

Developmental Outcomes in a Nationally Representative Sample of Sexually Abused Boys:  
The Moderating Influence of Family and Peer Context

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## ABSTRACT

Developmental Outcomes in a Nationally Representative Sample of Sexually Abused Boys:

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This dissertation uses the National Survey of Child and Adolescent Well-Being (NSCAW) to examine multi-systemic risk and resilience processes that lead to positive and negative outcomes in nationally representative sexually abused boys. This study focused on a sub-sample of 171 boys with reports of sexual abuse at the baseline. When weighting is applied this reflects a population of approximately 65,000 sexually abused boys involved in the child welfare system. The first aim of this study focuses on the impact of sexual abuse characteristics on behavioral problems, posttraumatic stress and academic achievement 1½, 3 and 5 years following the initial report of sexual abuse. The second aim of this study was to examine the moderating role of family context, as measured by cumulative family risk, across each of these outcomes. Finally, the third aim was to examine the moderating role of peer context, as measured by social skills and peer rejection, across each of these outcomes.

Key findings indicated that cumulative family risk confers greater risk for internalizing problems, externalizing problems, posttraumatic stress and academic achievement; though not always in the expected directions. Social skills buffered the effect of a range of abuse characteristics on internalizing problems, externalizing problems and academic achievement but not posttraumatic stress. Peer rejection had a more prominent role in influencing internalizing outcomes and academic achievement; however this did not extend to externalizing problems, posttraumatic stress. Family and peer context moderators seemed to play a more central role at the most proximal and distal time points from the baseline report of maltreatment.

This study finds a complex picture in the range and extent of the consequences associated with sexual abuse for young males. The results demonstrate the power in nurturing collaborative, multidisciplinary “healing communities” that can effectively target all levels of prevention and intervention; specifically, by incorporating the individual, family, peer/school and larger socio-cultural context. Future research should pay close attention to within group variation across socio-demographic and abuse characteristics and continue to disentangle the underlying mechanisms that contribute to adaptive and maladaptive outcomes for sexually abused boys given the multiple potential explanations for some of the unexpected findings in the present study.

## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION .....	1
I.I. Problem Statement	
I.II. Research Questions	
I.III. Dataset	
I.IV. Aims & Hypotheses	
II. THEORETICAL FRAMEWORK .....	9
II.I. Ecological Perspective .....	9
II.II. Risk and Resilience Framework .....	12
II.II. Integrated Child Maltreatment Frameworks.....	13
III. REVIEW OF THE LITERAURE .....	16
III.I. Developmental Outcomes.....	16
a. Problem Behaviors	
b. Psychological Functioning	
c. Academic Functioning	
III.II. Contextual Risk and Protective Factors .....	20
a. Abuse Dimensions	
b. Family Context	
c. Peer Context	
IV. METHODOLOGY .....	27
IV.I. NSCAW Design .....	27
IV.II. Data Collection Instruments and Measures .....	30
a. Developmental Outcomes	
b. Abuse Characteristics	
c. Family Context	
d. Peer Context	
e. Socio-Demographic and Control Variables	
IV.III. Data Analysis Plan.....	38
a. Statistical Analyses	
b. Missing Data and Statistical Power	
V. RESULTS .....	45
V.I. Results for Hypothesis 1 .....	45
a. Descriptive Statistics	
b. Bivariate Statistics	
V.IIa. Results for Hypothesis 2.....	56
Internalizing Problems	
Externalizing Problems	
Posttraumatic Stress	
Academic Achievement	

V.IIb. Hypothesis 2 Tables .....	79
V.IIIa. Results for Hypothesis 3 .....	91
Internalizing Problems	
Externalizing Problems	
Posttraumatic Stress	
Academic Achievement	
V.IIIb. Hypothesis 3 Tables .....	112
VI. DISCUSSION.....	136
VI.I. The Impact of Sexual Abuse Characteristics: .....	137
Descriptive and Bivariate Results	
VI.II. The Moderating Role of Family and Peer Context: .....	140
a. Internalizing Problems	
b. Externalizing Problems	
c. Posttraumatic Stress	
d. Academic Achievement	
VII.I. CONCLUSION.....	156
VII.I. Implications for Social Work Research and Practice	
VII.II. Study Limitations & Recommendations for Future Research	
REFERENCES .....	165
APPENDIX A.....	181
APPENDIX B .....	182

LIST OF TABLES

TABLE	PAGE
1a. Eight Within-PSU Sampling Domains.....	28
1b. Data Collection Time Table.....	29
2. Continuous Variable Coding Strategy for Graphs of Significant Interactions .....	39
3. Baseline Socio-Demographic & Abuse Characteristics .....	46
4. Descriptive Statistics for Wave 3 Outcome Variables.....	48
5. Descriptive Statistics for Wave 4 Outcome Variables.....	48
6. Descriptive Statistics for Wave 5 Outcome Variables.....	48
7. Mean Wave 3 Outcomes by Socio-Demographic & Abuse Characteristics.....	50
8. Mean Wave 4 Outcomes by Socio-Demographic & Abuse Characteristics.....	52
9. Mean Wave 5 Outcomes by Socio-Demographic & Abuse Characteristics.....	54
10. Wave 3 CBCL Internalizing Problems & Family Context Interactions .....	79
11. Wave 4 CBCL Internalizing Problems & Family Context Interactions .....	80
12. Wave 5 CBCL Internalizing Problems & Family Context Interactions .....	81
13. Wave 3 CBCL Externalizing Problems & Family Context Interactions .....	82
14. Wave 4 CBCL Externalizing Problems & Family Context Interactions .....	83
15. Wave 5 CBCL Externalizing Problems & Family Context Interactions .....	84
16. Wave 3 TSCC Posttraumatic Stress & Family Context Interactions.....	85
17. Wave 4 TSCC Posttraumatic Stress & Family Context Interactions.....	86
18. Wave 5 TSCC Posttraumatic Stress & Family Context Interactions.....	87
19. Wave 3 MBA Academic Achievement & Family Context Interactions.....	88
20. Wave 4 MBA Academic Achievement & Family Context Interactions.....	89
21. Wave 5 MBA Academic Achievement & Family Context Interactions.....	90
22. Wave 3 CBCL Internalizing Problems & Peer Context Interactions .....	112
23. Wave 4 CBCL Internalizing Problems & Peer Context Interactions .....	114
24. Wave 5 CBCL Internalizing Problems & Peer Context Interactions .....	116
25. Wave 3 CBCL Externalizing Problems & Peer Context Interactions .....	118
26. Wave 4 CBCL Externalizing Problems & Peer Context Interactions .....	120
27. Wave 5 CBCL Externalizing Problems & Peer Context Interactions .....	122
28. Wave 3 TSCC Posttraumatic Stress & Peer Context Interactions .....	124
29. Wave 4 TSCC Posttraumatic Stress & Peer Context Interactions .....	126
30. Wave 5 TSCC Posttraumatic Stress & Peer Context Interactions .....	128
31. Wave 3 MBA Academic Achievement & Peer Context Interactions.....	130
32. Wave 4 MBA Academic Achievement & Peer Context Interactions.....	132
33. Wave 5 MBA Academic Achievement & Peer Context Interaction.....	134

## LIST OF FIGURES

FIGURE	PAGE
Figure 1. Conceptual Model for Developmental Outcomes in Sexually Abused Boys.....	8
Figure 2. Ecological Model of Child Development.....	10
Figure 3. Ecological-Transactional Model of Child Maltreatment.....	15
Figures 4-20. Graphs of Interactions for Abuse.....	56-78
Characteristics*Family Context	
Figures 21-38. Graphs of Interactions for Abuse.....	91-111
Characteristics*Peer Context	



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is to surround myself with people smarter than I am”*

*– Andy Rooney*

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## Dedication

*To the many children and families I worked with over the years who inspired me and drove me to get my doctorate – and whom continue to remind me of why I started this journey in the first place – this dissertation is dedicated to you.*

## Chapter I: Introduction

### I.I. Problem Statement

Over the past 20 years a growing body of literature has documented the enduring behavioral, emotional, and social consequences associated with being sexually abused. Longitudinal studies increasingly demonstrate that these problems persist, re-emerge and evolve throughout a child's developmental life course (Bagley & Mallick, 2000; Cohen, Brown, & Smailes, 2001; Fergusson, Horwood & Lynskey, 1997; Lansford, et al., 2002; McGloin & Widom, 2001; Silverman, Reinherz, & Giaconia, 1996; Trickett, Noll, Reiffman, & Putnam, 2001). Despite this increased attention to sexual abuse, victimization in males remains largely under-reported, under-treated, and under-recognized by researchers, practitioners and the public (Banyard et al., 2004; Holmes & Slap, 1998). Because of this, obtaining an accurate picture of the scope of sexual abuse in males can be difficult; varying dramatically depending on the definitions used and the way the information is collected (Goldman & Padayachi, 2000).

Several sources represent the best information available regarding the nationwide incidence of child maltreatment. According to the National Child Abuse and Neglect Data System (NCANDS), which provides statistics on child maltreatment reported to child protection agencies, 77,536 children were substantiated victims of sexual abuse in 2006 (U.S. Department of Health and Human Services [U.S. DHHS], 2008) with an incidence rate of 1.6 girls per 1,000 and 0.4 boys per 1000 (U.S. DHHS, 2006). The National Incidence Study of Child Abuse and Neglect (NIS-3) is a more comprehensive attempt to determine the pervasiveness of child maltreatment by also taking into account children who *weren't* investigated by child welfare agencies, reports a much higher incidence of 6.8 girls per 1,000 and 2.3 boys per 1,000 (U.S. Department of Health and Human Services (U.S. DHHS, 1996). More recently, the Second

National Incidence Studies of Missing, Abducted, Runaway, and Thrownaway Children (NISMAART-2), which included questions regarding sexual victimization in interviews with caregivers and children, estimated that 285,400 children ages 17 and younger experienced a rape or sexual assault in 1999; an incidence rate of 4.1 children per 1,000. Of this number, 89% of the victims were female and 11% were male. These statistics, however, are likely conservative given that male victims are significantly less likely to disclose sexual abuse victimization, less likely to seek help and be suspected as a victim of sexual abuse, less likely to be believed upon disclosure, more likely to be blamed, and more likely to be perceived negatively when they do disclose sexual abuse than their female counterparts (Banyard, Williams & Siegal, 2004; Holmes & Slap, 1998; Speigal, 2003).

In trying to clarify why sexual abuse in males has been overlooked, researchers have pointed to prevailing cultural norms, myths, assumptions, and stigma/biases about victimization of males in general and sexual abuse of males in particular (Hepburn, 1994; Heru, 2007; Kia-Keating, Grossman, Sorsoli & Epstein, 2005; McGuffey, 2005; Teram, Stalker, Hovey, Schachter, & Lasiuk, 2006). Pollack (1998) suggests that society sees “boys as prisoners of their biological makeup (“boys will be boys”), and as properly confined by the gender straitjacket (“boys should be boys”)” (pg. 62). As a result of these traditional notions of masculinity there is an assumption that males aren’t negatively affected by sexual abuse. Yet there is mounting evidence that sexual abused males experience unique issues related to their masculinity, their sexuality, and concerns about opinions of others which put them at considerable risk for both emotional and behavioral problems. An example of this added complexity involves the unique double stigma male victims of sexual abuse potentially experience with respect to the gender of their perpetrator. If their perpetrator is a female they often have to face the misconception that

the abuse is benign, normative, or a “rite of passage” that is something to be bragged about. And if their perpetrator is a male, they often have to face misconceptions, stereotypes and assumptions regarding their sexual orientation. Not understanding that a physiological reaction is an involuntary response to acts of sexual abuse adds to the unique confusion many male victims have about defining their experience as abusive (Romano & De Luca, 2001; Teram et al, 2006). Consequently, self-disclosure becomes a critical component in the identification of sexual abuse. A victim’s cognitive appraisal and self-definition of the sexual abuse experience contributes to the probability of self-disclosure of the abuse. This is particularly true for males (Fondacaro , Holt & Powell, 1999; Lab & Moore, 2005; Rosen & Martin, 1996; Stander, Olson & Merrill, 2002). For example, in a small study by Lab and Moore (2005), 31% of the male psychiatric inpatients met the study’s behavioral criteria for CSA. However 35% of those who met these criteria did not self-define as sexual abuse victims. In a study utilizing a large mixed gender sample of Navy recruits Stander et al (2002) found that women were nearly 6 times more likely than men to self-define being sexually abused. Of the 2,010 participants who met the behavioral definition for childhood sexual abuse, only 15% of the men identified themselves as sexual abuse victims in comparison to 49% of the women. Males are also more likely to acknowledge and define their experience as sexual abuse if it deviates more from accepted societal norms, such as with incest. For example, Stander et al. also found that men were 17 times more likely to define themselves as sexually abused if the perpetrator was a family member.

The multiple and overlapping risk factors and complex resilience processes involved when sexual abuse in children occurs presents a considerable challenge to researchers hoping to gain an accurate understanding of the impact of sexual abuse. And when gender is considered, it further muddies the waters. While there are some exceptions, mixed-gender studies tend to have

very few males and the females significantly outnumber the males. Other studies, while mixed-gender, overlook or control for gender. Studies that do focus exclusively on males frequently are based on convenience samples and lack generalizability. This is especially true for studies using specialized populations (i.e., psychiatric patients, homeless youth, and prisoners) who tend to have appreciably higher rates of sexual abuse compared to the general population or even child welfare services populations (see, for example: Fondacaro, Holt & Powell, 1999; Johnson et al, 2005). Other methodological limitations of gender specific child sexual abuse research include definitional issues (i.e., behavioral vs. label questions), self-report biases, retrospective and cross-sectional designs, and lack of standardized measures. A final complication of sexual abuse research is the failure to control for or consider the presence of confounding factors such as other forms of child maltreatment and violence, characteristics of the abuse, school context, and family related factors. As Gordon (1990) cautioned nearly 20 years ago, understanding the impact of sexual abuse in boys in relation to girls may be like “comparing apples to oranges.” Accordingly, there has been an increased call for research focusing on the nature, experience and impact of sexual abuse in males. The goal of this dissertation is to extend and address many of the methodological limitations and ambiguity present in the prior research on sexually abused boys by elucidating some of the mechanisms that lead to positive and negative developmental outcomes in a nationally-representative, longitudinal, multi-informant sample of sexually abused boys.

Children are inexorably embedded in their environment and a child’s response to trauma cannot be understood without also understanding the entire context of that child. In a discussion of effects of violence in children, Garbarino (2001) describes chronic traumatic danger as something that “rewrites the child’s story, redraws the child’s social map, and redirects

behavior” (p. 369). However the bulk of the research on sexual abuse in males has yet to address the entirety and complexity of children’s lives. As sexual abuse prevention and intervention efforts for males are developed and expanded, it is critical that researchers, practitioners, and policy makers consider risk and resilience processes across individual, family, and community levels. Once we understand what factors promote or inhibit resilience in sexually abused boys, we can begin to focus multi-systemic interventions to lower overall risk, strengthen protective mechanisms, and build on the child’s intrinsic strengths. As one of the first in depth multidimensional examinations of risk and resilience in a nationally representative sample of sexually abused boys, this dissertation represents a first step in this direction.

### **I.II. Research Questions**

What impact does sexual abuse have on a boy’s developmental outcomes? What accounts for the variation in these outcomes? Do differing histories and characteristics of the abuse play a role? What influence do familial and Peer Context characteristics have on these outcomes? The current study addresses these questions. The theoretically informed model being tested is presented in Figure 1, at the end of this section.

### **I.III. Dataset**

This dissertation will utilize the National Survey on Child and Adolescent Well-Being (NSCAW). The Congressionally mandated NSCAW is the first nationally representative longitudinal study to collect detailed information via first hand reports from all the key stakeholders in the child welfare system—including children, parents, other caregivers, teachers, and caseworkers as well as agency/administrative sources (Dowd et al., 2002). NSCAW is the first survey to relate well-being to family characteristics, experiences with the child welfare system, and community factors. It is unusual for its depth and breadth of data—with information

across multiple domains collected from multiple informants over four waves (Dowd et al, 2002; NSCAW Research Group, 2002). Because of its complex design, “NSCAW allows for more sophisticated statistical procedures than those that have traditionally been used in child welfare analyses” (Haskins, Wulczyn & Webb, 2007, p.6).

#### **I.IV. Specific Aims & Hypotheses**

Aim 1: Examine the variation in developmental outcomes for sexually abused boys and the impact of sexual abuse characteristics on developmental outcomes.

Hypothesis 1: Severity; co-occurring abuse and/or neglect and perpetrator relationship will be significant predictors of Waves 3 to 5 internalizing problems, externalizing problems, posttraumatic stress and academic achievement.

Aim 2: Examine the moderating role of family context in the relationship between sexual abuse characteristics and developmental outcomes.

Hypothesis 2.1: The strength of the association between sexual abuse characteristics and Wave 3-5 internalizing problems will be amplified for boys with higher cumulative family risk.

Hypothesis 2.2: The strength of the association between sexual abuse characteristics and Wave 3-5 externalizing problems will be amplified for boys with higher cumulative family risk.

Hypothesis 2.3: The strength of the association between sexual abuse characteristics and Wave 3-5 posttraumatic stress symptomatology will be amplified for boys with higher cumulative family risk.

Hypothesis 2.4: The strength of the association between sexual abuse characteristics and Wave 3-5 academic achievement will be amplified for boys who live in a family context with higher cumulative family risk.

Aim 3: Examine the moderating role of peer context in the relationship between sexual abuse characteristics and developmental outcomes.

Hypothesis 3.1: Examine the moderating role of peer rejection in the relationship between sexual abuse characteristics and developmental outcomes as follows:



Hypothesis 3.1.1: The strength of the association between sexual abuse characteristics (severity, perpetrator relationship and co-occurring abuse) and Wave 3-5 internalizing problems will be amplified for boys with greater peer rejection.

Hypothesis 3.1.2: The strength of the association between sexual abuse characteristics (severity, perpetrator relationship and co-occurring abuse) and Wave 3-5 externalizing problems will be amplified for boys with greater peer rejection.

Hypothesis 3.1.3: The strength of the association between sexual abuse characteristics (severity, perpetrator relationship and co-occurring abuse) and Wave 3-5 posttraumatic stress will be amplified for boys with greater peer rejection.

