literature, particularly given the advantages of a developmental-ecological approach to examining risk with a large, diverse sample of maltreated and at-risk children. Although examinations of children referred for treatment following sexual abuse and/or for a high level of sexualized behavior contribute to our understanding of group-level differences, examinations with more diverse samples allow for a more comprehensive understanding of risk and outcome across different levels of severity. Furthermore, in addition to an overall level of sexualized behavior, multiple types of sexualized behavior were examined; our finding of differential relations between risk factors and subscales of the CSBI highlight the importance of this approach. Other strengths include measurement of risk via multiple informants (e.g., child-, parent-, teacher-, and interviewer-report) and

the consideration of risk factors across *all* ecological domains, not solely those focused around the experience and impact of sexual abuse. Furthermore, by examining multiple domains in concert, the relative contribution of risk factors to the development of sexualized behaviors could be examined. This is particularly important with regard to maltreatment, due to the high co-occurrence in victimization experiences (Finkelhor et al., 2007; Saunders, 2003; U.S. Department of Health and Human Services, 2005). Finally, the identification of distinct risk profiles reveals the power of a person-centered approach. Identifying profiles requires attention to the configuration of risk factors within individuals, rather than isolated traits. This approach allows for the identification of groups of children who may exhibit sexualized behaviors as a result of processes that are less typical (e.g., presence of risk other than sexual abuse).

Limitations and Future Directions

Nonetheless, a number of limitations suggest caution with regard to the study's conclusions. The participants in this study were drawn from a sample of children at elevated risk or exposed to maltreatment. Therefore, the findings are best generalized to these populations of children, versus all US children. Furthermore, information on child sexualized behaviors was available only at, and not prior to, the Age 8 interview. It is possible that some children began displaying problematic sexual behaviors prior to the age at which most hypothesized risk factors were assessed (age 6), increasing potential variability in the temporal connectedness of these factors. Therefore, it will be important for future work to assess sexualized behavior at multiple time points as well as consider the time elapsed between risk factor exposure and measurement of sexual behavior.

Along these lines, because no “gold standard” exists when measuring problematic youth behaviors (De Los Reyes & Kazdin, 2005), it is important that investigations use multiple informants. . Reliance on caregiver reports of child behavior may be influenced by the adult’s own psychological functioning (Youngstrom, Loeber, & Stouthmaer-Loeber, 2000). Use of youth self-, teacher- and parent-report of sexualized behaviors would not only allow for a more comprehensive assessment of sexualized behavior, but would also allow researchers to identify and examine those children that are less aware of the “sexual taboo” (Bancroft, 2006) and exercise less restraint in where and when they engage in sexual behaviors.

Further, it is possible that relations between hypothesized risk factors and sexualized behaviors may have been masked by a heterogeneous age of first exposure to the risk factor, frequency of exposure, and/or the duration of exposure. For example, some research indicates that reports of emotional abuse between the ages of 4 and 8 are predictive of certain types of sexualized behaviors, whereas earlier reports (prior to age 4) are not (Merrick et al., 2008). Therefore, it is important that future work consider the developmental period in which the child is initially exposed to the risk factor. In other words, researchers must be sensitive to the normative maturational tasks that the child is attempting to master at the time of exposure to the risk factor (for a discussion, see Manly, 2005).

As noted previously, it is possible that there may not be a direct relationship between certain risk factors (e.g., community or neighborhood characteristics) and sexualized behaviors. It is possible that in the context of other risk factors (e.g., sexual abuse), more distal community factors (e.g., witnessing community violence) may

potentiate the risk for sexualized behaviors. Therefore, it will be important for future work to examine the interactive relationship between various risk and protective factors.

Finally, it is also important for future work to examine protective factors that may help children develop more healthy and normative sexual behaviors after exhibiting heightened sexual behaviors in a certain period. That is, for which children will early sexualized behavior be an indicator of persistent maladjustment? It is clear that that majority of children exhibiting sexualized behaviors do not continue to demonstrate problematic sexual behaviors, including sexual offending, into adolescence and adulthood (e.g., Carpentier et al., 2006; Letourneau, Chapman, & Schoenwald, 2008). Identification of factors associated with the desistance and persistence of sexualized behaviors will aid in the design of interventions and the identification of children most in need of these interventions.

Conclusions

The present study contributes to the small but growing body of literature on sexualized behaviors in childhood. Results confirm the lack of a simple explanation for child sexualized behaviors and indicate that certain factors (e.g., maternal stressors) seemingly unrelated to sexual behavior have significant predictive utility. Furthermore, subgroups of children appear to develop sexualized behaviors for different constellations of reasons, indicative of equifinality. Taken together, results of the current investigation provide a strong empirical basis from which future longitudinal work should follow. Specifically, results highlight the need for research to examine the dynamic relationships among risk factors both within and across ecological domains and examine the persistence and desistance of sexualized behaviors across developmental periods.

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Table 1
Correlations between Child Sexual Behaviors and Demographic Variables

	Sexual Intrus.	Exhibit.	Bound. Probs.	Sexual Interest	Sexual Know.	Total Score
Boys ($N = 554$)						
Site	-.01	-.05	.06	-.04	.01	.02
Race	.00	.03	-.02	-.02	-.01	.00
Family Income	.03	.06	.01	-.04	-.07	-.03
Girls ($N = 595$)						
Site (1 = CPS)	.08	.02	.07	.08	-.01	.07
Race (1 = Minority)	.03	.06	.03	.10*	.15**	.14**
Family Income	.08	.05	.11*	.12**	.04	.12**

Note. * $p < .05$; ** $p < .01$. Significant correlations shown in **boldface**.

Table 2
Child Sexual Behavior Inventory Total and Subscales by Gender

CSBI Scale	<u>Means</u>		<i>t</i>	<i>d</i>
	Males (<i>N</i> = 554)	Females (<i>N</i> = 595)		
Sexual Intrusiveness	.03 (.13)	.02 (.08)	1.84	.09
Exhibitionism	.05 (.23)	.02 (.13)	2.60**	.16
Boundary Problems	.07 (.19)	.08 (.24)	-1.02	-.05
Sexual Interest	.28 (.36)	.21 (.30)	3.55***	.21
Sexual Know.ledge	.16 (.34)	.17 (.33)	-.12	-.03
Total Score	.15 (.20)	.13 (.19)	1.98*	.10

Note. Standard deviations are provided in parentheses below mean. CSBI = *Child Sexual Behavior Inventory*.