Hypothesis 3.1.4: The strength of the association between sexual abuse characteristics (severity, perpetrator relationship and co-occurring abuse) and Wave 3-5 academic achievement will be amplified for boys with greater peer rejection.

Hypothesis 3.2: Examines the moderating role of social skills in the relationship between sexual abuse characteristics and developmental outcomes as follows:

Hypothesis 3.2.1: The strength of the association between sexual abuse characteristics and Wave 3-5 internalizing problems will diminish as social skills increases.

Hypothesis 3.2.2: The strength of the association between sexual abuse characteristics and Wave 3-5 externalizing problems will diminish as social skills increases.

Hypothesis 3.2.3: The strength of the association between sexual abuse characteristics and Wave 3-5 posttraumatic stress will diminish as social skills increases.

Hypothesis 3.2.4: The strength of the association between sexual abuse characteristics and Wave 3-5 academic achievement will diminish as social skills increases.

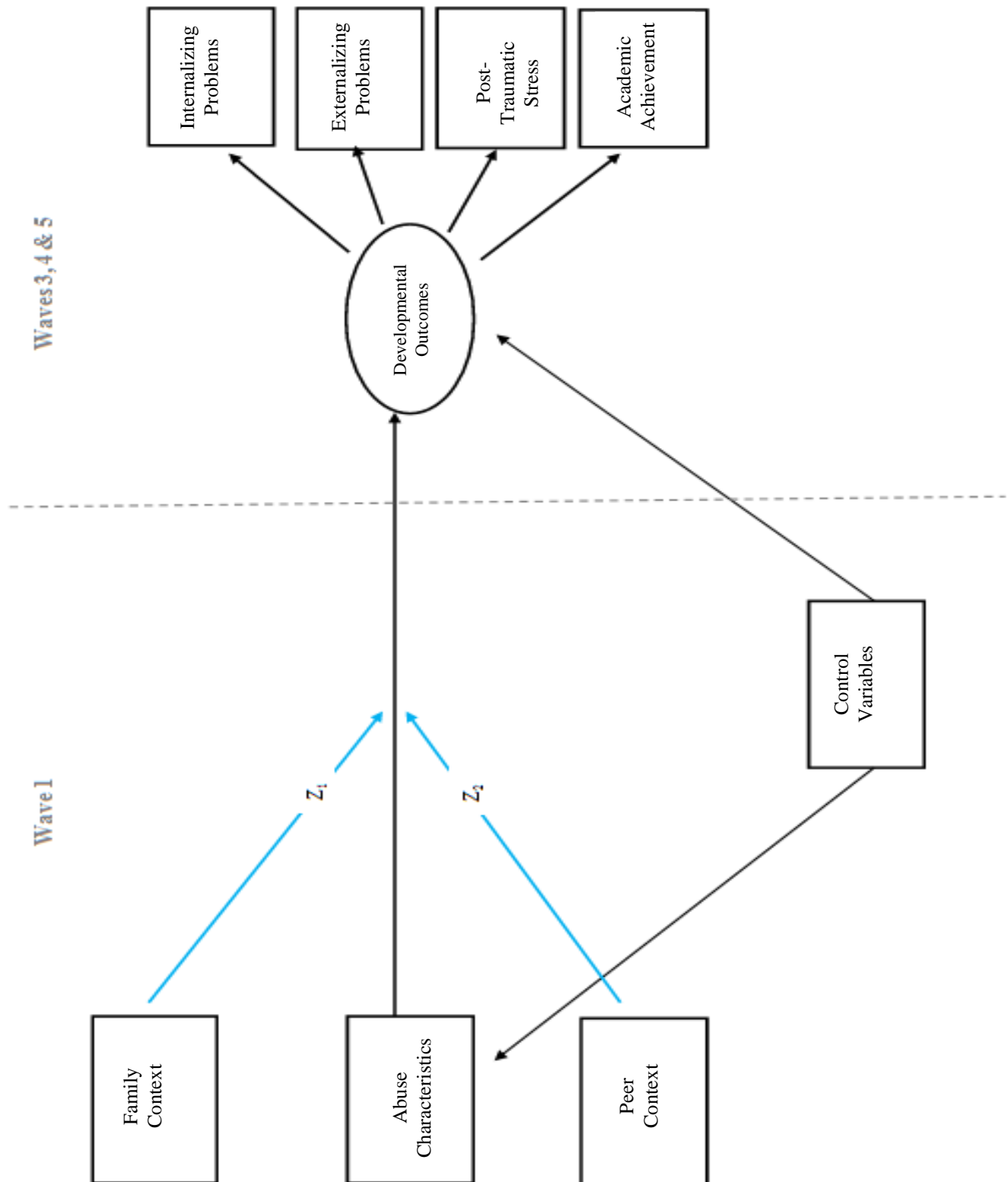


Figure 1.  
Conceptual Model for Developmental Outcomes in Sexually Abused Boys

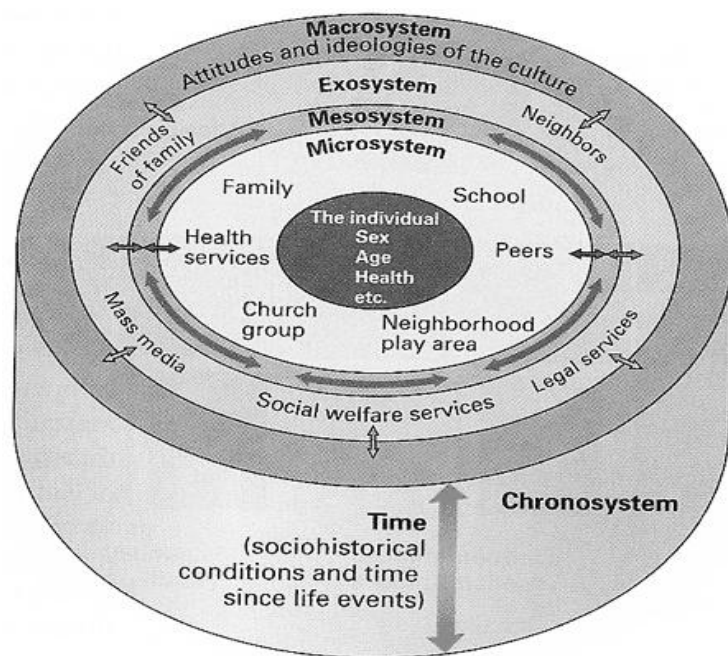
## **Chapter II: Theoretical Framework**

To achieve a more accurate and comprehensive picture of the experience of sexual abuse for children and to address the many methodological limitations endemic to its research, increasing importance is being placed on integrating a sound and coherent theoretically based research and practice paradigm in the area of child maltreatment. Several prominent researchers have proposed theoretical models related to childhood trauma that incorporate an ecological perspective and a risk and resilience framework (Belsky, 1980; Cicchetti & Lynch, 1993; Cicchetti & Rizley, 1998; and Garbarino, 1977). This combined risk and resilience framework and ecological perspective guides this dissertation.

### **II.I. Ecological Perspective**

According to Bronfenbrenner (1979, 1989), children are shaped not only by their personal attributes, but also by the constantly changing number of nested systems within which they develop. Ecological theory focuses on these transactional processes between these interacting systems between the person and the environment. Each system influences the others, and a change in one sends ripples of change through all the others (Germain, 1976; Germain & Gitterman, 1980; Sameroff, 1975). Ecological theory is important in understanding child maltreatment for several reasons: 1) it highlights the complexity of children's experiences, and explains that children may share some contexts and not others. This is why two children who may have shared adverse experiences can have different outcomes; and 2) because, in addition to examining immediate parent-child factors, it helps explicate the familial and social context in which abuse occurs. This includes influences from family, peers, school and work settings, and communities; social structures such as the neighborhood, informal and formal support groups, employment opportunities, socioeconomic status, availability of services, and the broader social

context (Bronfenbrenner, 1989; Cicchetti & Toth, 1997). Bronfenbrenner's ecological theory of human development (1979; 1989) pushed ecological theory to increased respectability and prominence in multiple disciplines in part because he wrote to his more conservative colleagues in psychology, who disregarded the impact of environmental factors (Ungar, 2002). While subsequent researchers have interpreted and adapted his theories for wider dissemination and usage, it was Bronfenbrenner's original presentation of ecological theory from a more empirical and scientific orientation that distinguished it from other ecological theories and models in its time.



*Figure 2.*  
Ecological Model of Child Development. (Santrock, 2007)

Four systemic levels are typically identified influencing the individual—the microsystem, the exosystem, and the macrosystem (see Figure 2, above). Microsystems refer to any environmental setting containing the developing child—home, family, daycare, school, peers, and so on. Bronfenbrenner believed that development is optimized if there are strong supportive links between microsystem; for example, the connections between home, school and

neighborhood. The exosystem includes the larger social structures such as the neighborhood, informal and formal support groups, employment opportunities, socioeconomic status, and the availability of services containing the family and indirectly impacting the developing child (Cicchetti & Toth, 1997; Sidebotham, 2001). Other critical roles of the exosystem include caregiver functioning in addition to the quality of schools, employment opportunities, and community support systems.

According to Bronfenbrenner (1989), the macrosystem is “thought of as a societal blueprint for a particular culture, subculture, or other broader social context” (p. 228). It is what dictates how children should be treated, what they should be taught, and goals for which they should strive. Examples of this include the differences in various cultures regarding acceptability of physical punishment of children. Effects of child maltreatment, trauma, and violence are dependent on the overall societal view of these issues, which also determines the degree of resources and supports made available for those individuals confronting these issues (Cicchetti & Toth, 1997). In a review of the neurobiology of trauma, Lester, Wong & Hendren (2003) specifically note that the child’s “sociocultural container” may protect against adverse outcomes; even at a neurobiological level. Cohen, Deblinger, Mannarino & de Arellano (2001) note that cultural, ethnic and/or racial issues “may have an impact on child-rearing practices, emotional and behavioral symptom formation, attitudes toward child abuse, mental health treatment, and response to therapy (or a particular therapist) in any child or family” (p. 154). While the racial, ethnic, cultural and religious meanings ascribed to sexual abuse can be a potent risk or protective factor, the heterogeneity associated with children who have been maltreated precludes generalizations.

More recently, Bronfenbrenner (1995) added a time-based dimension to his model, the chronosystem. The chronosystem is a pattern of environmental events and transitions over the life course. It cuts across the systemic levels and encompasses both short and long term time dimensions as well as a socio-historical conditions. The ontogenetic level refers to “factors within the individual that influence the achievement of competence and adaptation. At the ontogenetic level the most critical determinant of eventual competence or incompetence is the negotiation of central tasks of each developmental period” (Cicchetti & Lynch, 1993, p.103).

## **II.II. Risk and Resilience Framework**

Most leading researchers in the field agree that resilience refers to a “dynamic process encompassing positive adaptation within the context of significant adversity” (Luthar, Cicchetti & Becker, 2000, p.543). Resilience is a dynamic developmental process and cannot be directly measured. As Kia-Keating et al (2005) succinctly summarize, resilience “does not just exist, it evolves” (p. 171). The ability to manifest resilience changes over time depending on the child’s developmental stage and context; children can show competence and resilience in one domain and not in others. Risk factors are generally thought of as circumstances or conditions in individuals that promote greater maladjustment overall, than those without it (Cicchetti & Toth, 1997; Luthar et al., 2000). Protective factors are generally thought of as promoting better competence in children under adverse conditions—experiences that ameliorate the negative impact of risks. Promotive and compensatory factors are terms often used interchangeably with protective factors; however Fergusson and Horwood (2003) provide a helpful distinction between the two types of processes leading to resilience: protective processes are those in which the exposure to the resilience factor is beneficial to those exposed to adversity but has no benefit for those not exposed. Promotive and compensatory factors are those in which the resilience

factor has an equally beneficial effect on those exposed and those not exposed to adversity. Yehuda, Flory, Southwick and Charney (2006) provide a further distinction between two different forms of resilience—resistance and recovery. Resistance is defined as the “psychological and/or biological characteristics that may be associated with being relatively impervious to the deleterious effects of stress” (p.382). Recovery, on the other hand, is “characterized by an individual’s ability to mend or restore psychological and/or physical damage that may have resulted from trauma exposure (p. 383). Essentially, this is the difference between a sexually abused boy never developing PTSD vs. developing PTSD and later recovering from it. Taking into account the dynamic, developmental and contextual sensitivity of risk and protective factors, researchers largely advocate for a multiple and cumulative risk perspective in evaluating adverse outcomes and adjustment as well as a longitudinal approach.

### **II.III. Integrated Child Maltreatment Specific Frameworks**

Leading child maltreatment scholars are increasingly tailoring integrated theoretical frameworks specific to child maltreatment that incorporate ecological theory, developmental psychopathology and a risk and resilience framework. Three seminal child maltreatment specific theoretical frameworks have been proposed. Garbarino (1977) was one of the first to utilize the ecological model of development to reconceptualize child maltreatment. Prior to Garbarino’s (1977) seminal article, child abuse literature was dominated by the notion that child maltreatment was a result of individual characteristics and personal psychopathology. In his article, Garbarino identifies the multiple *necessary* and *sufficient* conditions for the maltreatment of children. Abuse is viewed as being created by a “convergence of forces” which lead to a pathological adaptation by caregivers. In conducting and evaluating research, Garbarino recommends examining community, neighborhood, and family contexts of child maltreatment. Community

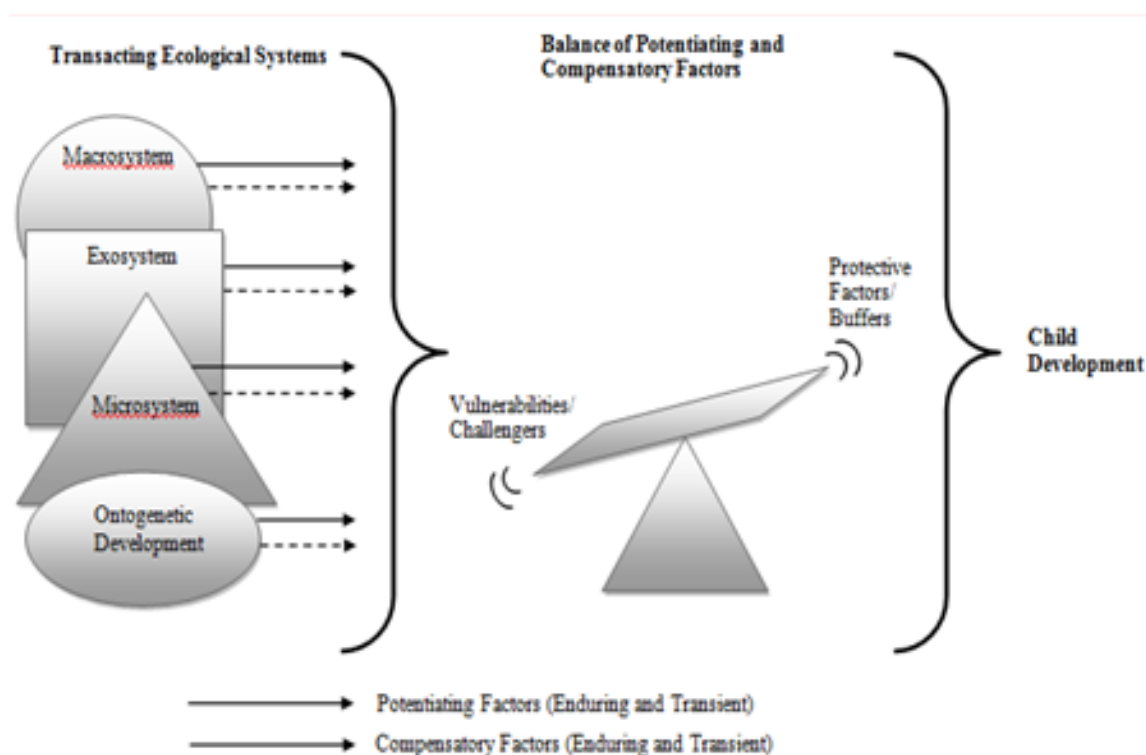
contexts include socioeconomic, demographic, ideological, and historical factors. Neighborhood contexts include availability of services for families, feedback for families in trouble, and neighborhood patterns. Family characteristics for examination include stressors in the life course, and supports.

Belsky (1980, 1993) proposed a second model of the etiology child maltreatment that offered a further conceptualization of child maltreatment as a social psychological phenomenon where maltreatment is determined by the mutual influences of the immediate context of the individual child or parent, family, and the broader context of community, social support, and the wider culture or society. It focuses on the multiple and complex transactions between risk and protective factors in the broader environment in which child maltreatment occurs. Belsky's (1980) model contains four levels of analysis: the macrosystem—which contains the beliefs and values of the culture that contribute to the perpetration of child maltreatment; the exosystem—which contains aspects of communities in which families and individuals live that contribute to child maltreatment; the microsystem—which contains factors within the family that contribute to the occurrence of child maltreatment; and finally ontogenic development—which includes factors within the individual that are associated with being the perpetrator of child maltreatment.

The final integrated model to have a significant impact in the field is the ecological/transactional model proposed by Cicchetti and his colleagues (see Cicchetti & Lynch, 1993; Cicchetti & Rizley, 1981; and Cicchetti & Toth, 1993). The original model proposed by Cicchetti and Rizley (1981) addressed the causes, consequences and mechanisms through which maltreatment occurs. It advocates a transactional approach to conceptualizing the developmental process. More specifically, their model focuses on the transactions among risk factors for the occurrence of maltreatment—both potentiating factors which increases probability of



maltreatment, and compensatory factors which decrease probability of maltreatment. They also make distinctions between transient, or more temporary, risk factors versus enduring, or more permanent/long-lasting, risk factors. The authors posit that maltreatment occurs only when potentiating factors outweigh compensatory factors. Cicchetti and Lynch (1993) further revised this model to focus much more on integrating ecological theory proposed by Bronfenbrenner (1979, 1989). Cicchetti and Lynch (1993) proposed a model in which multiple levels of children's ecologies influence each other, and in turn influence children's development. Their model (see Figure 3, below) demonstrates how "relevant macro- and exosystem variables impact the more proximal, microsystemic environments that mediate the influences of more distal ecological systems and have their own direct influences on children's [ontogenetic development] and ultimate adaptation" (p.99).