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

Table 3
Correlations among Individual Level Variables

	Intellectual Functioning			Temperament				
	1	2	3	4	5	6	7	8
<i>Intellectual Functioning</i>								
1. Block Design	.							
2. Vocabulary	.40 ^{***}	.						
3. Estimated Full Scale	.83 ^{***}	.85 ^{***}	.					
<i>Temperament</i>								
4. Fussy	-.04	.03	-.03	.				
5. Unadaptable	-.14 [*]	-.07	-.13	.41 ^{***}	.			
6. Dull	-.04	.10	.00	.41 ^{***}	.26 [*]	.		
7. Unpredictable	-.02	.08	.04	.51 ^{***}	.38 ^{***}	.40 ^{***}	.	
8. Total	-.06	.04	-.04	.89 ^{***}	.71 ^{***}	.60 ^{***}	.77 ^{***}	.
Mean	7.71	8.46	8.08	26.41	14.14	10.69	17.05	68.28
Standard Deviation	2.80	2.98	2.42	8.57	5.80	3.35	6.06	18.06

Note. $N = 985$ for Intellectual Functioning and $N = 225$ for Temperament. Intellectual Functioning = *WPPSI, Wechsler Preschool and Primary Scale of Intelligence-Revised*; Temperament = *ICQ, Infant Characteristics Questionnaire*.

* $p < .05$; ** $p < .01$; *** $p < .001$. Significant correlations shown in **boldface**.

Table 4
Correlations among Maternal Variables

	Maternal Distress		Maternal Victimization				
	1	2	3	4	5	6	7
<i>Maternal Distress</i>							
1. Depression	.						
2. Maternal Stressors	.58^{***}	.					
<i>Maternal Victimization</i>							
3. Child/Adol. Phys. Abuse	.16^{***}	.14^{***}	.				
4. Child Sexual Abuse	.10^{***}	.11^{**}	.37^{***}	.			
5. Adol. Sexual Abuse	.15^{***}	.11^{**}	.29^{***}	.46^{***}	.		
6. Adult Phys. Assault	.15^{***}	.21^{***}	.33^{***}	.27^{***}	.30^{***}	.	
7. Adult Sexual Assault	.18^{***}	.14^{***}	.31^{***}	.32^{***}	.35^{***}	.40^{***}	.
Mean / Percentage	15.97	35.51	36.0	28.9	25.2	50.4	15.1
Standard Deviation / N	10.52	10.53	228	217	185	367	110

Note. $N = 1085$ for Depression, $N = 1027$ for Maternal Stressors, $N = 727$ for Maternal Victimization. Depression = *CES-D, Center for Epidemiological Studies Depression Scale*; Maternal Stressors = Total Score on *Everyday Stressors Index*; Maternal Victimization = Subscales created from *Caregiver History of Loss and Harm*.

** $p < .01$; *** $p < .001$. Significant correlations shown in **boldface**.

Table 5
Correlations among Variables in the Immediate Interactional Context

	Child Maltreatment				Home Environment				Discipline Strategies		
	1	2	3	4	5	6	7	8	9	10	11
<i>Child Maltreatment</i>											
1. Sexual Abuse	.										
2. Physical Abuse	.22^{***}	.									
3. Neglect	.15^{***}	.40^{***}	.								
4. Emotional Abuse	.20^{***}	.49^{***}	.47^{***}	.							
<i>Home Environment</i>											
5. Domestic Violence	.04	-.04	-.05	-.06	.						
6. Child Social Support	-.03	-.01	-.14^{**}	-.06	-.00	.					
7. Home Rating	.07[*]	-.02	-.11^{***}	.03	.03	.02	.				
8. Exposure to Sex	.06	-.02	-.00	.05	.09^{**}	-.10[*]	.03	.			
<i>Parent Discipline Strategies</i>											
9. Psychological Agg.	-.06	.11^{***}	.15^{***}	.12^{***}	-.00	.03	-.18^{***}	.11^{***}	.		
10. Reasoning	.00	.19^{***}	.27^{***}	.22^{***}	-.02	-.05	-.21^{***}	.00	.57^{***}	.	
11. Phys. Assault	-.10^{**}	.01	-.01	.03	.02	.01	-.13^{***}	.10[*]	.69^{***}	.39^{***}	.
Mean / Percentage	16.2	20.1	40.0	20.6	2.94	33.15	3.2	.31	5.86	6.53	3.27
Standard Deviation / N	300	372	740	381	2.65	5.42	3.91	.62	4.40	3.29	3.30

Note. $N = 1149$ for Child Maltreatment, Home Rating and Exposure to Sex, $N = 985$ for Domestic Violence, $N = 470$ for Child Social Support, and $N = 1080$ for Parent Discipline Strategies. Physical Abuse, Neglect, Emotional Abuse = *Modified*

Maltreatment Classification System, Reports; Sexual Abuse = Sexual abuse composite; Domestic Violence = Home Violence Subscale of the *Things I Have Seen and Heard Questionnaire*; Child Social Support = Total score on the *Inventory of Supportive Figures*; Home Rating = Total score on the *Interviewer Ratings of Caregiver Respondent and Home Environment*, where higher scores indicate poorer home environment; Exposure to Sex = Total score on Exposure to Sex scale; Psychological Aggression = Psychological Aggression subscale of the *Conflict Tactics Scale – Parent to Child*; Reasoning = Reasoning subscale of the *Conflict Tactics Scale – Parent to Child*; Phys. Assault = Phys. Assault subscale of the *Conflict Tactics Scale – Parent to Child*.

* $p < .05$; ** $p < .01$; *** $p < .001$. Significant correlations shown in **boldface**.

Table 6
Correlations among Variables in the Broader Social Context

	Community Violence	School Safety	Neighborhood Risk
<i>Child Self-Report</i>			
Community Violence	.		
<i>Teacher Report</i>			
School Safety	.09*	.	
<i>Caregiver Report</i>			
Neighborhood Risk	-.09*	-.20***	.
Mean	9.84	15.59	90.46
Standard Deviation	8.12	6.14	18.06

Note. $N = 1010$ for Community Violence, $N = 728$ for School Safety, $N = 1053$ for Neighborhood Risk. Community Violence = Community Violence Subscale of the *Things I Have Seen and Heard Questionnaire*; School Safety = *School Safety Questionnaire*, where higher scores indicate lower exposure to school violence and antisocial behavior; Neighborhood Risk = *Neighborhood Risk Assessment*, where higher scores indicate lower quality neighborhood.

* $p < .05$; *** $p < .001$. Significant correlations shown in **boldface**.

Table 7
Correlations between Individual and Maternal Variables

	<u>Maternal Distress</u>		Child Phys.	<u>Maternal Victimization</u>			
	Maternal Depression	Maternal Stressors		Child Sexual	Adol. Sexual	Adult Phys.	Adult Sexual
<i>Intellectual Functioning</i>							
1. Block Design	-.11**	-.10**	.04	.05	.07	.05	-.02
2. Vocabulary	-.07*	-.04	.06	.08*	.08*	.12**	.07*
3. Estimated Full Scale	-.11**	-.09*	.06	.08*	.09*	.10**	.03
<i>Temperament</i>							
4. Fussy	.05	.07	.12	-.04	.14*	-.02	.11
5. Unadaptable	.08	.01	.01	.05	.06	-.07	.09
6. Dull	-.03	.03	.08	-.13	.08	.11	.09
7. Unpredictable	.06	.06	-.01	.02	.15*	.03	.06
8. Total	.07	.07	.07	.05	.15*	.00	.11

Note. Intellectual Functioning = WPPSI, Wechsler Preschool and Primary Scale of Intelligence-Revised; Temperament = ICQ, Infant Characteristics Questionnaire; Maternal Depression = CES-D, Center for Epidemiological Studies Depression Scale; Maternal Stressors = Everyday Stressors Index; Maternal Victimization = Subscales created from Caregiver History of Loss and Harm;

* $p < .05$; ** $p < .01$; *** $p < .001$. Significant correlations shown in **boldface**.

Table 8

Correlations between Individual Variables and Variables in the Immediate Interactional Context

	Intellectual Functioning			Temperament				
	1	2	3	4	5	6	7	8
<i>Child Maltreatment</i>								
Sexual Abuse	.05	.03	.05	-.02	-.08	.05	-.01	-.03
Physical Abuse	-.02	-.07*	-.05	-.13*	-.03	-.04	-.11	-.11
Neglect	-.14***	-.15***	-.17***	.08	-.01	-.03	.03	.04
Emotional Abuse	-.04	-.06	-.06	-.10	-.08	.04	.14*	-.11
<i>Home Environment</i>								
Domestic Violence	-.00	.04	.03	-.01	.05	.15*	.19*	.11
Child Social Support	.00	-.03	-.03	-.02	-.12	.05	-.15	-.09
Home Rating	.11***	.04	.09*	.03	.10	.16**	.16**	.13*
Exposure to Sex	.00	.08*	.05	.01	.03	.08	.06	.05
<i>Discipline Strategies</i>								
Psychological Agg.	-.02	-.02	-.02	.01	-.02	.04	-.03	-.01
Reasoning	-.02	-.11**	-.08*	-.07	-.06	-.00	-.08	-.08
Phys. Assault	-.06	.00	-.03	-.01	-.01	.09	-.01	-.02

Note. Intellectual Functioning = *WPPSI*, Wechsler Preschool and Primary Scale of Intelligence-Revised; Temperament = *ICQ*, Infant Characteristics Questionnaire; Physical Abuse, Neglect, Emotional Abuse = *Modified Maltreatment Classification System, Reports*; Sexual Abuse = Sexual abuse composite; Domestic Violence = Home Violence Subscale of the *Things I Have Seen and Heard Questionnaire*. Child Social Support = Total score on the *Inventory of Supportive Figures*; Home Rating = Total score on the *Interviewer Ratings of Caregiver Respondent and Home Environment*, where higher scores indicate poorer home environment; Exposure to Sex = Total score on Exposure to Sex scale; Psychological Aggression = Psychological Aggression subscale of the *Conflict Tactics Scale – Parent to Child*; Reasoning = Reasoning subscale of the *Conflict Tactics Scale – Parent to Child*; Phys. Assault = Phys. Assault subscale of the *Conflict Tactics Scale – Parent to Child*.

* $p < .05$; ** $p < .01$; *** $p < .001$. Significant correlations shown in **boldface**.

Table 9
Correlations between Individual Variables and Variables in the Broader Social Context

	Community Violence	School Safety	Neighborhood Risk
<i>Intellectual Functioning</i>			
Block Design	-.14 ^{***}	-.18 ^{***}	.10 ^{**}
Vocabulary	-.10 ^{**}	-.14 ^{**}	.08 [*]
Estimated Full Scale	-.14 ^{***}	-.19 ^{***}	.11 ^{**}
<i>Temperament</i>			
Fussy	.00	-.04	-.03
Unadaptable	.04	.07	-.16 [*]
Dull	-.04	-.15	-.07
Unpredictable	.10	.06	.01
Total	.04	-.00	-.08

Note. Intellectual Functioning = WPPSI; Wechsler Preschool and Primary Scale of Intelligence-Revised; Temperament = ICQ; Infant Characteristics Questionnaire; Community Violence = Community Violence Subscale of the *Things I Have Seen and Heard Questionnaire*; School Safety = *School Safety Questionnaire*, where higher scores indicate lower exposure to school violence and antisocial behavior; Neighborhood Risk = *Neighborhood Risk Assessment*, where higher scores indicate lower quality neighborhood.

* $p < .05$; ** $p < .01$; *** $p < .001$. Significant correlations shown in **boldface**.

Table 10

Correlations between Maternal Variables and Variables in the Immediate Interactional Context

	<u>Maternal Distress</u>		Child Phys.	<u>Maternal Victimization</u>			
	Maternal Depression	Maternal Stressors		Child Sexual	Adol. Sexual	Adult Phys.	Adult Sexual
<i>Child Maltreatment</i>							
Sexual Abuse	-.01	.03	.08*	.13***	.15***	.12**	.12**
Physical Abuse	-.03	.01	.02	.04	.03	.03	.02
Neglect	.07*	-.04	.02	.05	.09*	.08	.07
Emotional Abuse	-.04	-.04	.05	.05	.04	.05	.04
<i>Home Environment</i>							
Domestic Violence	.05	.05	.04	.09*	.08*	.07	.05
Child Social Support	.02	.01	.01	.00	-.07	-.02	.02
Home Rating	.01	.05	.21***	.12**	.10**	.17***	.17***
Exposure to Sex	.08**	.13***	.13**	.12**	.10**	.13***	.13***
<i>Discipline Strategies</i>							
Psychological Aggression	.25***	.29***	.02	.00	-.04	.02	.05
Reasoning	.06*	.08*	-.08*	-.01	-.06	-.02	-.12***
Phys. Assault	.18***	.21***	-.03	.05	.09*	-.02	-.02

Note. Depression = CES-D, Center for Epidemiological Studies Depression Scale; Maternal Stressors = Total Score on Everyday Stressors Index; Maternal Victimization = Subscales created from Caregiver History of Loss and Harm; Physical Abuse, Neglect, Emotional Abuse = Modified Maltreatment Classification System, Reports; Sexual Abuse = Sexual abuse composite; Domestic Violence = Home Violence Subscale of the Things I Have Seen and Heard Questionnaire; Child Social

Support = Total score on the *Inventory of Supportive Figures*; Home Rating = Total score on the *Interviewer Ratings of Caregiver Respondent and Home Environment*, where higher scores indicate poorer home environment; Exposure to Sex = Total score on Exposure to Sex scale; Psychological Aggression = Psychological Aggression subscale of the *Conflict Tactics Scale – Parent to Child*; Reasoning = Reasoning subscale of the *Conflict Tactics Scale – Parent to Child*; Phys. Assault = Phys. Assault subscale of the *Conflict Tactics Scale – Parent to Child*.