*Figure 3.*  
Ecological-Transactional Model of Child Maltreatment. (Cicchetti, Toth & Maugham, 2000)

## **Chapter III: Review of Literature**

### **III.I. Developmental Outcomes**

#### **III.Ia. Problem Behaviors**

For both males and females, sexual abuse is associated with increased risk across the lifespan for internalizing and externalizing problem behaviors, delinquency, aggression, substance use, and sexual risk taking. In comparison to non-abused males, sexually abused males report higher delinquent behaviors (Bergen et al, 2004; Chandy, Blum & Resnick, 1997; Ryan et al, 1996; Spataro et al, 2004); sexual risk taking (Bendixen, Muus & Schei, 1994; Chandy et al, 1997; DiLorio et al, 2002) and substance use/abuse (Bergen et al, 2004; Chandy et al., 1997; DiLorio, Hartwell & Hansen, 2002; Edgardh & Ormstad, 2000; Fondacaro et al, 1999; Garnefski & Arends, 1998; Harrison et al, 1997; Heath et al, 1996; Johnson et al, 2005; Luster & Small, 1997; Simpson & Miller, 2002; Wolfe, Francis & Straatman, 2006). However another illustration of the potential impact of gender role socialization, discussed earlier, lies in the extent to which gender differences exist in how mental health symptoms are expressed (Banyard et al, 2004; Crick & Zahn-Waxler, 2003). The common assumption by practitioners, researchers and the general public is that boys' problems tend to be of an externalizing nature and girls' problems tend to be of an internalizing nature. While a large body of research does confirm that female victims of abuse are more likely to report internalizing behaviors and male victims are more likely to report higher rates of externalizing behaviors (Ackerman, Newton, McPherson Jones & Dyckman, 1998; Banyard, Williams & Siegel, 1994; Bergen, Martin, Richardson, Allison, & Roeger, 2003; Chandy, Blum, & Resnick, 1996; Danielson, de Arellano, Kilpatrick, Saunders, & Resnick, 2005; Feiring, Taska & Lewis, 1999; Heath, Bean, & Feinauer, 1996; Young, Berganti, & Titus, 1994) a small but growing number of studies have concluded that males are as likely as

females to experience internalizing disorders (Estes & Tidwell, 2002; Garnefski & Arends, 1998; Gover, 2004; Heller et al, 1999; Libby et al, 2005; Martin, 1996).

For example, victims of sexual abuse commonly report suicidal ideation and suicidal attempts (Bergen, Martin, G., Richardson, Allison, & Roeger, 2003; Danielson et al, 2005; DeBellis et al, 2001; Edgardh & Ormstad, 2000; Hacker et al, 2006; Garnefski & Arends, 1998; Lynskey & Fergusson, 1997; Martin, 1996; Martin, Bergen, Richardson, Roeger, & Allison, 2004; Molnar, Berkman & Buka 2001; Walrath et al, 2003; Young et al, 1994). This is especially true for male victims of sexual abuse when compared to non-abused male counterparts (Banyard et al, 2004; Chandy et al, 1997; Dube et al, 2005; Edgargh & Ormstad, 2000; Garnefski & Arends, 1998; Locke & Newcomb, 2005; Luster & Small, 1997; Martin et al, 2004; Molnar et al, 2001). Chandy et al. (1997) found that significantly more sexually abused males reported attempting suicide in comparison to non-abused males (26.6% vs. 6.3%). And both Garnefski & Arends (1998) and Martin et al. (2004) found that adolescent male victims of sexual abuse were 13 and 15 times more likely to report having attempted suicide, respectively, than their non-abused male peers. Indeed, a small number of studies suggest that males may be at higher risk for suicidality in comparison to sexually abused females (Garnefski & Arends, 1998; Luster & Small, 1997). Using a large representative community sample of adolescents living in the Netherlands, Garnefski and Arends (1998) found that sexually abused males were significantly more likely to have attempted suicide in comparison to sexually abused females (43.3% vs. 26.5%, respectively).

Generally speaking, sexual abuse is also associated with increased risk for delinquent behaviors (Bergen, Martin, Richardson, Allison, & Roeger, 2004; Garnefski & Arends, 1998;

Spataro et al., 2004; Wall, Barth & The NSCAW Research Group, 2005; Walrath et al, 2003), anger/aggression problems (Bal, Van Oost, De Bourdeaudhuij, & Crombez, 2003; Bolger & Patterson, 2001; Garnefski & Arends, 1998; McGee, Wolfe & Wilson, 1997; Teicher, Samson, Polcari & McGreenery, 2006; Wall et al., 2005; Walrath et al, 2003), substance use problems (Bergen et al, 2004; Buckle, Lancaster, Powell, & Higgins, 2005; Edgardh & Ormstad, 2000; Garnefski & Arends, 1998; Harrison et al., 1997; Lynskey & Fergusson, 1997; Martin, 1996; Simpson & Miller, 2002; Swanston et al, 2003; Walrath et al, 2003), and sexual risk taking (Bal et al, 2003; Ohene et al, 2005; Simpson & Miller, 2002; Walrath et al, 2003). Some researchers have proposed a new complex trauma framework to better encompass the extensive and heterogeneous consequences for individuals exposed to chronic, severe and prolonged trauma that is particularly relevant for victims of sexual abuse wherein problem behaviors such as substance abuse, disordered eating, compulsive sexual behavior, self-mutilation and suicidality are classified as “external ways of avoiding or reducing activated abuse-related distress...as tension-reduction behaviors” (Briere & Spinnazola, 2005, p. 403).

### **III.Ib. Psychological Functioning**

Research repeatedly and overwhelmingly confirms that children who have been sexually abused have high rates of depression (Bal et al, 2003; Buckle et al., 2005; Danielson et al, 2005; Garnefski & Arends, 1998; Gover, 2004; Kisiel et al, 2001; Lynskey & Fergusson, 1997; Martin, 1996; Meyerson, Long, Miranda, & Marx, 2002; Naar-King et al, 2002; Quas et al, 2003; Swanston et al, 2003; Teicher et al, 2006; Tremblay et al, 1999; Walrath et al, 2003) and PTSD and/or anxiety disorders (Ackerman et al, 1998; Bal et al, 2003; DeBellis et al, 2001; Danielson et al, 2005; Lynskey & Fergusson, 1997; Libby, Orton, Novins, Beals, & Manson, 2005; Naar-King et al, 2002; Teicher et al, 2006; Walrath et al, 2003). In a review of state-of-the-art research

on PTSD, Nemeroff et al, (2006) concluded that even when exposed to the same kinds of trauma, PTSD remains more prevalent in females. This increased prevalence of PTSD in females also holds up when examining prevalence of PTSD in sexual abuse victims (Boney-McCoy & Finkelhor, 1995; Brosky & Lolly, 2004; Fiering et al, 1999; Fiering et al, 2002; Garnefski & Arends, 1998; Linning & Kearney, 2004; Ullman & Filipas, 2005). However, at least one recent study contradicts these findings. Hanson, Borntrager, Self-Brown & Kilpatrick (2008) examined the moderating role of gender in the relationship between sexual abuse and PTSD in a nationally representative sample of adolescents and found that boys were at greater risk for developing PTSD than girls. In comparison to their non-abused male peers, males who report sexual abuse report significantly more PTSD and/or anxiety disorders (Bendixen et al, 1994; Fondacaro et al, 1999; Schulte, Dinwiddie, Pribor, & Yutzy, 1995; Spataro et al, 2004; Wolfe et al, 2006) and depression (Bendixen et al, 1994; Fondacaro et al, 1999; Gover, 2004; Health et al, 1996).

Smaller qualitative studies of adult male sexual abuse victims suggest that in addition to the long term emotional and behavioral problems also common in females, males experience unique issues related to fears of becoming or being seen as a potential perpetrator, hypermasculinity or attempts to reassert masculinity, fear of being perceived as a homosexual, confusion about sexual identity, problems in intimate relationships, substance abuse, and problems with anger (Alaggia & Millington, 2008; Dhaliwal et al, 1996; Hepburn, 1994; Holmes et al, 1997; Lisak, 1994; Romano & De Luca, 2001; Teram et al, 2006; Watkins & Bentovim, 1992).

### **III.Ic. Academic Functioning**

The array of characteristics, problems and consequences that sexually abused children present with can translate into problems in academic functioning/performance (Avery, Massat, &

Lundy, 2000; Bolger & Patterson, 2001; Buckle et al, 2005; Chandy et al, 1996; Jones, Trudinger & Crawford, 2004; Paolucci, Genuis, & Violato, 2001; Zolotar et al, 1999) as well as impairments in interpersonal and Social Skills (Bal et al, 2003; Bolger & Patterson, 2001; Feiring, Rosenthal & Taska, 2000; Hebert, Parent, Daignault, & Tourigny, 2006; Tremblay et al, 1999; Young et al, 1994). Generally speaking, maltreated children who enter child welfare services are at increased risk for cognitive and academic problems (Crozier & Barth, 2004). Sexually abused children are more likely to report developmental delays, require special education, have lower grades and standardized test scores, repeat grades, and drop out of school (Veltman & Browne, 2001). However the relationship between sexual abuse and academic outcomes is complex. Using a sample of adolescent psychiatric inpatients, Buckle et al. (2005) found that physical abuse was a direct risk factor for academic achievement; while the relationship between sexual abuse and academic achievement was much more complex and indirect, moderated by IQ, problem behaviors, and substance use. Boden, Horwood and Fergusson (2007) also looked at the impact of physical and sexual abuse on academic outcomes in a longitudinal birth cohort and found that the relationship was explained by confounding socio-demographic, family and individual factors. In one of the few studies to examine gender specific outcomes for sexually abused adolescents, Chandy et al (1996; 1997) found that sexually abused males reported worse school performance in comparison to their female counterparts, but this difference disappeared when compared to their non-abused male peers.

### **III.II. Contextual Risk and Protective Factors**

#### **III.IIa. Abuse Dimensions**

Children who have been sexually abused are more likely to report co-occurring maltreatment and victimization (DeBellis et al, 2001; Manly, Kim, Rogosh & Cicchetti, 2001;

McGee, Wolfe & Wilson, 1997; Teicher, Samson, Polcari & McGreenery, 2006; Tubman, Montgomery, Gil & Wagner, 2004). Co-occurrence of physical abuse is particularly salient for sexually abused children (Ackard, Neumark-Sztainer, Hannan, French & Story, 2001; Boney-McCoy & Finkelhor, 1995; Danielson, de Arellano, Kilpatrick, Saunders, & Resnick, 2005; Harrison, Fulkerson & Beebe, 1997; Kellogg & Menard, 2003; Naar-King, Silvern, Ryan & Schring, 2002; Walrath et al, 2003). A recent nationally representative study on the impact of victimization in youth across multiple domains (i.e., sexual, physical, property, maltreatment, peer/sibling, or witnessing/indirect), Finkelhor, Ormrod and Turner (2007) found that multiple forms of victimization were common and that the psychopathology usually associated with individual victimization types (e.g., sexual abuse) was actually better accounted for by multiple forms of victimization. Research to date does likewise indicate sexually abused males have worse outcomes if they report co-occurring victimization such as experiencing physical abuse (Dong et al, 2003; Harrison et al, 1997; Ryan et al, 1996).

An important source of variability in developmental outcomes in sexually abused children lies in the timing of the abuse. Timing includes onset, frequency and duration of abuse (Manly, 2005). Each of these constructs can be measured in very different ways. In an effort to reach a consensus about the best way to measure the onset of abuse Kaplow and Widom (2007) looked at the impact of three different classification schemes on mental health outcomes. The authors found that the developmental classification scheme (infancy, preschool, early school age, and school age) was the most sensitive to identifying differences in outcomes and provided more information regarding subtle age difference that went unnoticed with the other approaches (e.g., continuous [0 to 11 years] and dichotomous [ $\leq 5$  years vs.  $\geq 6$  years]).

Earlier onset of sexual abuse is often associated with poorer outcomes (Ackerman, Newton, McPherson, Jones, Dykman, 1998; Briere & Elliot, 2003; Dong et al, 2003; Ohene, Halcon, Ireland, Carr, & McNeely, 2005; Walrath et al, 2003); likewise with increased frequency of sexual abuse incidents (Banyard et al, 2003; Briere & Elliot, 2003; Heath et al, 1996) and longer duration (Dong, Dube, Giles & Felitti, 2003; Quas, Goodman & Jones, 2003; Steel, Sanna, Hammond, Whipple, & Cross, 2004). While it is still too early to reach a definitive conclusion about gender differences for timing, some studies suggest that in comparison to females, males are more likely to report an earlier onset of sexual abuse (Ompad et al, 2005; O'Reilly & Carr, 1999; Stevens, Ruggiero, Kilpatrick, Resnick, & Saunders, 2005; Walrath et al, 2003) and shorter duration of abuse (Heath et al., 1996; Ullman & Filipas, 2005). At least one study has found that that higher frequency of sexual abuse incidents in males was associated with worse outcomes (Banyard et al, 2004); while several studies found that earlier onset (Kelly, Wood, Gonzalez, MacDonald, & Waterman, 2002; Ohene et al, 2005; Walrath et al, 2003) and severity (Banyard et al, 2004; Heath et al, 1996) of sexual abuse were associated with worse outcomes.

Characteristics of the perpetrator have also emerged as an important factor influencing the impact of sexual abuse. Several studies have found that males are more likely to have extrafamilial perpetrators (Banyard et al., 2004; Fiering, Lewis & Taska, 1999; Gold, Elhai, Lucenko, Swingle, & Hughes, 1998), and are significantly more likely to have female perpetrators (Briere & Elliot, 2003; Dube et al, 2005; Edgardh & Ormstad; 2000; Rudin, Zalewski & Bodmer-Turner, 1995). Sexual abuse by females may be associated with worse outcomes for males (Burton, 2003; Kelly et al., 2002; Ryan et al., 1996). However what we know to date in this area is very preliminary and hampered by the lack of attention to female



sexual offenders and the scarcity of disclosure of sexual abuse by female perpetrators (for a more detailed discussion of female sexual offenders see: Oliver, 2007).

### **III.IIb. Family Context**

Because sexual abuse in particular violates familial and societal norms as well as typical family roles and boundaries, the level of dysfunction necessary for it to occur within a family typically distinguishes it from families in which no maltreatment occurs. But to what extent does family context explain risk and resilience among children who have been sexually abused? The role of family context characteristics in the relationship between sexual abuse and poor outcomes has been one of some disagreement and controversy in the field. A growing body of research has supported the “abuse related perspective” that sexual abuse is directly related to poor outcomes over and above family context characteristics (Draucker, 1996). For example, in a 25 year longitudinal birth cohort sample, Fergusson, Boden and Horwood (2008) found that individuals reporting sexual abuse had more than two times as many mental health disorders after controlling for Family Context. Still other research has supported the “family dysfunction perspective” that this relationship is indirect and mostly explained by family context characteristics (Draucker, 1996). In their literature review of mediators between childhood sexual abuse and emotional distress, Whiffen and MacIntosh (2005) concluded that sexual abuse is not directly associated with poor outcomes; rather it is a marker for global difficulties, a proxy for family dysfunction. Because twins share a similar family context it presents researchers with a more sophisticated and rigorous way to tease apart this relationship. Nelson et al (2002) conducted a study with a large sample of CSA discordant twin pairs which controlled for family background risk factors and found that, on average, the family background in homes experiencing CSA was associated

with increased risk for adverse outcomes. They also found that CSA uniquely contributed to increased risk for adverse outcomes over and above family background risk factors.

Given that sexually abused children are more likely to live in a problematic family context it's perhaps expected that a growing number of studies are demonstrating that sexually abused children also report witnessing domestic violence in their home (Boney-McCoy & Finkelhor, 1995; DeBellis et al, 2001; Kellogg & Menard, 2003; Naar-King et al, 2002; Walrath et al, 2003). For example, Kellogg & Menard (2003) found that 52% of the 164 children interviewed in a sexual abuse clinic reported domestic violence in the home; in 86% of these homes, the children were also physically assaulted. The wider child maltreatment literature has likewise found a relationship between the co-occurrence of child maltreatment and domestic violence. This is particularly true for children and families involved with CWS. In a series of studies examining domestic violence with the NSCAW dataset, Hazen and colleagues (Hazen, Connelly, Kelleher, Barth & Landsverk, 2006; Hazen, Connelly, Kelleher, Lansverk and Barth, 2004) found that 29% of the female caregivers of children reported to CWS for suspected maltreatment reported experiencing physical violence by a partner in the previous year, 44.8% reported a lifetime prevalence of physical violence, and prior reports of child maltreatment to child protective services were associated with severe physical violence in the previous year (Hazen et al, 2004). And in the second study, maternal caregiver victimization by severe domestic violence was significantly associated with externalizing and internalizing behavior problems in children (Hazen et al, 2006). Several studies have found that sexually abused males have worse outcomes if they also report witnessing domestic violence (Dong et al, 2003; Ryan, Miyoshi, Metzner, Krugman, & Fryer, 1996; Skuse et al, 1998).

The likelihood that children who are being sexually abused are also living in a home environment with other serious family problems—such as parental substance abuse, parental mental health problems, and parental criminal involvement—increases the risk for maladaptive outcomes (Veltman & Browne, 2001). Specific parental dimensions including mental health, substance use, education, criminal activity, parenting skills, family cohesion, parental conflict, parent-child relationship and parental support also play a potentially critical role in influencing resilient adaptation (Wyman et al, 1999). Studies addressing family level risk factors in sexually abused children focus overwhelmingly on female only samples (Cecil & Matson, 2001; Edmund, Auslander, Elze & Bowland, 2006; Gold, Hyman, & Andres-Hyman, 2004; Fergusson, Horwood & Lynskey, 1997; Mian, Marton, & LeBaron, 1996) with very few studies examining family context in male victims of sexual abuse (Forouzan & Van Gijsegham, 2005). However the few studies that have been done to date point to parental substance abuse, maternal education, parent-child relationship, parental support and family functioning as unique risk and protective factors for male victims of sexual abuse (Chandy, Blum & Resnick, 1996; Kim & Cicchetti, 2004; Martin, 1996; Pintello & Zuravin, 2001; Rosenthal, Fiering & Taska, 2003; Stevens et al, 2005). Chandy et al. (1996; 1997) found that protective factors against adverse outcomes for sexually abused males in comparison to both sexually abused females and non-abused males included maternal education and parental concern.

### **III.IIc. Peer Context**

Several studies have suggested that parental support and support from a non-relative adult is a more influential promotive factor than support from peers for sexually abused children while the opposite is true for adolescents (Feiring, Taska & Lewis, 1998; Tremblay et al., 1999). However this relationship is likely more complex; not “either-or” but “both-and.” For example,

utilizing data from the National Comorbidity Study, Adams and Bukowski (2007) found that friendships separately and in combination with the maternal-child relationship can mitigate the effect of CSA. Despite the importance of adult concern and support, positive peer relations still play a crucial protective role in resilient outcomes for maltreated children (Cicchetti & Toth, 1992; Fergusson & Horwood, 2003; Sameroff et al., 2003). Bolger and Patterson (2003) suggest that the protective role of friendship with regard to self-esteem is especially important for children who are maltreated. In a prospective, longitudinal study, the researchers found that maltreated children who did not have a mutual best friend experienced a decline in self-esteem over the years from early elementary school to middle school while maltreated children who had a best friend reported an increase in self-esteem during this time. In contrast, non-maltreated children reported, on average, an increase over time in self-esteem regardless of whether or not they had a best friend. In another study examining peer networks and relationships in sexually abused adolescents, researchers found that victims who experienced higher levels of stigmatization characterized by shame and self-blame, felt less capable of being accepted by their peers and forming close friendships, and felt less attractive to potential romantic partners (Feiring et al., 2000). The school context in particular offers a unique and crucial opportunity for maltreated children to benefit from the protective influence of positive social support and relationships with not only their peers, but also non-relative adults (Veltman & Browne, 2001; Zielinski & Bradshaw, 2006). However there is still a significant gap in the literature on the impact of sexual abuse victimization on interpersonal functioning in the school context for males.

## **Chapter IV: Methodology**

### **IV.I. The NSCAW Design**

The NSCAW sample includes a cohort of 6,228 children, aged 0 to 14 years, divided into two samples: 1) the Long Term Foster Care sample (727 children) consisting of children who had been placed in out-of-home care for approximately one year; and 2) the child protective services (CPS) sample (5,504 children) consisting of children who were the subject of child abuse and neglect investigations by CPS agencies from October 1999 to December 2000 (Dowd et al, 2002). Children were followed throughout the full length of the study whether or not their cases were substantiated. The current study focuses on the CPS sample only.

#### **NSCAW Sampling**

The original target population for the CPS sample included all children in the United States who were the focus of a child abuse or neglect investigation between October 1999 and December 2000. However four states were subsequently excluded because of laws requiring a CPS worker to make the first contact instead of the NSCAW field representative. Accordingly, the target population of the NSCAW was revised to “all children in the U.S. who are subjects of child abuse or neglect investigations (or assessments) conducted by CPS and who live in states not requiring agency first contact” (Dowd et al, 2004, p.16). The NSCAW sample utilizes a two-stage stratified design. In the first stage, the U.S. was divided into nine strata—eight of which correspond to individual states with the largest child welfare loads. The last stratum contains the remaining states and the District of Columbia. Primary Sampling Units (PSUs) are geographic areas. For the purposes of the NSCAW, PSUs represent all counties in the U.S. that were served by a single CPS agency with at least 60 cases/year. PSUs were formed and randomly selected using a probability-proportionate-to-size procedure (PPS); which is used in multi-stage sampling

when the strata are of differing size (Dowd et al, 2002; NSCAW Research Group, 2002). PPS ensures a representative picture of the population; probability of being selected is based on size (Rubin & Babbie, 2005). For the purposes of the NSCAW dataset this means that counties with larger caseloads were more likely to be selected. In the second stage, children in this study were randomly selected from lists of closed investigations from the sampled CPS agencies within the 92 PSUs, representing 97 counties and 36 states in the United States.

Children were between 0 to 14 years of age and sampled randomly on a monthly basis. When multiple children from the same family were involved in an investigation one child was selected randomly to participate. Children were ineligible for the study if: 1) the selected child was older than 14 at the time of sampling; 2) the selected child was a sibling of another child in the study; 3) the selected child was not the target of the investigation into abuse/neglect (this includes cases where the selected child was the alleged abuser); 4) the selected child was investigated at a date outside the sampling period; and 5) the selected child was deceased. To make sure there was adequate representation and statistical power the study oversampled for infants, cases of sexual abuse, and cases receiving ongoing services (see Table 1a, below).

Table 1a.  
*Eight Within-PSU Sampling Domains*

Domain	Description
1	Infants (age < 1 year old) who were not receiving CPS agency funded services.
2	Children age 1 to 14 years old who were not receiving CPS agency funded services.
3	Infants (age < 1 year old) who were receiving CPS agency funded services and were not in out of home care.
4	Children 1- 14 years old CPS agency funded services, were not in out of home care, and were investigated for allegations of sexual abuse.
5	Children 1- 14 years old receiving CPS agency funded services, were not in out of home care and were investigated for allegations of other abuse or neglect.
6	Infants (age < 1 year old) receiving CPS agency funded services and were in out of home care.
7	Children 1- 14 years old receiving CPS agency funded services, were in out of home care, and were investigated for allegations of sexual abuse.
8	Children 1- 14 years old receiving CPS agency funded services, were in out of home care, and were investigated for allegations of other abuse or neglect.

The NSCAW data were collected across five waves, as detailed in Table 1b (below).

Wave 3 interviewing was conducted approximately 18 months after the close of the investigation. Wave 4 interviews were conducted approximately 36 months after the close of the investigation. Wave 5 interviews were conducted approximately 60 months after the close of the baseline. Interviews at each of these waves were completed with the children, their parents or other permanent caregivers, nonparent adult caregivers (e.g., foster parents and custodial kin caregivers) if applicable, teachers (for school-age children), and child welfare workers.

Table 1b.  
*Data Collection Time Table*

	Wave 1: Baseline	Wave 3: 1½ Yr Follow-up	Wave 4: 3 Yr Follow-up	Wave 5: 5 Yr Follow-up
	11/15/99 – 4/30/01	4/01/01 – 9/30/02	6/01/02 – 2/28/04	9/05/05 – 12/30/07
Child Respondent	YES	YES	YES	YES
Primary Caregiver	YES	YES	YES	YES
Caseworker	YES	YES	YES	YES
Teacher	YES	YES	YES	YES

\*Adapted from: Dowd et al (2002) and NSCAW Research Group (2002)

The final CPS sample resulted in an overall weighted response rate of 64%; extensive analyses concluded that non-response bias was minimal (Hurlburt et al, 2004). The majority (64.9%) of cases have complete data records- 2,673 have all three data sources for which the case was eligible (i.e., if the child was too young to be eligible for the Teacher Survey or was home schooled) and 1,366 have all four types of respondents represented in the data record. Only 10.6% of the cases have data from only one or two data sources.

### **Study Sub-Sample**

This dissertation will utilize a sub-sample of the larger NSCAW dataset consisting of sexually abused boys only. Of the 5,504 youth in the CPS sample 2,732 are male. 171 of these boys had reports of sexual abuse. When weighting is applied this reflects a population of approximately 65,000 sexually abused boys

## **IV.II. Data Collection Instruments and Measures**

The NSCAW instrument development process was comprehensive; driven by theory as well as methodological and logistical considerations (e.g., scoring complexity, cost, ease of administration). Computer-Assisted-Personal-Interviewing was used to ensure greater accuracy, and Audio-Computer-Assisted-Interviewing was used for more sensitive subject areas. Standardized instruments and measures adapted from other studies covering the NSCAW constructs were collected from multiple informants. Information from child welfare workers was obtained covering risk assessment, services for child and family, and child welfare worker characteristics and attitudes. Due to the sheer size of the NSCAW data set—approximately 40,000 variables per case for children with up to four separate respondents — only the instruments that are used in this study are described.

### **IV.IIa. Measures of Developmental Outcomes**

#### **Internalizing and Externalizing Behavior Problems**

Measured using the Child Behavior Checklist (CBCL). The CBCL has two different versions that are completed by parental caregivers—one for 2-3 year olds and one for 4-18 year olds. Caregivers rate items on a 3 point scale (0=not true; 1=somewhat true; 2=very true). The 2 to 3 year old version contains 100 items and the 4 to 18 year old version contains 113 items. The questions cover a range of behavior problems in the following areas: withdrawn, somatic complaints, anxious/depressed, social problems, thought problems, attention problems, delinquent behaviors, aggressive behavior, and sex problems. Standardized scores based on age and gender are computed using 2 broad internalizing (containing the withdrawn, somatic complaints, and anxious/depressed syndromes) and externalizing (containing the delinquent and aggressive behavior syndromes) problem subscales as well as a total problems subscale.



Children classified as having clinical/borderline problem behaviors have scores above 60 for Externalizing, Internalizing, and Total Problem behaviors. The problem syndromes were normed by gender and age, using a nationally representative sample of 2,368 children aged 4 to 18 years who had not received mental health services or special remedial school classes in the previous 12 months. In normative samples, internal consistency for the CBCL is very high for the total (.96), internalizing (.89-.96) and externalizing (.93) scores and reasonably good for most of the scale scores. Test retest reliability is high and interrater reliability is reasonably high (Dowd et al, 2002). For the NSCAW sample, internal consistency was very high for 2-3 year olds and 4-15 year olds (NSCAW Research Group, 2005).

### **Posttraumatic Stress**

Measured using the posttraumatic stress (PTS) subscale of the Trauma Symptom Checklist for Children (TSCC). The TSCC is a 54 item measure that asks children to rate on a 4 point scale (from 0=never to 3=almost all the time) how often they experience symptoms in the following areas: posttraumatic stress, anxiety, depression, sexual concerns, dissociation and anger. A standardized score of 65 or higher is clinically significant. According to Ohan, Myers and Collette (2002) there is “considerable support” for the validity of the TSCC and the internal consistencies of the subscales are good. Internal consistency for the overall measure is high (.85) and good for the subscales, ranging from .70 to .78 (Ohan et al., 2002). The posttraumatic stress subscale consists of 10 questions assessing intrusive thoughts, sensations and memories of painful past events, nightmares, fears and cognitive avoidance of painful feelings. The internal consistency for this subscale is high (Briere, 1996). It is important to note that the posttraumatic stress subscale assesses for posttraumatic stress rather than posttraumatic stress disorder (PTSD) because the items don't fully overlap with the PTSD symptoms in the DSM-IV, instead it

addresses primarily intrusive symptoms (Ohan et al, 2002). The PTS subscale of the TSCC was selected because at the time the NSCAW study was initiated it was the only brief, easy to administer, psychometrically tested self report measure of trauma symptoms in children.

### **Academic Achievement**

Measured using the Mini-Battery of Achievement (MBA); a standardized test of academic achievement for reading and math for children age 6 and older. The reading subtest measures sight identification, vocabulary and comprehension and the math subtest measures calculation, reasoning and concepts. Because MBA is a subset of the Woodcock-Johnson Psycho-Educational Battery—Revised (WJ-R) (Woodcock & Johnson, 1989), norms for MBA are based on data from the normed WJ-R sample. Internal consistency was high across all age groups, as indicated by medians for Reading (.94), Writing (.92), Mathematics (.93), Factual Knowledge (.87), and Basic Skills (.93). Test-retest reliability after one week for a sample of 52 sixth-graders was .89 for Reading, .85 for Writing, .86 for Mathematics, .88 for Factual Knowledge, and .96 for Basic Skills. Concurrent validity studies using the same sample indicated that the five tests of MBA correlated fairly well with sections of other instruments, such as WJ-R, KTEA (Brief), PIAT-R, and WRAT-R (Woodcock, McGrew, & Werder, 1994). In the NSCAW population internal consistency is lower, though acceptable, for Reading (.74) and Math (.61).

## **IV.IIb. Measures of Abuse Characteristics**

### **Sexual Abuse**

Child welfare workers identified all maltreatment types included in the allegation report from a list of 10 categories and whether the report was substantiated, indicated or unfounded. Types of maltreatment included physical, sexual and emotional abuse, physical neglect--failure

to provide, neglect—no supervision, abandonment, moral/legal maltreatment, educational maltreatment, exploitation and other. When there was more than one allegation, caseworkers determined which was the most serious and reported more detailed information. In a study examining the predictive validity of four operational definitions of maltreatment severity using data from a consortium of ongoing longitudinal studies (LONGSCAN), Litrownik et al. (2005) confirmed that the maximum severity by type definition had more predictive power and accounted for the most variance with developmental outcomes. Sexual abuse is defined in NSCAW as “a type of maltreatment that refers to the involvement of the child in sexual activity to provide sexual gratification or financial benefit to the perpetrator, including contacts for sexual purposes, prostitution, pornography, exposure, or other sexually exploitative activities” (Dowd et al., 2002, p. C16-17). Sexual abuse was determined via a derived sexual abuse indicator variable.

### **Abuse Dimensions**

A modified version of the Maltreatment Classification System (MCS; Barnett, Manly, & Cicchetti, 1993) was used to describe the investigated abuse. The MCS gathered information from the child welfare worker regarding the following 5 dimensions of maltreatment including, for the purposes of this study, severity and victim-perpetrator relationship. Both of characteristics are described in further detail below.

**Severity.** Sexual abuse is rated on a 6-point scale as follows: 1 (fondling without genital contact); 2 (masturbation requires genital contact); 3 (vaginal/anal digital penetration); 4 (oral copulation of adult); 5 (oral copulation of child); 6 (Vaginal/Anal Intercourse); 7 (Non-Contact such as exposure to sex or pornography). This variable was collapsed into the following four

categories: 1) Non-Contact; 2) Fondling/Masturbation; 3) Digital/Oral Penetration; 4) Vaginal/Anal Intercourse.

**Perpetrator Relationship.** Recorded via investigative caseworker report; which asks who was responsible for the sexual abuse. In accordance with prior literature, the 19 possible responses were collapsed into the following three categories based on degree of trust and closeness to the perpetrator: 1) Non-Relative Perpetrators (i.e., stranger, neighbor, friend, out-of-home caregiver, out-of-home child, childcare provider, mother's boyfriend, other non-relatives); 2) Other Relative Perpetrators (i.e., siblings, grandparents, aunt, uncle, other relatives); and 3) Parent/Stepparent Perpetrators (i.e., mother, father, stepparent).

#### IV.IIc. Measures of Family Context

##### **Cumulative Family Risk**

An aggregated family context risk scale was constructed using measures collected from 1) caseworker report; and 2) parental caregiver/child report. Items were coded on a dichotomous scale (0= Absence/No; 1=Presence/Yes) creating a continuous summed score (range: 0-29); with a higher score indicating the presence of a greater number of risk factors.

**Caseworker report.** 23 items covering the following 7 domains were identified at the time of the initial case investigation (see Appendix A for the list of questions): 1) cooperation; 2) secondary caregiver; 3) violence; 4) substance use; 5) health and mental health; 6) parenting; and 7) family. This measure was derived from several established risk assessment forms and checklists from Michigan, New York, Colorado and Illinois.

**Parental caregiver and child report.** The aggregated cumulative family risk scale also included dichotomous variables indicating the presence or absence of: 1) depression; 2) substance use; 3) harsh parental discipline; and 4) domestic violence. Using a classification

strategy similar to Eckrode, Izzzo and Smith (2007) parental depression and substance use were coded as “yes” if endorsed by caseworker or parental caregiver while harsh parental discipline and domestic violence were coded as “yes” if endorsed by either the caseworker, parent or child report.

*Parental depression and substance use.* Measured via parental caregiver report using the Composite International Diagnostic Interview Short Form (CIDI-SF). The CIDI-SF is a highly standardized interview based on DSM criteria. Questions ask about the previous 12 month period. The depression section was administered by an in person interview and the alcohol and drug dependence sections were administered via ACASI. Internal consistency for the alcohol and drug dependence sections range from .70 to .94. Interrater reliability ranges from .67 to 1.0.

*Harsh parental discipline.* Measured via parental caregiver and/or child report. A dichotomous variable was derived from the Parent-Child Conflict Tactics Scale (CTS-PC) indicating the presence nonviolent discipline (reverse coded); psychological aggression, neglect and physical assault. In the child version, children report their experience of disciplinary actions and in the adult version caregivers report their use of those disciplinary tactics with the child. The “disciplinary” actions include more than those ordinarily considered part of parental discipline and range from time out to burning a child. It uses an 8-point scale to measure frequency and extent to which specific acts have been carried out (1 time; 2 times; 3-5 times; 6-10 times; 11-20 times; more than 20 times; not in the past 12 months; never). In the NSCAW sample, the child version of the CTS-PC had a total internal consistency of a .85; and the other scales range from .77 (severe physical assault); .35 (very severe physical assault); .50 (nonviolent discipline); .81 (psychological aggression); and .70 (minor physical assault). Internal/consistency for the total score in the parent report is a .79. Internal consistency for the other

scales range from .11 (severe physical assault); .22 (very severe physical assault); .39 (neglect); total physical assault (.54); .57 (minor physical assault); .66 (psychological aggression); and .77 (nonviolent discipline). In normative samples, internal consistency for the CTS-PC varies from .2 (severe physical assault) and .22 (neglect) to .55 (total physical assault), .60 (psychological aggression), and .70 (nonviolent discipline). The low internal consistency for the severe and very severe physical assault scale is because the items measure rare events.

*Domestic violence.* Measured via parental caregiver and/or child report via the physical violence scale of the Conflict Tactics Scale (CTS). The CTS is divided into two subscales: mild violence (being pushed, grabbed, shoved or slapped) and severe violence (being choked, beaten, or threatened with a weapon). Response categories range from 0 (never) to 6 (more than 20 times) indicating the frequency of the violent acts in the previous 12 months. For events that did not occur in the previous 12 months, the respondent was asked if the event has ever happened. Internal consistency is good for CTS subscales ranging from .79 to .85. Reliability (.88) and validity of the physical violence section is well documented in normative samples (Dowd et al, 2002). With the NSCAW sample, internal consistency is good for the any domestic violence (.90), minor domestic (.77), and severe domestic violence (.86) subscales (NSCAW Research Group, 2005).