* $p < .05$; ** $p < .01$; *** $p < .001$. Significant correlations shown in **boldface**.

Table 11

Correlations between Maternal Variables and Variables in the Broader Social Context

	Community Violence	School Safety	Neighborhood Risk
<i>Maternal Distress</i>			
Depression	.11 ^{**}	.05	-.23 ^{***}
Maternal Stressors	.12 ^{**}	.03	-.34 ^{***}
<i>Maternal Victimization</i>			
Child/Adolescent Phys. Abuse	-.04	-.18 ^{***}	.01
Child Sexual Abuse	-.05	-.13 ^{**}	.06
Adolescent Sexual Abuse	-.09 [*]	-.14 ^{**}	.02
Adult Physical Abuse	.03	-.10 ^{**}	.04
Adult Sexual Abuse	.02	-.05	-.05

Note. Community Violence = Community Violence Subscale of the *Things I Have Seen and Heard Questionnaire*; School Safety = *School Safety Questionnaire*, where higher scores indicate lower exposure to school violence and antisocial behavior; Neighborhood Risk = *Neighborhood Risk Assessment*, where higher scores indicate lower quality neighborhood; Depression = *CES-D, Center for Epidemiological Studies Depression Scale*; Maternal Stressors = Total score on *Everyday Stressors Index*; Maternal Victimization = Subscales created from *Caregiver History of Loss and Harm*.

* $p < .05$; ** $p < .01$; *** $p < .001$. Significant correlations shown in **boldface**.

Table 12

Correlations between Variables in the Immediate Interactional Context and Broader Social Context

	Community Violence	School Safety	Neighborhood Risk
<i>Child Maltreatment</i>			
Sexual Abuse	-.06	-.04	.09**
Physical Abuse	.03	.10*	.05
Neglect	.02	.11**	-.13***
Emotional Abuse	-.02	.05	-.12***
<i>Home Environment</i>			
Domestic Violence	.40***	-.05	.04
Child Social Support	.12*	-.11	-.07
Home Rating	-.03	-.27***	-.10*
Exposure to Sex	.01	-.06	.00
<i>Discipline Strategies</i>			
Psychological Aggression	.05	.11**	-.14***
Reasoning	-.02	.03	.04
Phys. Assault	.06	.09	-.15***

Note. Community Violence = Community Violence Subscale of the *Things I Have Seen and Heard Questionnaire*; School Safety = Total Score on *School Safety Questionnaire*, where higher scores indicate lower exposure to school violence and antisocial behavior; Neighborhood Risk = Total Score on *Neighborhood Risk Assessment*, where higher scores indicate lower quality neighborhood; Intellectual Functioning = *WPPSI, Wechsler Preschool and Primary Scale of Intelligence-Revised*. Temperament = *ICQ, Infant Characteristics Questionnaire*; Physical Abuse, Neglect, Emotional Abuse = *Modified Maltreatment Classification System, Reports*; Sexual Abuse = Sexual abuse composite; Domestic Violence = Home Violence Subscale of the *Things I Have Seen and Heard Questionnaire*; Child Social Support = Total score on the *Inventory of Supportive Figures*; Home Rating = Total score on the *Interviewer Ratings of Caregiver Respondent and Home Environment*, where higher scores indicate poorer home environment; Exposure to Sex = Total score on Exposure to Sex scale; Psychological Aggression = Psychological Aggression subscale of the *Conflict Tactics Scale – Parent to Child*;

Reasoning = Reasoning subscale of the *Conflict Tactics Scale – Parent to Child*; Phys.

Assault = Phys. Assault subscale of the *Conflict Tactics Scale – Parent to Child*.

* $p < .05$; ** $p < .01$; *** $p < .001$. Significant correlations shown in **boldface**.

Table 13

Correlations between Child Sexual Behaviors and Levels of the Ecology: Boys

	Sexual Intrus.	Exhibit	Bound. Probs.	Sexual Interest	Sexual Know.	Total Score
<u>Individual Level Variables</u>						
<i>Intellectual Functioning</i>						
Block Design	-.08	.03	-.08	-.05	.04	-.04
Vocabulary	.00	-.00	.03	.04	.05	.05
Estimated Full Scale	-.04	.01	-.03	-.04	.05	.01
<i>Temperament</i>						
Fussy	-.08	.16	-.07	-.06	.09	-.05
Unadaptable	-.15	-.03	-.07	-.04	-.13	-.08
Dull	-.09	.16	-.05	.06	.03	.05
Unpredictable	.09	.15	.04	.06	.17	.11
Total	-.07	.16	-.05	-.01	.07	.00
<u>Maternal Level Variables</u>						
<i>Maternal Distress</i>						
Depression	.13**	.12*	.13**	.12*	.15**	.18***
Maternal Stressors	.17***	.21***	.19***	.19***	.20***	.27***
<i>Maternal Victimization</i>						
Child/Adol. Physical Abuse	.09	.06	.05	.06	.16**	.13*
Child Sexual Abuse	.00	-.01	-.08	.06	.12*	.07
Adol. Sexual Abuse	.03	-.01	.00	.03	.08	.05
Adult Physical Abuse	.01	.00	-.01	.14**	.11*	.10
Adult Sexual Abuse	.03	.01	.00	.04	.15*	.07
<u>Immediate Interactional Context</u>						
<i>Child Maltreatment</i>						
Sexual Abuse	.11*	.11*	.14**	.11*	.21***	.14**
Physical Abuse	-.01	.05	.06	.09	.02	.07
Neglect	-.07	-.01	-.01	-.07	-.03	-.04
Emotional Abuse	-.04	-.03	.00	-.03	.05	.01
<i>Home Environment</i>						
Domestic Violence	.05	.02	.04	.07	.10*	.09
Child Social Support	-.20*	-.03	-.14	-.08	.02	-.12

Home Rating	.12**	.15**	.08	.02	.16***	.13**
Exposure to Sex	.17***	.18***	.20***	.27***	.36***	.37***
<i>Parent Discipline Strategies</i>						
Psychological Aggression	.05	.12*	.15**	.19***	.09*	.20***
Reasoning	-.04	.01	.04	.06	-.03	.03
Phys. Assault	.05	.09	.08	.15*	.09*	.15**
<u>Community Level Variables</u>						
<i>Child Report</i>						
Community Violence	.08	.01	-.04	.07	.03	.06
<i>Teacher Report</i>						
School Safety	-.01	-.05	-.03	.08	-.04	-.01
<i>Caregiver Report</i>						
Neighborhood Risk	-.08	-.06	-.08	-.07	-.03	-.06