#### **IV.IId. Measures of Peer Context**

##### **Social Skills**

Measured via caregiver and teacher report for children 3 years of age and older using the Social Skills Rating System (SSRS). The SSRS measures perception of the child's social skills in five domains: cooperation, empathy, assertion, responsibility, and self-control. The SSRS was standardized on a national sample of 4,170 children, 1,027 parents, and 259 teachers during the

spring of 1988. Internal consistency is high for the caregiver report and varies based on age: 3-5 years (.90); 6-10 years (.87); 11+ years (.90). Internal consistency for the teacher report is high and varies based on age: 3-5 years (.94); 6-10 years (.94); 11+ years (.93). In NSCAW, internal consistency is high for preschoolers and secondary-age children ( $\alpha = .90$ ) and for elementary-age children ( $\alpha = .87$ ). Standardized scores are based on a mean of 100 and a standard deviation of 15. Scores below 85 reflect low social skills; scores between 85 and 115 reflect average social skills; and scores over 115 reflect high social skills.

### **Peer Rejection**

Measured using the Loneliness and Social Dissatisfaction Questionnaire (PLSDQ). The PLSDQ consists of 16 items measuring the youth's assessment of their feelings of loneliness, social adequacy, peer status, and whether important peer relationship provisions were being met. Children 8 years of age and older responded using a 5-point scale (1= Never; 2=Hardly Ever; 3=Sometimes; 4=Most Times; 5=Always) while children 5-7 years of age had a modified version using a 3-point scale (1=Yes; 2=Sometimes; 3=No). The 5-point scale was recoded to be consistent with the 5-7 year old version—"Always" and "Most Times" were recoded to Yes (1); "Sometimes" remained unchanged; and "Never" and "Hardly Ever" were recoded to No (3). A continuous summed score was created; all items were coded so that higher scores indicated greater peer rejection and lower scores indicated greater peer acceptance. Internal consistency is high in normative samples (Dowd et al, 2002). In the NSCAW sample, internal consistency is good for 5-7 year olds (.70) and high for children age 8 and older (NSCAW Research Group, 2005).

### **IV.IIe. Socio-Demographic and Control Variables.**

NSCAW includes recoded and derived measures of child gender, age and race/ethnicity to account for any discrepancies between reporting sources (i.e., child, caregiver, and caseworker). Child age was measured using a continuous variable from Wave 1 that reported the child's age in years at the time of the initial interview at Wave 1. A derived variable was used to account for both race and ethnicity in the following categories: non-Hispanic Black, non-Hispanic White, Hispanic and Other Races/Ethnicities (which includes American Indian/Alaska Native, Asian and Other categories). Poverty status was determined using 2000 Census poverty thresholds (the year in which NSCAW was collected) based on caregiver report of household income and a combination of child and adult household members reported by the caregiver. Based on this calculation, a categorical poverty variable was created to indicate whether or not household income was less than or greater than 100% of the poverty line.

### **IV.III. Data Analysis Plan**

#### **Statistical Analyses**

Statistical analyses with NSCAW were weighted to account for its complex design, which involves stratification and clustering within primary sampling units (PSUs) in the first stage and varying probabilities of selection depending on specific domains in the second stage. Failure to use survey analysis weights results in biased inferences. While the magnitude of this bias varies, it is larger for variables that are related to the characteristics that make up the sampling domains (age, receipt of child welfare services, out-of-home care, and sexual abuse were sampled at a higher rate). For example, the unweighted proportion of children receiving services is 74 percent, whereas the weighted proportion, which is unbiased for the true population proportion, is approximately 30 percent. Sampling weights were calculated to adjust



for unequal selection of subjects into the study, initial non-response, and under-coverage of unsubstantiated cases and to allow statistical inference to the national level for boys investigated for sexual abuse. All statistical analyses were performed using the StataSE 11 software package survey suite of commands to adjust the standard errors and account for this complex sampling design. Moderators were centered for interpretive purposes and to address issues of multicollinearity in the regression models (Shieh, 2011). Graphs of significant interactions the next chapter were created with an excel spreadsheet for interactions between a categorical and continuous variable (DeCoster & Leistico, 2007). The coefficients from the regression equation were entered. For these graphs only, continuous moderating variables were categorized into high and low groups, with the centered medians used (see Table 2, below).

Table 2.

*Continuous Variable Coding Strategy for Graphs of Significant Interaction*

Moderating Variable	Continuous			Categorical			
	Range	Low	High	Low		High	
				Uncentered	Centered	Uncentered	Centered
Cumulative Family Risk	1-21	1-11	12-21	6	-2.89	17	8.11
Peer Rejection	16-44	16-30	31-44	23	1.14	38	15.14
Social Skills	56-130	56-84	85-130	70	-17.81	107	19.19

**Aim 1**

*[Severity of sexual abuse; co-occurring physical abuse and/or neglect and perpetrator relationship will be significant predictors of internalizing problems, externalizing problems, posttraumatic stress and academic achievement].* Socio-demographic characteristics, abuse characteristics, cumulative family risk, social skills, and peer rejection were analyzed using descriptive statistics to examine the four developmental outcomes at Wave 3 (1½ year follow up), Wave 4 (3 year follow up), and Wave 5 (5 year follow up).

## Aim 2

[Examine the moderating role of family context in the relationship between sexual abuse characteristics and developmental outcomes.] Ordinary Least Squares (OLS) hierarchical linear regression models were used to examine the association between Wave 1 abuse dimensions and cumulative family risk on internalizing problems, externalizing problem, posttraumatic stress and academic achievement at Waves 3, 4 and 5. Wave 1 socio-demographic characteristics were entered in the first model; in the second model Wave 1 abuse characteristics were added. In the third model cumulative family risk, social skills and peer rejection were entered to test for hypothesized main effects. Finally, the interaction terms for each abuse characteristic and cumulative family risk were entered separately in models four through six (Hypothesis 2.1 – 2.4). To eliminate potential multicollinearity issues, cumulative family risk was centered. For each outcome, six OLS regression models are estimated as follows:

### *Model 1: Socio-Demographics Alone*

Developmental Outcomes (Y) = Intercept ( $\beta_0$ ) + Age ( $\beta_1X_1$ ) + Child Race/Ethnicity: Black ( $\beta_2X_2$ ) + Child Race/Ethnicity: Hispanic ( $\beta_3X_3$ ) + Child Race/Ethnicity: Other ( $\beta_4X_4$ ) + Permanent Caregiver ( $\beta_5X_5$ ) + SES ( $\beta_6X_6$ ) + Error (e)

### *Model 2: Socio-Demographics and Abuse Characteristics*

Developmental Outcomes (Y) = Intercept ( $\beta_0$ ) + Age ( $\beta_1X_1$ ) + Child Race/Ethnicity: Black ( $\beta_2X_2$ ) + Child Race/Ethnicity: Hispanic ( $\beta_3X_3$ ) + Child Race/Ethnicity: Other ( $\beta_4X_4$ ) + Permanent Caregiver ( $\beta_5X_5$ ) + SES ( $\beta_6X_6$ ) + Non-Contact Abuse ( $\beta_7X_7$ ) + Fondling/Masturbation ( $\beta_8X_8$ ) + Digital/Oral Penetration ( $\beta_9X_9$ ) + Parent/Stepparent Perpetrator ( $\beta_{10}X_{10}$ ) + Other Relative Perpetrator ( $\beta_{11}X_{11}$ ) + Co-Occurring Abuse ( $\beta_{12}X_{12}$ ) + Error (e)

### *Model 3: Socio-Demographics, Abuse Characteristics, Cumulative Family Risk, Social Skills and Peer Rejection*

Developmental Outcomes (Y) = Intercept ( $\beta_0$ ) + Age ( $\beta_1X_1$ ) + Child Race/Ethnicity: Black ( $\beta_2X_2$ ) + Child Race/Ethnicity: Hispanic ( $\beta_3X_3$ ) + Child Race/Ethnicity: Other ( $\beta_4X_4$ ) + Permanent Caregiver ( $\beta_5X_5$ ) + SES ( $\beta_6X_6$ ) + Non-Contact Abuse ( $\beta_7X_7$ ) + Fondling/Masturbation ( $\beta_8X_8$ ) + Digital/Oral Penetration ( $\beta_9X_9$ ) + Parent/Stepparent Perpetrator ( $\beta_{10}X_{10}$ ) + Other Relative Perpetrator ( $\beta_{11}X_{11}$ ) + Co-Occurring Abuse ( $\beta_{12}X_{12}$ ) + Cumulative Family Risk ( $B_{13}X_{13}$ ) + Social Skills ( $B_{14}X_{14}$ ) + Peer Rejection ( $B_{15}X_{15}$ ) + Error (e)

### *Model 4: Socio-Demographics, Abuse Characteristics, Cumulative Family Risk, Social Skills, Peer Rejection, Perpetrator Relationship x Cumulative Family Risk*

Developmental Outcomes (Y) = Intercept ( $\beta_0$ ) + Age ( $\beta_1X_1$ ) + Child Race/Ethnicity: Black ( $\beta_2X_2$ ) + Child Race/Ethnicity: Hispanic ( $\beta_3X_3$ ) + Child Race/Ethnicity: Other ( $\beta_4X_4$ ) + Permanent Caregiver ( $\beta_5X_5$ ) + SES ( $\beta_6X_6$ ) + Non-Contact Abuse ( $\beta_7X_7$ ) + Fondling/Masturbation ( $\beta_8X_8$ ) + Digital/Oral Penetration ( $\beta_9X_9$ ) + Parent/Stepparent Perpetrator ( $\beta_{10}X_{10}$ ) + Other Relative Perpetrator ( $\beta_{11}X_{11}$ ) + Co-Occurring Abuse ( $\beta_{12}X_{12}$ ) + Cumulative Family Risk ( $B_{13}X_{13}$ ) + Social Skills ( $B_{14}X_{14}$ ) + Peer Rejection ( $B_{15}X_{15}$ ) + Parent/Stepparent Perpetrator\*Cumulative Family Risk ( $B_{7X_7}\beta_{13}X_{13}$ ) + Other Relative Perpetrator\*Cumulative Family Risk ( $B_{8X_8}\beta_{13}X_{13}$ ) + Error (e)

*Model 5: Socio-Demographic and Abuse Characteristics, Cumulative Family Risk, Social Skills, Peer Rejection, Co-Occurring Abuse x Cumulative Family Risk*

Developmental Outcomes (Y) = Intercept ( $\beta_0$ ) + Age ( $\beta_1X_1$ ) + Child Race/Ethnicity: Black ( $\beta_2X_2$ ) + Child Race/Ethnicity: Hispanic ( $\beta_3X_3$ ) + Child Race/Ethnicity: Other ( $\beta_4X_4$ ) + Permanent Caregiver ( $\beta_5X_5$ ) + SES ( $\beta_6X_6$ ) + Non-Contact Abuse ( $\beta_7X_7$ ) + Fondling/Masturbation ( $\beta_8X_8$ ) + Digital/Oral Penetration ( $\beta_9X_9$ ) + Parent/Stepparent Perpetrator ( $\beta_{10}X_{10}$ ) + Other Relative Perpetrator ( $\beta_{11}X_{11}$ ) + Co-Occurring Abuse ( $\beta_{12}X_{12}$ ) + Cumulative Family Risk ( $B_{13}X_{13}$ ) + Social Skills ( $B_{14}X_{14}$ ) + Peer Rejection ( $B_{15}X_{15}$ ) Co-Occurring Abuse\*Cumulative Family Risk ( $B_{12}X_{12}\beta_{13}X_{13}$ ) + Error (e)

*Model 6: Socio-Demographic and Abuse Characteristics, Cumulative Family Risk, Social Skills, Peer Rejection, Sexual Abuse Severity\*Cumulative Family Risk*

Developmental Outcomes (Y) = Intercept ( $\beta_0$ ) + Age ( $\beta_1X_1$ ) + Child Race/Ethnicity: Black ( $\beta_2X_2$ ) + Child Race/Ethnicity: Hispanic ( $\beta_3X_3$ ) + Child Race/Ethnicity: Other ( $\beta_4X_4$ ) + Permanent Caregiver ( $\beta_5X_5$ ) + SES ( $\beta_6X_6$ ) + Non-Contact Abuse ( $\beta_7X_7$ ) + Fondling/Masturbation ( $\beta_8X_8$ ) + Digital/Oral Penetration ( $\beta_9X_9$ ) + Parent/Stepparent Perpetrator ( $\beta_{10}X_{10}$ ) + Other Relative Perpetrator ( $\beta_{11}X_{11}$ ) + Co-Occurring Abuse ( $\beta_{12}X_{12}$ ) + Cumulative Family Risk ( $B_{13}X_{13}$ ) + Social Skills ( $B_{14}X_{14}$ ) + Peer Rejection ( $B_{15}X_{15}$ ) + Non-Contact Abuse\*Cumulative Family Risk ( $B_{7X_7}\beta_{13}X_{13}$ ) + Fondling/Masturbation\*Cumulative Family Risk ( $B_{8X_8}\beta_{13}X_{13}$ ) + Digital/Oral Penetration\*Cumulative Family Risk ( $B_{9X_9}\beta_{13}X_{13}$ ) + Error (e)

### **Aim 3**

*[Examine the moderating role of peer context (i.e., peer rejection and social skills) in the relationship between sexual abuse characteristics and developmental outcomes.]* Ordinary Least Squares (OLS) linear regression models examined the association between Wave 1 abuse dimensions and cumulative family risk on internalizing problems, externalizing problems, posttraumatic stress, academic achievement at Waves 3, 4 and 5. Similar to the Aim 2, in the first model Wave 1 socio-demographic characteristics were entered alone. In the second model Wave 1 abuse characteristics were added. In model three cumulative family risk, social skills, peer rejection moderators were entered to test for hypothesized main effects. In models four

through six (Hypothesis 3.1.1 – 3.1.4) the interaction terms for each abuse characteristic and peer rejection were entered. In models seven through nine (Hypothesis 3.2.1 – 3.2.4) the interaction terms for each abuse characteristics and social skills were entered separately. To avoid multicollinearity issues, social skills and peer rejection were centered before testing the significance of the interaction terms. For each outcome, nine OLS regression models are estimated as follows:

*Model 1: Socio-Demographic Characteristics Alone*

Developmental Outcomes (Y) = Intercept ( $\beta_0$ ) + Age ( $\beta_1X_1$ ) + Child Race/Ethnicity: Black ( $\beta_2X_2$ ) + Child Race/Ethnicity: Hispanic ( $\beta_3X_3$ ) + Child Race/Ethnicity: Other ( $\beta_4X_4$ ) + Permanent Caregiver ( $\beta_5X_5$ ) + SES ( $\beta_6X_6$ ) + Error (e)

*Model 2: Socio-Demographic, Abuse Characteristics*

Developmental Outcomes (Y) = Intercept ( $\beta_0$ ) + Age ( $\beta_1X_1$ ) + Child Race/Ethnicity: Black ( $\beta_2X_2$ ) + Child Race/Ethnicity: Hispanic ( $\beta_3X_3$ ) + Child Race/Ethnicity: Other ( $\beta_4X_4$ ) + Permanent Caregiver ( $\beta_5X_5$ ) + SES ( $\beta_6X_6$ ) + Non-Contact Abuse ( $\beta_7X_7$ ) + Fondling/Masturbation ( $\beta_8X_8$ ) + Digital/Oral Penetration ( $\beta_9X_9$ ) + Parent/Stepparent Perpetrator ( $\beta_{10}X_{10}$ ) + Other Relative Perpetrator ( $\beta_{11}X_{11}$ ) + Co-Occurring Abuse ( $\beta_{12}X_{12}$ ) + Error (e)

*Model 3: Socio-Demographics, Abuse Characteristics, Cumulative Family Risk, and Peer Rejection*

Developmental Outcomes (Y) = Intercept ( $\beta_0$ ) + Age ( $\beta_1X_1$ ) + Child Race/Ethnicity: Black ( $\beta_2X_2$ ) + Child Race/Ethnicity: Hispanic ( $\beta_3X_3$ ) + Child Race/Ethnicity: Other ( $\beta_4X_4$ ) + Permanent Caregiver ( $\beta_5X_5$ ) + SES ( $\beta_6X_6$ ) + Non-Contact Abuse ( $\beta_7X_7$ ) + Fondling/Masturbation ( $\beta_8X_8$ ) + Digital/Oral Penetration ( $\beta_9X_9$ ) + Parent/Stepparent Perpetrator ( $\beta_{10}X_{10}$ ) + Other Relative Perpetrator ( $\beta_{11}X_{11}$ ) + Co-Occurring Abuse ( $\beta_{12}X_{12}$ ) + Cumulative Family Risk ( $B_{13}X_{13}$ ) + Social Skills ( $B_{14}X_{14}$ ) + Peer Rejection ( $B_{15}X_{15}$ ) + Error (e)

*Model 4: Socio-Demographics, Abuse Characteristics, Cumulative Family Risk, Social Skills, Peer Context, Co-Occurring Abuse\*Peer Rejection*

Developmental Outcomes (Y) = Intercept ( $\beta_0$ ) + Age ( $\beta_1X_1$ ) + Child Race/Ethnicity: Black ( $\beta_2X_2$ ) + Child Race/Ethnicity: Hispanic ( $\beta_3X_3$ ) + Child Race/Ethnicity: Other ( $\beta_4X_4$ ) + Permanent Caregiver ( $\beta_5X_5$ ) + SES ( $\beta_6X_6$ ) + Non-Contact Abuse ( $\beta_7X_7$ ) + Fondling/Masturbation ( $\beta_8X_8$ ) + Digital/Oral Penetration ( $\beta_9X_9$ ) + Parent/Stepparent Perpetrator ( $\beta_{10}X_{10}$ ) + Other Relative Perpetrator ( $\beta_{11}X_{11}$ ) + Co-Occurring Abuse ( $\beta_{12}X_{12}$ ) + Cumulative Family Risk ( $B_{13}X_{13}$ ) + Social Skills ( $B_{14}X_{14}$ ) + Peer Rejection ( $B_{15}X_{15}$ ) + Co-Occurring Abuse\*Peer Rejection ( $B_{12}X_{12}\beta_{15}X_{15}$ ) + Error (e)

*Model 5: Socio-Demographics, Abuse Characteristics, Cumulative Family Risk, Social Skills, Peer Context, Perpetrator Relationship\*Peer Rejection*

Developmental Outcomes (Y) = Intercept ( $\beta_0$ ) + Age ( $\beta_1X_1$ ) + Child Race/Ethnicity: Black ( $\beta_2X_2$ ) + Child Race/Ethnicity: Hispanic ( $\beta_3X_3$ ) + Child Race/Ethnicity: Other ( $\beta_4X_4$ ) + Permanent Caregiver ( $\beta_5X_5$ ) + SES ( $\beta_6X_6$ ) + Non-Contact Abuse ( $\beta_7X_7$ ) + Fondling/Masturbation ( $\beta_8X_8$ ) + Digital/Oral Penetration ( $\beta_9X_9$ ) + Parent/Stepparent Perpetrator ( $\beta_{10}X_{10}$ ) + Other Relative Perpetrator ( $\beta_{11}X_{11}$ ) + Co-Occurring Abuse ( $\beta_{12}X_{12}$ ) + Cumulative Family Risk ( $B_{13}X_{13}$ ) + Social Skills ( $B_{14}X_{14}$ ) + Peer Rejection ( $B_{15}X_{15}$ ) + Parent/Stepparent Perpetrator\*Cumulative Family Risk ( $B_{10}X_{10}\beta_{13}X_{13}$ ) + Other Relative Perpetrator\*Peer Rejection ( $B_{11}X_{11}\beta_{15}X_{15}$ ) + Error (e)

*Model 6: Socio-Demographics, Abuse Characteristics, Cumulative Family Risk, Social Skills, Peer Context, Abuse Severity\*Peer Rejection*

Developmental Outcomes (Y) = Intercept ( $\beta_0$ ) + Age ( $\beta_1X_1$ ) + Child Race/Ethnicity: Black ( $\beta_2X_2$ ) + Child Race/Ethnicity: Hispanic ( $\beta_3X_3$ ) + Child Race/Ethnicity: Other ( $\beta_4X_4$ ) + Permanent Caregiver ( $\beta_5X_5$ ) + SES ( $\beta_6X_6$ ) + Non-Contact Abuse ( $\beta_7X_7$ ) + Fondling/Masturbation ( $\beta_8X_8$ ) + Digital/Oral Penetration ( $\beta_9X_9$ ) + Parent/Stepparent Perpetrator ( $\beta_{10}X_{10}$ ) + Other Relative Perpetrator ( $\beta_{11}X_{11}$ ) + Co-Occurring Abuse ( $\beta_{12}X_{12}$ ) + Cumulative Family Risk ( $B_{13}X_{13}$ ) + Social Skills ( $B_{14}X_{14}$ ) + Peer Rejection ( $B_{15}X_{15}$ ) + Non-Contact Abuse\*Peer Rejection ( $B_{7}X_7\beta_{13}X_{13}$ ) + Fondling/Masturbation\* Peer Rejection ( $B_8X_8\beta_{15}X_{15}$ ) + Digital/Oral Penetration\*Peer Rejection ( $B_9X_9\beta_{15}X_{15}$ ) + Error (e)

*Model 7: Socio-Demographics, Abuse Characteristics, Cumulative Family Risk, Social Skills, Peer Context, Co-Occurring Abuse\*Social Skills*

Developmental Outcomes (Y) = Intercept ( $\beta_0$ ) + Age ( $\beta_1X_1$ ) + Child Race/Ethnicity: Black ( $\beta_2X_2$ ) + Child Race/Ethnicity: Hispanic ( $\beta_3X_3$ ) + Child Race/Ethnicity: Other ( $\beta_4X_4$ ) + Permanent Caregiver ( $\beta_5X_5$ ) + SES ( $\beta_6X_6$ ) + Non-Contact Abuse ( $\beta_7X_7$ ) + Fondling/Masturbation ( $\beta_8X_8$ ) + Digital/Oral Penetration ( $\beta_9X_9$ ) + Parent/Stepparent Perpetrator ( $\beta_{10}X_{10}$ ) + Other Relative Perpetrator ( $\beta_{11}X_{11}$ ) + Co-Occurring Abuse ( $\beta_{12}X_{12}$ ) + Cumulative Family Risk ( $B_{13}X_{13}$ ) + Social Skills ( $B_{14}X_{14}$ ) + Peer Rejection ( $B_{15}X_{15}$ ) Co-Occurring Abuse\*Social Skills ( $B_{12}X_{12}\beta_{14}X_{14}$ ) + Error (e)

*Model 8: Socio-Demographic and Abuse Characteristics, Cumulative Family Risk, Social Skills, Peer Context, Perpetrator Relationship x Social Skills*

Developmental Outcomes (Y) = Intercept ( $\beta_0$ ) + Age ( $\beta_1X_1$ ) + Child Race/Ethnicity: Black ( $\beta_2X_2$ ) + Child Race/Ethnicity: Hispanic ( $\beta_3X_3$ ) + Child Race/Ethnicity: Other ( $\beta_4X_4$ ) + Permanent Caregiver ( $\beta_5X_5$ ) + SES ( $\beta_6X_6$ ) + Non-Contact Abuse ( $\beta_7X_7$ ) + Fondling/Masturbation ( $\beta_8X_8$ ) + Digital/Oral Penetration ( $\beta_9X_9$ ) + Parent/Stepparent Perpetrator ( $\beta_{10}X_{10}$ ) + Other Relative Perpetrator ( $\beta_{11}X_{11}$ ) + Co-Occurring Abuse ( $\beta_{12}X_{12}$ ) + Cumulative Family Risk ( $B_{13}X_{13}$ ) + Social Skills ( $B_{14}X_{14}$ ) + Peer Rejection ( $B_{15}X_{15}$ ) + Parent/Stepparent\*Social Skills ( $B_{10}X_{10}\beta_{13}X_{13}$ ) + Other Relative\*Social Skills ( $B_{11}X_{11}\beta_{14}X_{14}$ ) + Error (e)

*Model 9: Socio-Demographics, Abuse Characteristics, Cumulative Family Risk, Social Skills, Peer Context, Severity\*Social Skills*

Developmental Outcomes (Y) = Intercept ( $\beta_0$ ) + Age ( $\beta_1X_1$ ) + Child Race/Ethnicity: Black ( $\beta_2X_2$ ) + Child Race/Ethnicity: Hispanic ( $\beta_3X_3$ ) + Child Race/Ethnicity: Other ( $\beta_4X_4$ ) + Permanent Caregiver ( $\beta_5X_5$ ) + SES ( $\beta_6X_6$ ) + Non-Contact Abuse ( $\beta_7X_7$ ) +

Fondling/Masturbation ( $\beta_8 X_8$ ) + Digital/Oral Penetration ( $\beta_9 X_9$ ) + Parent/Stepparent Perpetrator ( $\beta_{10} X_{10}$ ) + Other Relative Perpetrator ( $\beta_{11} X_{11}$ ) + Co-Occurring Abuse ( $\beta_{12} X_{12}$ ) + Cumulative Family Risk ( $\beta_{13} X_{13}$ ) + Social Skills ( $\beta_{14} X_{14}$ ) + Peer Rejection ( $\beta_{15} X_{15}$ ) + Non Contact\*Social Skills ( $\beta_7 X_7 \beta_{13} X_{13}$ ) + Fondling/Masturbation\*Social Skills ( $\beta_8 X_8 \beta_{13} X_{13}$ ) + Digital/Oral Penetration\*Social Skills ( $\beta_9 X_9 \beta_{14} X_{14}$ ) + Error (e)

### **Missing Data and Statistical Power**

Previous studies with NSCAW have established that attrition isn't a significant problem with the NSCAW dataset. In addition, users of the NSCAW dataset have been operating under the assumption that the data are missing at random and to date there's been no documentation to suggest otherwise (Dowd et al., 2004). Bertolet, Seltman, Greenhouse and Kelleher (2003) point out that missing data analysis with the NSCAW dataset is difficult because of the complex skip patterns and the way the missing value patterns were coded (i.e., item non-response, complex skip patterns and incomplete measures were not considered separated). Missing data for most variables were minimal. The variables with the most missing data were Wave 5 posttraumatic stress (17.86%), poverty status (13.09%), Wave 1 peer rejection (9.59%) and Wave 5 academic achievement (7.86%). All other variables were missing 6% or fewer cases. While there are no set guidelines with regards to how much missing data is too much, generally speaking, data sets with 5-8% or less missing data aren't considered to be cause for concern or problems (Hair, Anderson, Tatham & Black, 1998; Tabachnick & Fidell, 2007). Listwise deletion was used to address missing data. Stata's "powerreg" command and stand-alone statistical programs such as Power Analysis and Sample Size (PASS) represent a more sophisticated approach to power analyses than "rule of thumb" approaches that have been used in the past. According to PASS 11 (Hintze, 2011), a sample size of 63 achieves 90% power to detect an R-Squared of 0.35 attributed to 18 independent variables using an F-Test with a significance level of 0.05 (see Appendix B for detailed output).

## **Chapter V: Results**

The first section (V.I.) of this chapter presents results for Hypothesis 1, which focuses on the associations between abuse characteristics and each developmental outcome at Wave 3, 4 and 5. The second section (V.IIa) presents results for Hypothesis 2, which examines how these associations vary by family context for each wave. Tables for Hypothesis 2 are at the end of the second section (V.IIb). Finally, the third section (V.IIIa) presents results for Hypothesis 3, which examines how these associations vary by peer context; specifically social skills and peer rejection. Tables for Hypotheses 3 are at the end of the third section (V.IIIb).

### **V.I. Hypothesis One**

#### **V.Ia. Descriptive Statistics**

**Sociodemographic and Abuse Characteristics.** Table 3, below, presents weighted baseline sample descriptive statistics. The greatest percentage of children identified as White (48.19%) followed by Hispanic (19.27%), Other Racial/Ethnic Groups (17.08%) and Black (15.24%). At baseline, children were 7.59 years of age on average, with close to two-thirds of the sample 6 years of age or older. Approximately 40% of the boys in this sample experienced sexual abuse involving penetration. Fondling/masturbation was the most often reported subtype of sexual abuse (42.98%), followed by digital/oral penetration (30.22%). Non contact sexual abuse (e.g., exposure to sex or pornography) and vaginal/anal intercourse were less common (12.66% and 9.59%, respectively). Overall, 63% of the boys in this sample were sexually abused by an intrafamilial perpetrator. More specifically, 26.17% were sexually abused by a parent or stepparent while 36.9% were sexually abused by other relatives (i.e., siblings, grandparents, other relatives). 31% of the boys in this sample were sexually abused by an extra-familial perpetrator (i.e., friend, teacher, neighbor, mother's boyfriend, teacher, etc.). Table 5 also reports

descriptive statistics for family and peer context moderators. Specifically, boys in this sample are living in family contexts characterized by a high degree of risk; with 42.4% having 10 or more risk factors and an overall mean of 8.89 risk factors. Approximately one-third of the boys in this sample have low social skills.

Table 3.  
*Descriptive Statistics for Wave 1 Covariates, Abuse Characteristics and Moderators*

	% Missing	Unweighted N	Weighted % or Mean	SE
<b>Covariates</b>				
Child's Race	<1.0%			
Black/non-Hispanic		44	15.24%	5.46
White/non-Hispanic		81	48.19%	8.49
Hispanic		33	19.27%	6.07
Other		12	17.08%	9.33
Child's Age (Mean)	<1.0%	171	7.59	
0-2 Years		13	8.06%	3.99
3-5 Years		41	28.83%	6.27
6-10 Years		75	39.79%	9.88
11+ Years		42	23.32%	7.61
Living with Permanent Caregiver (Yes)	<1.0%			
No		33	7.07%	2.63
Yes		138	92.93%	2.63
Living Below the Poverty Line	13.09%	152		
No		97	49.59%	4.51
Yes		55	37.31%	9.57
<b>Abuse Characteristics</b>				
Severity	4.56%			
Non Contact		25	12.66%	5.22
Fondling/Masturbation		71	42.98%	11.84
Digital/Oral Penetration		47	30.22%	8.94
Vaginal/Anal Intercourse		26	9.59%	3.65
Perpetrator Relationship	6.04%			
Parent/Step-Parent		48	26.17%	7.22
Other Relative		59	36.9%	8.43
Other Non-Relative		60	30.9%	9.99
Perpetrator Relationship	6.04%			
Father		28	20.45%	
Other Relative		15	15.99%	
Brother		21	13.86%	
Neighbor		7	13.06%	
Other Non-Relative		25	12.74%	
Mother		18	8.02%	
Grandmother		7	7.19%	
Grandfather		9	3.92%	
Friend		15	2.82%	
Sister		3	2.35%	
Stepfather		10	1.95%	
Mom's Boyfriend		8	1.87%	



Uncle		9	1.6%	
Teacher		2	1.33%	
Out of Home Caregiver		1	0.7%	
Out of Home Child		3	0.41%	
Aunt		4	0.23%	
Co-Occurring Abuse	N/A			
No		128	69.29%	9.61
Yes		43	30.71%	9.61
<b>Baseline Moderators</b>				
Cumulative Family Risk (Mean)	<1.0%		8.89	7.27
Low (0-5)		26	21.85%	8.59
Medium (6-9)		61	35.75%	8.89
High (10+)		84	42.4%	10.83
Social Skills (Mean)	<1.0%		87.77	2.64
Low ( $\leq 84$ )		54	31.87%	9.15
High ( $> 84$ )		104	58.54%	9.15
Peer Rejection (Mean)	9.59%	110	21.61	1.26

**Developmental Outcomes.** Table 4, 5 and 6 display the overall developmental outcomes for the sample all three waves. At Wave 3, the estimated mean score for CBCL internalizing (53.71) and externalizing (54.85) subscales were similar; with 15.58% of the sample falling into the clinical range for internalizing problems and 22.72% falling into the clinical range for externalizing problems. At Wave 4, 20.94% of sexually abused boys scored in the clinical range for internalizing problems while 19.88% scored in the clinical range for externalizing problems. Finally, at Wave 5 the percentage of children falling into the clinical range for internalizing and externalizing problems increased (24.1% and 27.37%, respectively). At Wave 3, a similar percentage of children had scores falling into the clinical threshold range for posttraumatic stress (7.78%). Finally, the percentage of children falling into the clinical range for posttraumatic stress increased in Wave 4 (13.74%) and dropped back down 6.64% in Wave 5. At Wave 3, 15.32% of the boys in this sample had low MBA academic achievement scores. The percentage of children falling into the low range for academic achievement increased to 20.67% at Wave 4. Finally, at Wave 5 17.05% had low academic achievement scores.

Table 4.  
*Descriptive Statistics for Wave 3 Developmental Outcomes (n=171)*

	% Missing	Unweighted N	Weighted % or Mean	SE
Total Internalizing Problems (Mean)	1.28%	31	53.71	2.58
<59 Normal		87	79.75%	
60-63 Borderline		21	4.67%	
64+ Clinical		32	15.58%	
Total Externalizing Problems (Mean)	1.28%	19	54.85	2.0
<59 Normal		82	72.47%	
60-63 Borderline		15	4.8%	
64+ Clinical		43	22.72%	
Post-Traumatic Stress (Mean)	10.31%	19	48.07	2.49
<65 Normal		76	92.22%	
65+ Clinical		8	7.78%	
Academic Achievement (Mean)	2.74%	7	97.79	4.69
<85 Low		28	14.9%	
85+ Average/High		75	87.62%	

Table 5.  
*Descriptive Statistics for Wave 4 Developmental Outcomes (n=171)*

	% Missing	Unweighted N	Weighted % or Mean	SE
Total Internalizing Problems (Mean)	1.48%		50.83	3.21
<59 Normal		88	76.32%	
60-63 Borderline		11	2.74%	
64+ Clinical		38	20.94%	
Total Externalizing Problems (Mean)	1.48%		54.54	2.19
<59 Normal		73	74.72%	
60-63 Borderline		19	5.41%	
64+ Clinical		45	19.88%	
Post-Traumatic Stress (Mean)	3.16%		48.18	2.55
<65 Normal		86	86.26%	
65+ Clinical		13	13.74%	
Academic Achievement (Mean)	<1.0%		95.73	3.52
<85 Low		39	20.67%	
85+ Average/High		86	79.33%	

Table 6.  
*Descriptive Statistics for Wave 5 Developmental Outcomes (n=171)*

	% Missing	Unweighted N	Weighted % or Mean	SE
Total Internalizing Problems (Mean)	<1.0%		51.71	3.02
<59 Normal		84	73.11%	
60-63 Borderline		11	1.8%	
64+ Clinical		25	24.1%	
Total Externalizing Problems (Mean)	<1.0%		55.13	2.34
<59 Normal		73	69.18%	
60-63 Borderline		11	3.46%	
64+ Clinical		36	27.37%	
Post-Traumatic Stress (Mean)	17.38%		50.39	
Normal		96	93.36%	
Clinical		10	6.64%	
Academic Achievement (Mean)	7.86%		90.6	4.47
<85 Low		38	17.05%	
85+ Average/High		76	82.95%	

## V.Ib. Bivariate Statistics

**Wave 3 Outcomes.** Table 7, below, presents each developmental outcome broken down by socio-demographic and abuse characteristics at Wave 3 (the 1½ year follow-up). Internalizing problems, externalizing problems and academic achievement did not vary significantly by age, race/ethnicity or poverty threshold. In terms of race/ethnicity, Hispanic children had significantly lower posttraumatic stress scores than Black children and children of other races/ethnicities. White children had significantly higher posttraumatic stress scores than Hispanic children (50.31 vs. 38.13) and children of other races/ethnicities (43.2 vs. 38.13). Children who were not living with their permanent caregiver at baseline had significantly higher internalizing (63.87 vs. 52.97) and externalizing (67.25 vs. 53.94) scores.