Note. $N = 414$ for Intellectual Functioning; $N = 110$ for Temperament; $N = 525$ for Depression; $N = 471$ for Maternal Stressors; $N = 366$ for Maternal Victimization; $N = 482$ for Child Maltreatment; $N = 412$ for Domestic Violence; $N = 178$ for Child Social Support; $N = 482$ for Home Rating and Exposure to Sex; $N = 454$ for Parent Discipline Strategies; $N = 401$ for Community Violence; $N = 287$ for School Safety; $N = 416$ for Neighborhood Risk. Intellectual Functioning = *WPPSI, Wechsler Preschool and Primary Scale of Intelligence-Revised*; Temperament = *ICQ, Infant Characteristics Questionnaire*. Depression = *CES-D, Center for Epidemiological Studies Depression Scale*; Maternal Stressors = Total Score on *Everyday Stressors Index*; Maternal Victimization = Subscales created from *Caregiver History of Loss and Harm*; Physical Abuse, Neglect, Emotional Abuse = *Modified Maltreatment Classification System, Reports*; Sexual Abuse = Sexual abuse composite; Domestic Violence = Home Violence Subscale of the *Things I Have Seen and Heard Questionnaire*; Child Social Support = Total score on the *Inventory of Supportive Figures*; Home Rating = Total score on the *Interviewer Ratings of Caregiver Respondent and Home Environment*, where higher scores indicate poorer home environment; Exposure to Sex = Total score on Exposure to Sex scale; Psychological Aggression = Psychological Aggression subscale of the *Conflict Tactics Scale – Parent to Child*; Reasoning = Reasoning subscale of the *Conflict Tactics Scale – Parent to Child*; Phys. Assault = Phys. Assault subscale of the *Conflict Tactics Scale – Parent to Child*; Community Violence = Community Violence Subscale of the *Things I Have Seen and Heard Questionnaire*; School Safety = *School Safety Questionnaire*, where higher scores indicate lower exposure to school violence and antisocial behavior; Neighborhood

Risk = *Neighborhood Risk Assessment*, where higher scores indicate lower quality neighborhood.

* $p < .05$; ** $p < .01$; *** $p < .001$. Significant correlations shown in **boldface**.

Table 14

Correlations between Child Sexual Behaviors and Levels of the Ecology: Girls

	Sexual Intrus.	Exhibit	Bound. Probs.	Sexual Interest	Sexual Know.	Total Score
<u>Individual Level Variables</u>						
<i>Intellectual Functioning</i>						
Block Design	-.02	-.01	-.10*	.08	.05	.00
Vocabulary	-.02	-.04	-.08	.09	.05	.02
Estimated Full Scale	-.03	-.03	-.11*	.10*	.06	.01
<i>Temperament</i>						
Fussy	-.09	-.06	-.01	-.12	-.09	-.08
Unadaptable	-.16	-.10	-.10	-.16	-.07	-.11
Dull	-.05	.01	.14	-.08	.02	.09
Unpredictable	-.08	-.06	.05	.04	.04	.12
Total	-.13	-.08	.00	-.11	-.05	-.02
<u>Maternal Level Variables</u>						
<i>Maternal Distress</i>						
Depression	-.03	-.09*	.03	-.01	.05	.02
Maternal Stressors	.04	-.05	.12**	.04	.07	.08
<i>Maternal Victimization</i>						
Child/Adol. Phys. Abuse	.03	.10	.18**	.10	.14*	.17**
Child Sexual Abuse	.05	.06	.19**	.14*	.18**	.21***
Adol. Sexual Abuse	.00	-.03	.10	.11	.12*	.10
Adult Phys. Assault	-.01	.04	.09	.11	.11	.11
Adult Sexual Assault	-.03	-.04	-.05	-.02	-.01	-.03
<u>Immediate Interactional Context</u>						
<i>Child Maltreatment</i>						
Child Sexual Abuse	.15***	.15***	.23***	.14***	.26***	.28***
Physical Abuse	.07	.01	.15**	.04	.11*	.14***
Neglect	-.07	-.01	-.01	-.07	-.03	-.04
Emotional Abuse	.02	.03	.08	.03	.08	.10*
<i>Home Environment</i>						
Domestic Violence	.04	.10*	-.04	.09	.05	.07
Child Social Support	-.11	.07	.01	-.01	-.01	.02

Home Rating	.01	-.01	.03	.09*	.04	.04
Exposure to Sex	.11*	.12**	.26***	.24***	.22***	.34***
<i>Discipline Strategies</i>						
Psychological Aggression	.04	-.04	.03	.05	.02	.06
Reasoning	.02	.02	.05	.05	.02	.09
Phys. Assault	.03	-.03	.03	.08	-.02	.05
<u>Community Level Variables</u>						
<i>Child Report</i>						
Community Violence	-.01	.02	-.05	.01	-.04	-.00
<i>Teacher Report</i>						
School Safety	.01	.01	-.07	-.06	.00	-.04
<i>Caregiver Report</i>						
Neighborhood Risk	.06	.05	-.03	.09	.03	.06

Note. $N = 441$ for Intellectual Functioning; $N = 114$ for Temperament; $N = 481$ for Depression and Maternal Stressors; $N = 513$ for Maternal Victimization; $N = 513$ for Child Maltreatment; $N = 443$ for Domestic Violence; $N = 222$ for Child Social Support; $N = 513$ for Home Rating and Exposure to Sex; $N = 483$ for Parent Discipline Strategies; $N = 423$ for Community Violence; $N = 300$ for School Safety; $N = 443$ for Neighborhood Risk. Intellectual Functioning = *WPPSI, Wechsler Preschool and Primary Scale of Intelligence-Revised*; Temperament = *ICQ, Infant Characteristics Questionnaire*; Depression = *CES-D, Center for Epidemiological Studies Depression Scale*; Maternal Stressors = Total Score on *Everyday Stressors Index*; Maternal Victimization = Subscales created from *Caregiver History of Loss and Harm*; Physical Abuse, Neglect, Emotional Abuse = *Modified Maltreatment Classification System, Reports*; Sexual Abuse = Sexual abuse composite; Domestic Violence = Home Violence Subscale of the *Things I Have Seen and Heard Questionnaire*; Child Social Support = Total score on the *Inventory of Supportive Figures*; Home Rating = Total score on the *Interviewer Ratings of Caregiver Respondent and Home Environment*, where higher scores indicate poorer home environment; Exposure to Sex = Total score on Exposure to Sex scale; Psychological Aggression = Psychological Aggression subscale of the *Conflict Tactics Scale – Parent to Child*; Reasoning = Reasoning subscale of the *Conflict Tactics Scale – Parent to Child*; Phys. Assault = Phys. Assault subscale of the *Conflict Tactics Scale – Parent to Child*; Community Violence = Community Violence Subscale of the *Things I Have Seen and Heard Questionnaire*; School Safety = *School Safety Questionnaire*, where higher scores indicate lower exposure to school violence and antisocial behavior; Neighborhood

Risk = *Neighborhood Risk Assessment*, where higher scores indicate lower quality neighborhood.