Each developmental outcome was also broken down by abuse characteristics at the 18-month follow-up (Wave 3). Internalizing and externalizing problems and academic achievement outcomes varied by sexual abuse severity. Children who experienced fondling/masturbation had significantly higher mean internalizing (54.49 vs. 45.77) and externalizing (53.88 vs. 44.1) scores than children with reports of non contact sexual abuse. Children with more severe sexual abuse types (i.e., digital/oral penetration and vaginal/anal intercourse) also had significantly higher mean externalizing scores than children with reports of non-contact sexual abuse; they were also more likely to have scores meeting or exceeding the clinical cut point compared to non-contact sexual abuse (50.85% and 26.67% vs. 4.2%, respectively). In contrast, children with non-contact sexual abuse had significantly lower academic achievement scores than children with reports of fondling/masturbation and vaginal/anal intercourse.

Table 7  
*Mean Scores for Wave 3 Developmental Outcomes by Sociodemographic and Abuse Characteristics*

	Internalizing Problems	Externalizing Problems	Posttraumatic Stress	Academic Achievement
<b>Socio-Demographic Characteristics</b>				
Child's Age				
0-2 Years	53.19	47.33	--	--
3-5 Years	55.13	54.21	--	96.67
6-10 Years	53.32	55.86	48.49	95.00
11+ Years	52.5	57.5	47.27	101.05
Race/Ethnicity				
Black/Non-Hispanic	48.94	50.83	59.11 <sup>a</sup>	105.93
White/Non-Hispanic	53.55	56.04	50.31 <sup>b,c</sup>	95.94
Hispanic	58.47	58.04	38.13	85.88
Other	52.3	51.46	43.2 <sup>d</sup>	104.06
Living Below the Poverty Line				
No	53.95	52.34	48.72	102.98
Yes	52.96	57.29	48.88	91.14
Living with Permanent Caregiver				
No	63.87 <sup>e</sup>	67.25 <sup>f</sup>	43.53	94.44
Yes	52.97	53.94	48.47	97.09
<b>Abuse Characteristics</b>				
Sexual Abuse Subtype				
Non Contact	45.77	44.1	49.43	87.84
Fondling/Masturbation	54.49 <sup>g</sup>	53.88 <sup>h</sup>	46.42	102.5 <sup>k</sup>
Digital/Oral Penetration	56.29	60.12 <sup>i</sup>	54.93	87.89
Vaginal/Anal Intercourse	54.19	58.11 <sup>j</sup>	44.43	99.07 <sup>l</sup>
Perpetrator Relationship				
Parent/Step-Parent	51.78	53.07	50.98	100.29
Other Relative	55.34	55.45	48.02	90.67
Non-Relative	53.71	56.02	45.63	102.2
Co-Occurring Abuse				
No	53.52	53.66	47.62	92.77
Yes	54.16	57.64	48.52	103.59

- a. Black > Hispanic  $F(1,77)=6.04$ ,  $t=2.46$ ,  $p=0.016$   
b. White > Hispanic  $F(1,77)=42.13$ ,  $t=6.49$ ,  $p=0.000$   
c. White > Hispanic  $F(1,77)=21.05$ ,  $t=4.59$ ,  $p=0.000$   
d. Other Race > Hispanic  $F(1,77)=21.32$ ,  $t=-4.62$ ,  $p=0.000$   
e. OOH > Permanent  $F(1,83)=5.6$ ,  $t=2.37$ ,  $p=0.002$   
f. OOH > Permanent  $F(1,83)=7.28$ ,  $t=2.7$ ,  $p=0.008$   
g. Fondling/Masturbation > Non-Contact  $F(1,83)=10.55$ ,  $t=3.25$ ,  $p=0.002$   
h. Fondling/Masturbation > Non-Contact  $F(1,83)=14.37$ ,  $t=3.79$ ,  $p=0.000$   
i. Digital/Oral > Non-Contact  $F(1,83)=15.86$ ,  $t=3.98$ ,  $p=0.000$   
j. Vaginal/Anal > Non-Contact  $F(1,83)=10.65$ ,  $t=-3.26$ ,  $p=0.002$   
k. Fondling/Masturbation > Non-Contact  $F(1,77)=8.2$ ,  $t=2.86$ ,  $p=0.005$   
l. Vaginal/Anal > Non-Contact  $F(1,77)=4.11$ ,  $t=-2.03$ ,  $p=0.046$

**Wave 4 Outcomes.** Table 8, below, presents each developmental outcome broken down by socio-demographic characteristics at Wave 4 (the 3 year follow-up). In terms of race/ethnicity, As compared to children of other races/ethnicities, White children had significantly higher levels of internalizing problems (42.61 vs. 53.44). White children also reported significantly higher

Wave 4 posttraumatic stress scores compared to Hispanic children and children of other races/ethnicities. Similarly, Black children reported higher posttraumatic stress scores compared to Hispanic children and children of other races. Finally, similar to Wave 3, children not living with their permanent caregiver at baseline had significantly higher internalizing and externalizing scores than children still living at home.

In addition to socio-demographic characteristics, Table 8 also reports the association between abuse characteristics and developmental outcomes. Children who experienced the most severe subtype of sexual abuse, vaginal/anal intercourse, had higher mean internalizing problem scores than children reporting fondling/masturbation (59.99 vs. 47.54) and non contact sexual abuse (59.99 vs. 45.69). A similar pattern emerged with externalizing problems scores. Specifically, children with fondling/masturbation, digital/oral penetration and vaginal/anal intercourse had significantly higher mean externalizing scores compared to children reporting non contact sexual abuse. Children with reports of digital/oral and vaginal/anal penetration also had a greater rate of scores meeting or exceeding the clinical cut-point for both internalizing problems (36.51% and 46.5%, respectively) and externalizing problems (34.11% and 56.88%, respectively). Mean externalizing problems and academic achievement scores did not vary by perpetrator relationship. However boys sexually abused by other relatives have a greater rate of scores meeting or exceeding the clinical cut point as compared to boys sexually abused by non-relatives for externalizing problems (31.28% vs. 7.37%) while boys sexually abused by a parent or stepparent have a greater rate of scores meeting or exceeding the clinical cut point for posttraumatic stress as compared to boys sexually abused by non-relatives (39.46% vs. 1.78%). Children sexually abused by a parent or stepparent have significantly higher scores for

internalizing problems (51.14 vs. 44.46) and posttraumatic stress (54.89 vs. 43.97) as compared to children who were sexually abused by non-relatives.

Table 8  
*Mean Scores for Wave 4 Developmental Outcomes by Sociodemographic and Abuse Characteristics*

	Internalizing Problems	Externalizing Problems	Posttraumatic Stress	Academic Achievement
<b>Socio-Demographic Characteristics</b>				
Child's Age (Mean)				
0-2 Years	45.98	43.25	--	--
3-5 Years	56.34	55.34	45.62	101.48
6-10 Years	49.37	56.5	49.06	92.39
11+ Years	47.02	54.24	47.17	94.65
Race/Ethnicity				
Black/Non-Hispanic	46.63	52.89	54.7 <sup>b,c</sup>	96.23
White/Non-Hispanic	53.44 <sup>a</sup>	54.36	52.17 <sup>d,e</sup>	99.23
Hispanic	59.32	60.33	42.52	85.47
Other	42.61	51.06	41.28	100.2
Living Below The Poverty Line				
No	54.14	53.48	50.26	103.26
Yes	44.69	54.99	44.38	86.04
Living with Permanent Caregiver				
No	63.44 <sup>f</sup>	66.67 <sup>g</sup>	50.76	88.24
Yes	49.89	53.63	47.93	96.39
<b>Abuse Characteristics</b>				
Sexual Abuse Subtype				
Non Contact	45.69	42.96	51.45	101.23
Fondling/Masturbation	47.54	54.28 <sup>j</sup>	46.76	100.81
Digital/Oral Penetration	57.06	59.2 <sup>k</sup>	49.66	86.23
Vaginal/Anal Intercourse	59.99 <sup>h,i</sup>	61.06 <sup>l</sup>	52.87	91.2
Perpetrator Relationship				
Parent/Step-Parent	51.14 <sup>m</sup>	49.25	54.89 <sup>n</sup>	109.34
Other Relative	55.09	57.46	50.78	88.78
Non-Relative	44.46	54.6	43.97	98.94
Co-Occurring Abuse				
No	52.76	53.94	50.92	93.15
Yes	45.65	56.16	43.79	102.22

a. White > Other F (1,83)= 10.32, t=3.21, p=0.002

b. Black > Hispanic F(1,83)=5.65, t=2.38, p=0.02

c. Black > Other F(1,83)=14.04, t=3.75, p=0.000

d. White > Hispanic F(1,83)=5.06, t=2.25, p=0.027

e. White > Other F(1,83)=14.10, t=3.76, p=0.000

f. No > Yes F(1,83)=11.17, t=3.34, P=0.001

g. No > Yes F(1,83)=19.88, t=4.46, p=0.000

h. Vaginal/Anal > Fondling/Masturbation F(1,83)=5.5, t=-2.34, p=0.02

i. Vaginal/Anal > Non-Contact F(1,83)=7.11, t=-2.67, p=0.009

j. Fondling/Masturbation > Non-Contact F(1,83)=4.48, t=2.12, p=0.037

k. Digital/Oral > Non-Contact F(1,83)=5.98, t=2.45, p=0.017

l. Vaginal/Anal > Non-Contact F(1,83)=5.11, t=-2.26, p=0.026

m. Parent/Stepparent > Non-Relative F(1,83)=5.43, t=2.33, p=0.022

n. Parent/Stepparent > Non-Relative F(1,83)=5.64, t=2.37, p=0.02

**Wave 5 Outcomes.** Table 9, below, presents each developmental outcome broken down by socio-demographic and abuse characteristics at Wave 5 (the 5 year follow-up). Academic achievement varied by age. Younger children, specifically those 0-5 years of age at baseline, have higher mean academic achievement scores as compared to children 6 years and older. Older children are also more likely to have significantly lower mean scores for academic achievement. In terms of race/ethnicity, internalizing and externalizing problems varied significantly. Specifically, White children had higher mean internalizing (51.14 vs. 46.15) and externalizing (55.91 vs. 45.63) scores as compared to children of other races/ethnicities. Black and Hispanic children also had significantly higher mean externalizing scores than children of other races. Finally, Hispanic children reported significantly higher mean depression scores than White children (51.72 vs. 44.13); though the percentage of children in these two groups with scores meeting or exceeding the clinical cut point for depression was similar. For the first time, poverty emerged as significant at Wave 5, with children coming from homes at or above the poverty line reporting higher mean posttraumatic stress (52.32 vs. 44.15) scores than children living below the poverty line. Consistent with the previous two waves, children not living with their permanent caregiver had higher externalizing scores; 70.22% had scores that meet or exceed the clinical cut point (compared to 23.52% for children living with permanent caregivers).

In terms of abuse characteristics, mean internalizing and externalizing problems and academic achievement scores did not vary by sexual abuse subtype, relationship to perpetrator or co-occurring abuse. However differences did emerge in the percentage of children in the clinical range for internalizing and externalizing problems. Specifically, among children with a sexual abuse subtype of vaginal/anal intercourse, 37.21% meet or exceed the clinical cut point for

internalizing problems as compared to 16.56% of those who experienced fondling/masturbation. This difference was even more pronounced for externalizing problems—with a little over half (52.17%) of those with a sexual abuse subtype of vaginal/anal intercourse scoring in the clinical range as compared to 17.77% of those with a sexual abuse of fondling/masturbation. In terms of posttraumatic stress, some interesting patterns emerged for sexual abuse subtype and perpetrator relationship. Boys who experienced digital/oral penetration (46.52) had lower mean scores than boys who experienced all other subtypes of sexual abuse; both non contact sexual abuse (54.85) and fondling/masturbation (54.47) as well as the more severe category of vaginal/anal intercourse (57.04). Perpetrator relationship follows a more expected pattern, with children sexually abused by relatives (both parent/stepparent and other relative categories) reporting higher mean posttraumatic stress scores than children sexually abused by non-relatives.

Table 9

*Mean Scores for Wave 5 Developmental Outcomes by Sociodemographic and Abuse Characteristics*

	Internalizing Problems	Externalizing Problems	Posttraumatic Stress	Academic Achievement
<b>Socio-Demographic Characteristics</b>				
Child's Age (Mean)				
0-2 Years	48.42	49.7	55	100.51 <sup>a,b</sup>
3-5 Years	55.33	56.68	48.26	103.01 <sup>c,d</sup>
6-10 Years	49.7	57.84	53.44	77.12
11+ Years	51.52	55.6	53.52	85.62
Race/Ethnicity				
Black/Non-Hispanic	52.37	59.79 <sup>f</sup>	52.11	88.23
White/Non-Hispanic	51.14 <sup>e</sup>	55.91 <sup>g</sup>	50.77	96.61
Hispanic	53.66	57.84 <sup>h</sup>	52.46	77.53
Other	46.15	45.63	53.9	95.67
Living Below the Poverty Line				
No	52.94	55.96	52.32 <sup>i</sup>	97.63
Yes	45.61	53.64	44.15	67.96
Living with Permanent Caregiver				
No	60.23	64.91 <sup>j</sup>	55.05	84.71
Yes	50.63	54.96	51.4	90.12
<b>Abuse Characteristics</b>				
Sexual Abuse Subtype				
Non Contact	48.22	49.47	54.85 <sup>k</sup>	92.72
Fondling/Masturbation	49.34	55.61	54.47 <sup>l</sup>	95.14
Digital/Oral Penetration	53.35	56.75	46.52	82.88
Vaginal/Anal Intercourse	56.2	62.17	57.04 <sup>m</sup>	91.05
Perpetrator Relationship				
Parent/Step-Parent	48.35	53.9	54.31 <sup>n</sup>	97.42



Other Relative	54.54	57.69	53.21°	84.19
Non-Relative	48.53	54.26	45.29	93.24
Co-Occurring Abuse				
No	51.87	56.22	52.29	88.81
Yes	49.77	54.22	48.62	94.44

- 
- a. 0-2 years > 6-10 years  $F(1,83)=9.32, t=3.05, p=0.003$
- b. 0-2 years > 11+ years  $F(1,83)=7.79, t=2.79, p=0.007$
- c. 3-5 years > 6-10 years  $F(1,83)=11.7, t=3.42, p=0.001$
- d. 3-5 years > 11+ years  $F(1,83)=14.41, t=3.8, p=0.000$
- e. White > Other  $F(1,83)=4.51, t=2.12, p=0.037$
- f. Black > Other  $F(1,83)=4.26, t=2.06, p=0.042$
- g. White > Other  $F(1,83)=10.75, t=3.28, p=0.002$
- h. Hispanic > Other  $F(1,83)=4.08, t=2.02, p=0.047$
- i. No > Yes  $F(1,83)=14.12, t=-3.76, p=0.000$
- j. No > Yes  $F(1,83)=4.59, t=2.14, p=0.035$
- k. Non-Contact > Digital/Oral  $F(1,83)=9.13, t=-3.02, p=0.003$
- l. Fondling/Masturbation > Digital/Oral  $F(1,83)=8.83, t=-2.97, p=0.004$
- m. Vaginal/Anal > Digital/Oral  $F(1,83)=7.42, t=-2.72, p=0.008$
- n. Parent/Stepparent > Non-Relative  $F(1,83)=7.01, t=2.65, p=0.01$
- o. Other Relative > Non-Relative  $F(1,83)=4.85, t=2.20, p=0.03$
-

### **V.IIa. Hypothesis Two**

Analyses for hypothesis 2 involve six OLS regression models for each of the 6 outcome variables across 3 waves. Model 1 includes coefficients for sociodemographic characteristics alone. Model 2 adds abuse characteristics. Model 3 includes sociodemographic and abuse characteristics as well as the cumulative family risk, social skills and peer relationship moderators without any interactions. The final stage of the analyses estimates a series of interaction terms which test whether the effect of abuse characteristics (severity, perpetrator and co-occurring abuse) on each outcome varies as a function of cumulative family risk. Each interaction term was entered separately; thus all interaction terms were tested separately for each category of abuse characteristics. Specifically, Model 4 examines the interaction of co-occurring abuse and cumulative family risk. Model 5 tests the following interactions between sexual abuse perpetrator and cumulative family risk: 1) Parent/Stepparent Perpetrator\*Family Risk; 2) Other Relative Perpetrator\*Family Risk. Finally, Model 6 tests the following interactions: 1) Non Contact \*Family Risk; 2) Fondling/Masturbation\*Family Risk and 3) Digital/Oral Penetration\*Family Risk. Tables are presented at the end of this section.

#### **Outcome 1.1: Wave 3 CBCL Internalizing Problems Standardized Score**

Table 10 shows the parameter estimates and significance levels for Wave 3 internalizing problems for each of the six models. Of the sociodemographic variables, being Black (vs. being White) and living in the home of a permanent caregiver (vs. living in out-of-home care) were both significant predictors of lower internalizing problems ( $b=-10.95$ ,  $p<0.001$  and  $b=-10.19$ ,  $p<0.01$ , respectively) in Model 1. When abuse characteristics were added in Model 2, Black children continued to score significantly lower on Wave 3 internalizing problems than their White counterparts ( $b=-13.62$ ,  $p<0.001$ ). None of the abuse characteristics in this model were

significant. In Model 3, the main effects for the 3 moderating variables were added. Increased peer rejection was significantly associated with higher internalizing problems ( $b=0.53$ ,  $p<0.001$ ). Hispanic children reported significantly higher internalizing scores ( $b=5.196$ ,  $p<0.05$ ) while those living with a permanent (vs. out-of-home) caregiver reported significantly lower internalizing problems ( $b=-6.895$ ,  $p<0.01$ ). Digital/oral penetration (vs. vaginal/anal intercourse) was associated with lower internalizing problems scores ( $b=-7.227$ ,  $p<0.05$ ).