* $p < .05$; ** $p < .01$; *** $p < .001$. Significant correlations shown in **boldface**.

Table 15

Correlations between Child Sexual Behaviors and Abuse-Specific Variables: Boys

	Sexual Intrus.	Exhibit.	Bound. Probs.	Sexual Interest	Sexual Know.	Total Score
Number of Reports	-.41	-.40	-.22	.02	-.03	-.42
Maximum Severity	-.32	-.21	.16	.46	-.00	.04
Relationship to Perpetrator	-.36	.26	.11	-.45	.14	-.34

Note. $N = 17$. Higher values in Maximum Severity indicate more severe abuse; Relationship to perpetrator is coded such that 0 = intrafamilial offender, 1 = extrafamilial offender.

Table 16

Correlations between Child Sexual Behaviors and Abuse-Specific Variables: Girls

	Sexual Intrus.	Exhibit.	Bound. Probs.	Sexual Interest	Sexual Know.	Total Score
Number of Reports	-.09	-.06	-.16	.03	.10	-.05
Maximum Severity	-.11	-.18	-.19	-.10	-.01	-.10
Relationship to Perpetrator	-.22	-.22	-.05	-.12	-.36*	-.16

Note. $N = 40$. Higher values in Maximum Severity indicate more severe abuse; Relationship to perpetrator is coded such that 0 = intrafamilial offender, 1 = extrafamilial offender.

* $p < .05$. Significant correlations shown in **boldface**.

Table 17

Predicting Sexual Intrusiveness from Levels of the Ecology: Boys

Predictors	Step 1: Demographics		Step 2: Sexual Abuse		Step 3: Domain of Interest			
	β	t	β	t	β	t	β	t
<u>All Models</u>								
Step 1: $R^2 = .00$, $F = .25$								
Family Income	.03	.70	.02	.48	.06	1.28	.01	.17
Child Race	.01	.01	-.00	-.04	.01	.16	.00	.01
Step 2: $R^2 = .01$, $F = 5.84^*$								
Child Sexual Abuse			.11	2.42*	.09	1.97*	.10	1.32
<u>Maternal Variables</u>								
Step 3: $R^2 = .05$, $F = 6.94^{**}$								
Depression					.07	1.15		
Maternal Stressors					.14	2.48*		
<u>Immediate Interactional Context</u>								
Step 3: $R^2 = .05$, $F = 4.40^{**}$								
Home Rating							.12	1.56
Child Social Support							-.18	-2.44*
Exposure to Sex							.14	1.87

Note. F-test of change indicated in each step above.

Child race is coded such that 0 = Nonminority (white) and 1 = Minority.

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

Table 18

Predicting Sexual Intrusiveness from Levels of the Ecology: Girls

Predictors	Step 1: Demographics		Step 2: Sexual Abuse		Step 3: Domain of Interest			
	β	t	β	t	β	t	β	t
<u>All Models</u>								
Step 1: $R^2 = .01$, $F = 1.86$								
Family Income	.08	1.77	.06	1.37	.06	1.44	.06	1.45
Child Race	.03	.59	.01	.40	.02	.35	.02	.38
Step 2: $R^2 = .03$, $F = 9.33^{**}$								
Child Sexual Abuse					.14	3.06 ^{**}	.13	2.94 ^{**}
<u>Immediate Interactional Context</u>								
Step 3: $R^2 = .04$, $F = 6.04^*$								
Exposure to Sex							.11	2.46 [*]

Note. F-test of change indicated in each step above.

Child race is coded such that 0 = Nonminority (white) and 1 = Minority.

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

Table 19
Predicting Exhibitionism from Levels of the Ecology: Boys

Predictors	Step 1: Demographics		Step 2: Sexual Abuse		Step 3: Domain of Interest			
	β	t	β	t	β	t	β	t
<u>All Models</u>								
Step 1: $R^2 = .00$, $F = .11$								
Family Income	.00	.21	.00	.04	.04	.82	.01	.31
Child Race	-.02	-.41	-.02	-.52	-.02	-.34	-.02	-.43
Step 2: $R^2 = .01$, $F = 3.70^*$								
Child Sexual Abuse			.11	2.01*	.07	1.44	.06	1.31
<u>Maternal Variables</u>								
Step 3: $R^2 = .04$, $F = 9.82^{***}$								
Depression					.01	.20		
Maternal Stressors					.21	3.72 ^{***}		
<u>Immediate Interactional Context</u>								
Step 3: $R^2 = .07$, $F = 11.26^{***}$								
Exposure to Sex							.16	3.41 ^{**}
Home Rating							.18	3.77 ^{***}
Psychological Aggression (Discipline)							.14	3.05 ^{**}

Note. F-test of change indicated in each step above.

Child race is coded such that 0 = Nonminority (white) and 1 = Minority.

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

Table 20
Predicting Exhibitionism from Levels of the Ecology: Girls

Predictors	Step 1: Demographics		Step 2: Sexual Abuse		Step 3: Domain of Interest			
	β	t	β	t	β	t	β	t
<u>All Models</u>								
Step 1: $R^2 = .01$, $F = 2.98$								
Family Income	.11	2.37*	.09	1.97*	.07	1.51	.09	1.82
Child Race	.02	.35	.01	.16	.01	.18	.01	.22
Step 2: $R^2 = .03$, $F = 9.01^{**}$								
Child Sexual Abuse			.13	3.00**	.13	2.89**	.12	2.60*
<u>Maternal Variables</u>								
Step 3: $R^2 = .03$, $F = 1.73$								
Depression					-.06	-1.32		
<u>Immediate Interactional Context</u>								
Step 3: $R^2 = .04$, $F = 4.49^*$								
Domestic Violence							.07	1.63
Exposure to Sex							.11	2.35*

Note. F-test of change indicated in each step above.

Child race is coded such that 0 = Nonminority (white) and 1 = Minority.

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

Table 21

Predicting Boundary Problems from Levels of the Ecology: Boys

Predictors	Step 1: Demographics		Step 2: Sexual Abuse		Step 3: Domain of Interest			
	β	t	β	t	β	t	β	t
<u>All Models</u>								
Step 1: $R^2 = .00$, $F = .96$								
Family Income	.06	1.21	.04	.95	.09	1.79	.06	1.31
Child Race	.03	.70	.02	.52	.03	.71	.04	.87
Step 2: $R^2 = .02$, $F = 8.27^{**}$								
Child Sexual Abuse			.13	2.88 ^{**}	.11	2.39 [*]	.12	2.61 ^{**}
<u>Maternal Variables</u>								
Step 3: $R^2 = .05$, $F = 8.74^{***}$								
Depression					.06	1.07		
Maternal Stressors					.16	2.95 ^{**}		
<u>Immediate Interactional Context</u>								
Step 3: $R^2 = .07$, $F = 13.91^{***}$								
Exposure to Sex							.18	3.93 ^{***}
Psychological Aggression (Discipline)							.14	3.08 ^{**}

Note. F-test of change indicated in each step above.

Child race is coded such that 0 = Nonminority (white) and 1 = Minority.

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

Table 22

Predicting Boundary Problems from Levels of the Ecology: Girls

Predictors	Step 1: Demographics		Step 2: Sexual Abuse		Step 3: Domain of Interest					
	β	t	β	t	β	t	β	t	β	t
All Models										
Step 1: $R^2 = .01, F = 1.32$										
Family Income	.04	.98	.01	.32	.04	.85	.06	1.00	.02	.37
Child Race	.05	1.19	.04	.89	.03	.68	.04	.65	.03	.63
Step 2: $R^2 = .06, F = 26.96^{***}$										
Child Sexual Abuse			.23	5.19 ^{***}	.24	5.04 ^{***}	.19	3.45 ^{**}	.19	4.28 ^{***}
Individual Level Variables										
Step 3: $R^2 = .08, F = 4.24^*$										
Block Design					-.07	-.81				
Estimated Intellectual Functioning					-.08	-.99				
Maternal Variables										
Step 3: $R^2 = .10, F = 5.34^{***}$										
Maternal Stressors							.13	2.19 [*]		
Child/Adol Phys. Abuse							.12	1.97 [*]		
Child Sexual Abuse							.09	1.51		

Immediate Interactional Context**Step 3:** $R^2 = .13$, $F = 21.46^{***}$

Physical Abuse

.12 2.74**

Exposure to Sex

.23 6.14***

Note. F-test of change indicated in each step above.

Child race is coded such that 0 = Nonminority (white) and 1 = Minority.

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

Table 23
Predicting Sexual Interest from Levels of the Ecology: Boys

Predictors	Step 1: Demographics		Step 2: Sexual Abuse		Step 3: Domain of Interest			
	β	t	β	t	β	t	β	t
<u>All Models</u>								
Step 1: $R^2 = .00$, $F = .53$								
Family Income	-.04	-.96	-.06	-1.19	-.03	-.55	-.03	-.75
Child Race	-.02	-.42	-.03	-.58	-.02	-.37	-.01	-.15
Step 2: $R^2 = .02$, $F = 6.40^*$								
Child Sexual Abuse			.12	2.53*	.10	1.77	.10	2.21*
<u>Maternal Variables</u>								
Step 3: $R^2 = .06$, $F = 4.31^{**}$								
Depression					.01	.13		
Maternal Stressors					.15	2.21*		
Adult Phys. Assault					.10	1.79		
<u>Immediate Interactional Context</u>								
Step 3: $R^2 = .11$, $F = 15.61^{***}$								
Exposure to Sex							.24	5.31***
Psychological Aggression (Discipline)							.17	2.74**
Phys. Assault (Discipline)							-.00	-.03

Note. F-test of change indicated in each step above.

Child race is coded such that 0 = Nonminority (white) and 1 = Minority.

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

Table 24

Predicting Sexual Interest from Levels of the Ecology: Girls

Predictors	Step 1: Demographics		Step 2: Sexual Abuse		Step 3: Domain of Interest					
	β	t	β	t	β	t	β	t	β	t
All Models										
Step 1: $R^2 = .02, F = 5.70^{**}$										
Family Income	.10	2.41*	.09	2.04*	.07	1.51	.09	1.61	.10	2.36*
Child Race	.09	2.11*	.09	1.94	.09	1.96	.08	1.49	.08	1.81
Step 2: $R^2 = .04, F = 7.96^{**}$										
Child Sexual Abuse			.13	2.82**	.12	2.56*	.10	1.81	.11	2.48**
Individual Level Variables										
Step 3: $R^2 = .05, F = 3.18$										
Estimated Full Scale IQ					.09	1.78				
Maternal Variables										
Step 3: $R^2 = .05, F = 4.00^*$										
Child Sexual Abuse							.11	2.00*		
Immediate Interactional Context										
Step 3: $R^2 = .10, F = 15.97^{***}$										
Exposure to Sex									.23	5.29***

Home Rating

.08 1.79

Note. F-test of change indicated in each step above.

Child race is coded such that 0 = Nonminority (white) and 1 = Minority.

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

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Table 25
Predicting Sexual Knowledge from Levels of the Ecology: Boys

Predictors	Step 1: Demographics		Step 2: Sexual Abuse		Step 3: Domain of Interest			
	β	t	β	t	β	t	β	t
All Models								
Step 1: $R^2 = .00$, $F = 1.04$								
Family Income	-.07	-1.42	-.08	-1.89	-.06	-1.11	-.06	-1.12
Child Race	.01	.22	-.00	-.08	.01	.17	.01	.13
Step 2: $R^2 = .05$, $F = 23.18^{***}$								
Child Sexual Abuse			.22	4.81 ^{***}	.19	3.48 ^{**}	.18	3.98 ^{***}
Maternal Variables								
Step 3: $R^2 = .10$, $F = 2.93^*$								
Depression					.01	.08		
Maternal Stressors					.14	2.14 [*]		
Child/Adol Phys. Abuse					.09	1.52		
Child Sexual Abuse					.05	.75		
Adult Phys. Assault					.01	.21		
Adult Sexual Assault					.06	.92		
Immediate Interactional Context								
Step 3: $R^2 = .20$, $F = 14.67^{***}$								
Domestic Violence							.07	1.64
Exposure to Sex							.32	7.05 ^{***}
Home Rating							.16	3.40 ^{**}
Psychological Aggression (Discipline)							.09	1.42
Physical Assault (Discipline)							.01	.23

Note. F-test of change indicated in each step above.

Child race is coded such that 0 = Nonminority (white) and 1 = Minority.

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

Table 26
Predicting Sexual Knowledge from Levels of the Ecology: Girls

Predictors	Step 1: Demographics		Step 2: Sexual Abuse		Step 3: Domain of Interest			
	β	t	β	t	β	t	β	t
<u>All Models</u>								
Step 1: $R^2 = .02, F = 5.93^{**}$								
Family Income	.00	.58	-.01	-.16	-.01	-.10	-.00	-.10
Child Race	.15	3.32 ^{**}	.13	3.05 ^{**}	.13	2.42 [*]	.12	2.93 ^{**}
Step 2: $R^2 = .08, F = 32.86^{***}$								
Child Sexual Abuse			.25	5.73 ^{***}	.22	3.90 ^{***}	.22	5.10 ^{***}
<u>Maternal Variables</u>								
Step 3: $R^2 = .11, F = 2.47$								
Child/Adol Phys. Abuse					.07	1.20		
Child Sexual Abuse					.09	1.42		
Adol. Sexual Abuse					.03	.43		
<u>Immediate Interactional Context</u>								
Step 3: $R^2 = .13, F = 13.11^{***}$								
Physical Abuse							.06	1.47
Exposure to Sex							.21	5.01 ^{***}

Note. F-test of change indicated in each step above.

Child race is coded such that 0 = Nonminority (white) and 1 = Minority.

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

Table 27
Predicting Total Score from Levels of the Ecology: Boys

Predictors	Step 1: Demographics		Step 2: Sexual Abuse		Step 3: Domain of Interest			
	β	t	β	t	β	t	β	t
All Models								
Step 1: $R^2 = .00$, $F = .24$								
Family Income	-.03	-.69	-.05	-.10	-.00	-.04	-.02	-.52
Child Race	-.00	-.03	-.01	-.24	.00	.08	.01	.13
Step 2: $R^2 = .02$, $F = 10.60^{**}$								
Child Sexual Abuse			.15	3.26 ^{**}	.13	2.30 [*]	.11	2.62 ^{**}
Maternal Variables								
Step 3: $R^2 = .10$, $F = 8.14^{***}$								
Depression					.03	.47		
Maternal Stressors					.23	3.54 ^{***}		
Child/Adol Phys. Abuse					.08	1.44		
Immediate Interactional Context								
Step 3: $R^2 = .19$, $F = 24.37^{***}$								
Home Rating							.16	3.64 ^{***}
Exposure to Sex							.33	7.23 ^{***}
Psychological Aggression (Discipline)							.20	3.35 ^{***}
Phys. Assault (Discipline)							.00	.03

Note. F-test of change indicated in each step above.

Child race is coded such that 0 = Nonminority (white) and 1 = Minority.

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

Table 28
Predicting Total Score from Levels of the Ecology: Girls

Predictors	Step 1: Demographics		Step 2: Sexual Abuse		Step 3: Domain of Interest			
	β	t	β	t	β	t	β	t
<u>All Models</u>								
Step 1: $R^2 = .03$, $F = 8.23^{***}$								
Family Income	.11	2.40*	.07	1.67*	.08	1.42	.08	1.88
Child Race	.13	3.02*	.12	2.73**	.11	2.05*	.10	2.59*
Step 2: $R^2 = .10$, $F = 37.32^{***}$								
Child Sexual Abuse			.26	6.11***	.22	4.05***	.23	5.34***
<u>Maternal Variables</u>								
Step 3: $R^2 = .13$, $F = 5.41^{**}$								
Child/Adol Phys. Abuse					.10	1.74		
Child Sexual Abuse					.11	1.96**		
<u>Immediate Interactional Context</u>								
Step 3: $R^2 = .21$, $F = 23.15^{***}$								
Physical Abuse							.10	2.21*
Emotional Abuse							-.01	-.28
Exposure to Sex							.32	8.16***

Note. F-test of change indicated in each step above.

Child race is coded such that 0 = Nonminority (white) and 1 = Minority.

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

Table 29

Between-Group Differences: Percentages, Means and Standard Deviations for Measures of Risk across Boys' Clusters

Risk Domain	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Test Statistic	
	Moderate Risk N = 100	Sexually Abused/ Moderate Risk N = 46	Low Risk N = 155	High Risk N = 41	F	X
Child Maltreatment						
Sexual Abuse	0% _a (n = 0)	100% _b (n = 46)	0% _b (n = 0)	2.1% _b (n = 1)		431.33***
Maternal Distress						
Child/Adol Phys. Abuse	100% _a (n = 100)	9.9% _b (n = 11)	0% _b (n = 0)	0% _b (n = 0)		397.50***
Depression	.27 _a (1.11)	.19 _b (1.07)	-.41 _c (.60)	.32 _a (1.07)	18.17***	
Stressors	.25 _a (.93)	.10 _a (1.09)	-.58 _b (.67)	.43 _c (1.03)	32.25***	
Home Environment						
Home Rating	.63 _a (1.17)	.55 _b (1.00)	.34 _b (.98)	.93 _c (.73)	9.34***	
Exposure to Sex	.32 _a (1.10)	.55 _a (1.48)	-.29 _b (.54)	.73 _c (1.44)	21.32***	

Parent Discipline Strategies

Psychological Agg.	<i>-.10_a</i> (.99)	<i>-.17_a</i> (.99)	<i>-.55_b</i> (.55)	.73_c (.92)	58.41 ^{***}
Phys. Assault	<i>.06_a</i> (1.06)	<i>-.04_a</i> (.94)	<i>-.50_b</i> (.50)	.79_c (1.18)	46.20 ^{***}

Note. Standard deviations are provided in parentheses below mean. Means with dissimilar subscripts differ significantly at $p < .05$.

Bold cells reflect factors that significantly contributed to cluster formation due to their high occurrence within each cluster. Italicized cells indicate factors that significantly contributed to cluster development based on their lower occurrence within each cluster.

^{***} $p < .001$.

Table 30

Between-Group Differences: Percentages, Means and Standard Deviations for Measures of Risk across Girls' Clusters

Risk Domain	Cluster 1	Cluster 2	Cluster 3	Test Statistic	
	Maternal Victimization <i>N</i> = 166	Low Risk <i>N</i> = 270	High Maltreatment <i>N</i> = 169	F	X
Child Maltreatment					
Sexual Abuse	25.9% _a (<i>n</i> = 43)	0% _b (<i>n</i> = 0)	54.4% _c (<i>n</i> = 92)	190.84***	
Physical Abuse	4.2% _a (<i>n</i> = 7)	0% _a (<i>n</i> = 0)	45.0% _b (<i>n</i> = 76)	214.07***	
Emotional Abuse	3.0% _a (<i>n</i> = 5)	0% _a (<i>n</i> = 0)	50.3% _b (<i>n</i> = 85)	254.77***	
Maternal Victimization					
Child/Adol Phys. Abuse	74.1% _a (<i>n</i> = 123)	0% _b (<i>n</i> = 0)	0% _b (<i>n</i> = 0)	404.07***	
Child Sexual Abuse	66.3% _a (<i>n</i> = 110)	0% _b (<i>n</i> = 110)	0% _b (<i>n</i> = 110)	342.92***	
Home Environment					
Exposure to Sex	.63 _a (1.07)	.07 _a (.96)	.28 _a (.87)	2.36***	

Note. Standard deviations are provided in parentheses below mean. Means with dissimilar subscripts differ significantly at $p < .05$.

Bold cells reflect factors that significantly contributed to cluster formation due to their high occurrence within each cluster. Italicized cells indicate factors that significantly contributed to cluster development based on their lower occurrence within each cluster.

 $p < .001$.