Models 4-6 tested the moderating role of cumulative family risk in the relationship between abuse characteristics and Wave 3 internalizing problems. In Model 4, the interaction term for co-occurring abuse and cumulative family risk was not significant. Hispanic children had significantly higher scores ( $b=5.25$ ,  $p<0.01$ ) whereas living with a permanent caregiver ( $b=-6.92$ ,  $p<0.01$ ), digital/oral penetration ( $b=-7.21$ ,  $p<0.05$ ) and increased peer rejection ( $b=0.53$ ,  $p<0.001$ ) were associated with lower scores. Although the main effect for cumulative family risk was significant ( $b=1.13$ ,  $p<0.05$ ) in Model 5, the interaction of cumulative family risk with each of the perpetrator categories was not significant, suggesting that the effect of perpetrator relationship on CBCL internalizing problems scores did not depend on family risk level. Children living with a permanent caregiver ( $b=-6.69$ ,  $p<0.01$ ) and children with reports of digital/oral penetration ( $b=-6.22$ ,  $p<0.05$ ) had significantly lower scores. Increased peer rejection was associated with higher Wave 3 internalizing problems ( $b=0.61$ ,  $p<0.001$ ). In Model 6 living with a permanent caregiver was associated with lower Wave 3 internalizing problems ( $b=-7.45$ ,  $p<0.05$ ). Higher cumulative family risk ( $b=1.79$ ,  $p<0.001$ ) and peer rejection ( $b=0.66$ ,  $p<0.001$ ) were associated with worse internalizing problems. Finally, the interaction term for fondling/masturbation and cumulative risk was significant ( $b=-2.01$ ,  $p<0.001$ ); indicating that cumulative family risk moderated the relationship between fondling/masturbation and Wave 3

internalizing problems ( $b=-2.01$ ,  $p<0.001$ ). Boys with higher levels of cumulative family risk who experienced fondling/masturbation had lower internalizing problems than those with reports of vaginal/anal intercourse. See Figure 4, below, for a graphic example of this interaction effect.

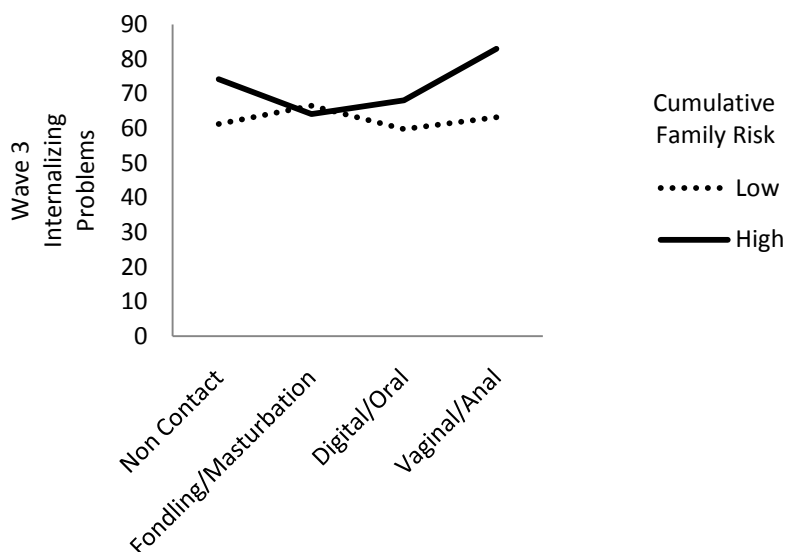


Figure 4.  
Graph of Table 10 Interactions for Severity\*Cumulative Family Risk Interactions

### Outcome 1.2: Wave 4 CBCL Internalizing Problems Standardized Score

Table 11 summarizes the moderating role of cumulative family risk on Wave 4 internalizing problems as a function of sociodemographic and abuse characteristics. In Model 1, Blacks ( $b=-9.0$ ,  $p<0.001$ ), other races/ethnicities ( $b=-8.06$ ,  $p<0.05$ ) and living with permanent caregivers ( $b=-12.58$ ,  $p<0.01$ ) were associated with lower Wave 4 internalizing problems scores. When abuse characteristics were added in Model 2, children with reports of non-contact sexual abuse ( $b=-15.81$ ,  $p<0.05$ ) and fondling/masturbation ( $b=-14.33$ ,  $p<0.05$ ) had significantly lower internalizing problems than those with vaginal/anal intercourse. In Model 3 the main effects for cumulative family risk, social skills and peer rejection were added to the equation. Cumulative family risk was significantly associated with greater Wave 4 internalizing problems ( $b=0.797$ ,

$p < 0.01$ ). Boys with reports of non contact sexual abuse ( $b = -17.97$ ,  $p < 0.001$ ), fondling/masturbation ( $b = -20.2$ ,  $p < 0.001$ ), and digital/oral penetration ( $b = -21.81$ ,  $p < 0.001$ ) had significantly lower internalizing scores than boys with reports of vaginal/anal intercourse. Similarly, boys with parent/stepparent perpetrators had higher scores than those sexually abused by non-relative perpetrators ( $b = 6.23$ ,  $p < 0.01$ ) while co-occurring abuse was associated with lower scores ( $b = -7.87$ ,  $p < 0.05$ ).

Models 4-6 tested the moderating role of cumulative family risk in the relationship between abuse characteristics and Wave 4 internalizing problems. The results suggest that the effect of abuse characteristics on Wave 4 internalizing problems are similar across levels of cumulative family risk as evidenced by the insignificant interaction terms. Living below the poverty line was consistently associated with lower internalizing problems scores across all three models. Similarly, vaginal/anal intercourse and having a parent/stepparent (vs. non-relative) perpetrator were consistently associated with higher internalizing scores in all three models. In Model 4 cumulative family risk was associated with worse Wave 4 internalizing problems ( $b = 0.93$ ,  $p < 0.01$ ). Co-occurring abuse was associated with lower internalizing problems in Model 5 ( $b = -9.562$ ,  $p < 0.05$ ) and Model 6 ( $b = -7.45$ ,  $p < 0.05$ ).

### **Outcome 1.3: Wave 5 CBCL Internalizing Problems Standardized Score**

Table 12 summarizes the effect of cumulative family risk on internalizing problems at Wave 5, the 60 month follow-up, as a function of sociodemographic and abuse characteristics. In Model 1, children of other racial/ethnic groups ( $b = -6.85$ ,  $p < 0.05$ ) and children living with permanent caregivers ( $b = -13.21$ ,  $p < 0.01$ ) scored significantly lower on Wave 5 internalizing problems. None of the abuse characteristics added in Model 2 were significant. However other racial/ethnic groups ( $b = -10.1$ ,  $p < 0.05$ ) and living with permanent caregivers ( $b = -14.04$ ,  $p < 0.01$ )

continued to be associated with significantly lower with Wave 5 internalizing problems. In Model 2 children living below the poverty line had lower Wave 5 internalizing problems ( $b=-9.08$ ,  $p<0.05$ ). In Model 3, the main effects for the three moderating variables were added to the equation. Boys with better social skills had lower Wave 5 internalizing problems scores ( $b=-0.233$ ,  $p<0.05$ ). No other predictors were significantly associated with Wave 5 internalizing problems. In Model 4 cumulative family risk moderated the relationship between co-occurring abuse and Wave 5 internalizing problems ( $b=3.47$ ,  $p<0.01$ ). As shown in Figure 5, below, the adverse impact of co-occurring abuse on Wave 5 internalizing problems was amplified as cumulative family risk increased.

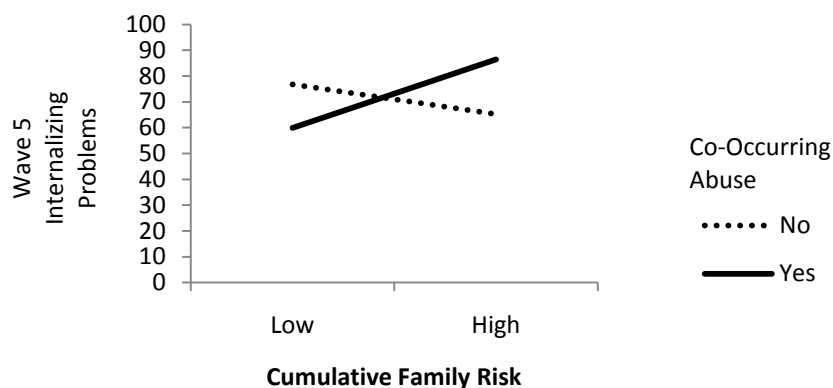


Figure 5.

Graph of Table 12 Co-Occurring Abuse\*Cumulative Family Risk Interactions

Of the sociodemographic characteristics, children of other racial/ethnic groups scored higher on Wave 5 internalizing problems in comparison to their White counterparts ( $b=12.05$ ,  $p<0.05$ ). Children with better social skills ( $b=-0.32$ ,  $p<0.05$ ) had lower Wave 5 internalizing problems scores. In Model 5 cumulative family risk did not moderate the relationship between perpetrator and Wave 5 internalizing problems. There were no significant differences based on abuse characteristics. Hispanic (vs. White) children had significantly higher scores ( $b=8.52$ ,  $p<0.05$ ),

while children with better social skills had significantly lower Wave 5 internalizing problems ( $b=0.26$ ,  $p<0.05$ ). Similar to previous models, in Model 6 children of other races/ethnicities had higher scores on Wave 5 internalizing problems ( $b=12.17$ ,  $p<0.01$ ) while children living with permanent caregivers had lower scores ( $b=-7.21$ ,  $p<0.05$ ). Better social skills was associated with lower Wave 5 internalizing problems ( $b=-0.33$ ,  $p<0.01$ ). All three interaction terms in Model 6 were significant, indicating that impact of sexual abuse severity on Wave 5 internalizing problems differs depending on the level of cumulative family risk. As shown in Figure 6, below, boys with higher levels of cumulative family risk who experienced non-contact sexual abuse, fondling/masturbation and digital/oral penetration had lower internalizing problems than those with reports of vaginal/anal intercourse.

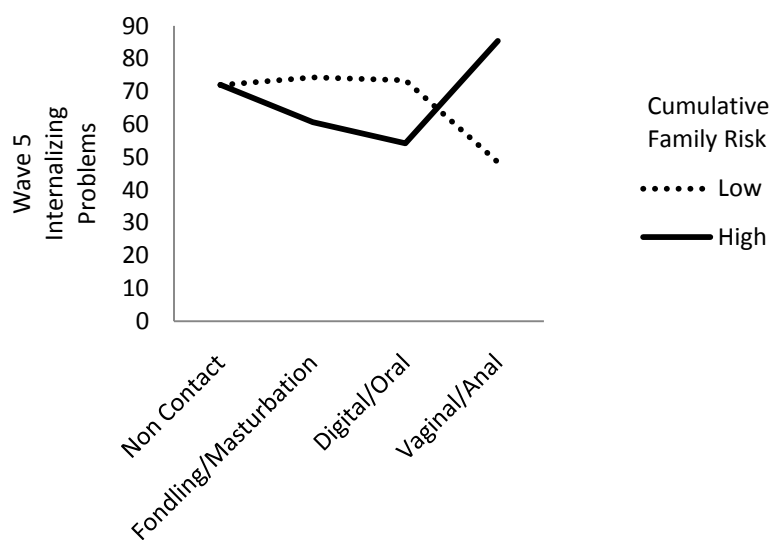


Figure 6.  
Graph of Table 12 Severity\*Cumulative Family Risk Interactions

### Outcome 2.1: Wave 3 CBCL Externalizing Problems Standardized Score

Table 13 shows the parameter estimates and significance levels for Wave 3 externalizing problems for each of the six models. In Model 1, sociodemographic characteristics are entered alone. Of the sociodemographic variables, being Black ( $b=-10.04$ ,  $p<0.001$ ) and living in the

home of a permanent caregiver ( $b=-13.33$ ,  $p<0.001$ ) is associated with lower Wave 3 externalizing problems scores while living below the poverty line was associated with higher scores ( $b=7.64$ ,  $p<0.01$ ). When abuse characteristics are added to the equation in Model 2, other races/ethnicities ( $b=-9.84$ ,  $p<0.001$ ), Blacks ( $b=-11.85$ ,  $p<0.01$ ), and boys living with a permanent caregiver ( $b=-11.8$ ,  $p<0.01$ ) continued to have significantly lower Wave 3 externalizing problem scores. Co-occurring abuse was associated with higher Wave 3 externalizing problems ( $b=7.628$ ,  $p<0.05$ ). No other significant differences were present for abuse characteristics. Model 3 added the main effects for cumulative family risk, social skills and peer rejection. Of the sociodemographic characteristics, living below the poverty line was associated with a higher Wave 3 externalizing problems score ( $b=5.12$ ,  $p<0.05$ ) while older age ( $b=-1.06$ ,  $p<0.05$ ) and children of other racial/ethnic groups ( $b=-9.34$ ,  $p<0.01$ ) had significantly lower scores. Boys with better social skills had lower Wave 3 externalizing problems ( $b=-0.297$ ,  $p<0.05$ ) while increased peer rejection was associated with higher Wave 3 externalizing problems ( $b=0.51$ ,  $p<0.05$ ). Finally, in comparison to boys with reports of vaginal/anal intercourse, those with reports of non-contact sexual abuse ( $b=-10.43$ ,  $p<0.001$ ), fondling/masturbation ( $b=-5.92$ ,  $p<0.05$ ) and digital/oral penetration ( $b=-5.97$ ,  $p<0.05$ ) had significantly lower Wave 3 externalizing problems scores.

In Model 4 cumulative family risk did not moderate the relationship between co-occurring abuse and Wave 3 externalizing problems; nor did it moderate the association between perpetrator relationship and Wave 3 externalizing problems in Model 5. In both models increased age, other race/ethnicity, and higher social skills were associated with lower externalizing problems scores while living below the poverty line and peer rejection were associated with higher externalizing problems scores. Boys with reports of non-contact sexual



abuse and digital/oral penetration had lower externalizing problems than those with reports of vaginal/anal intercourse. In Model 6 cumulative family risk did moderate the relationship between severity and Wave 3 externalizing problems as indicated by significant interaction terms for Non-Contact Abuse\*Family Risk ( $b=-2.3$ ,  $p<0.05$ ) and Fondling/Masturbation\*Family Risk ( $b=-1.86$ ,  $p<0.05$ ). As shown in Figure 7, below, boys with high cumulative family risk who experienced vaginal/anal intercourse had higher externalizing subscale scores than those who experienced non-contact and fondling/masturbation types.

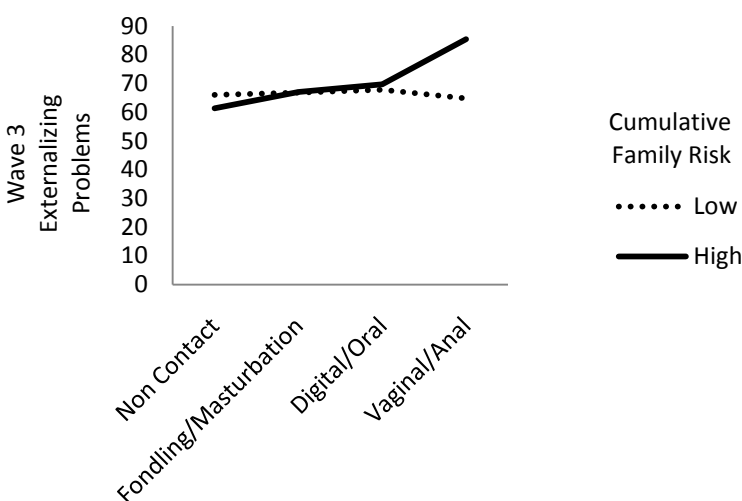


Figure 7.  
Graph of Table 13 Severity\*Cumulative Family Risk Interactions

## Outcome 2.2: Wave 4 CBCL Externalizing Problems Standardized Score

Table 14 summarizes the effect of cumulative family risk on Wave 4 externalizing problems as a function of sociodemographic and abuse characteristics for sexually abused boys. In Model 1, Black children ( $b=-5.27$ ,  $p<0.05$ ) and children living with a permanent caregiver ( $b=-11.3$ ,  $p<.001$ ) had significantly lower Wave 4 externalizing problems scores. When abuse characteristics are added in Model 2, children living with a permanent caregiver continued to have lower Wave 4 externalizing problem scores ( $b=-8.57$ ,  $p<0.01$ ). In addition, children who

experienced non-contact sexual abuse ( $b=-18.44$ ,  $p<0.01$ ) and fondling/masturbation ( $b=-10.28$ ,  $p<0.01$ ) had significantly lower Wave 4 externalizing problems. Model 3 adds the main effects for cumulative family risk, social skills and peer rejection to the equation. Children with reports of vaginal/anal intercourse had significantly worse Wave 4 externalizing problems scores than children with reports of non-contact sexual abuse ( $b=-20.16$ ,  $p<0.001$ ), fondling/masturbation ( $b=-14.16$ ,  $p<0.001$ ) and digital/oral penetration ( $b=-19.16$ ,  $p<0.001$ ). Better social skills was associated with lower Wave 4 externalizing problems ( $b=-0.45$ ,  $p<0.001$ ).

Models 4-6 tested the moderating role of cumulative family risk in the relationship between a range of abuse characteristics and Wave 4 externalizing problems. None of the interaction terms were significant, suggesting that the effect of abuse characteristics on Wave 4 externalizing problems did not depend on cumulative family risk. Better social skills was consistently associated with significantly lower Wave 4 externalizing scores across all three models. Similarly, across all three models children with reports of non-contact abuse, fondling/masturbation, and digital/oral penetration had consistently lower Wave 4 externalizing scores compared to those with reports of vaginal/anal intercourse. None of the sociodemographic characteristics in Model 4 were significant; however living with a permanent caregiver was associated with lower Wave 4 externalizing problems in Model 5 ( $b=-7.76$ ,  $p<0.05$ ) and Model 6 ( $b=-6.24$ ,  $p<0.05$ ).

### **Outcome 2.3: Wave 5 CBCL Externalizing Problems Standardized Score**

Table 15 shows the parameter estimates and significance levels for Wave 5 externalizing problems for each of the six models. In Models 1 and 2, other races/ethnicities, living with permanent caregivers and living below the poverty line were significant predictors of lower Wave 5 externalizing problems scores. In Model 2, none of the added abuse characteristics were

significant. When the main effects for cumulative family risk, social skills and peer rejection were added in Model 3 living with a permanent caregiver was the only sociodemographic predictor to remain significant ( $b=-8.13$ ,  $p<0.05$ ). Children with reports of digital/oral penetration had significantly lower Wave 5 externalizing scores than those with reports of vaginal/anal intercourse ( $b=-10.74$ ,  $p<0.01$ ) while better social skills was associated with lower scores ( $b=-0.32$ ,  $p<0.05$ ).

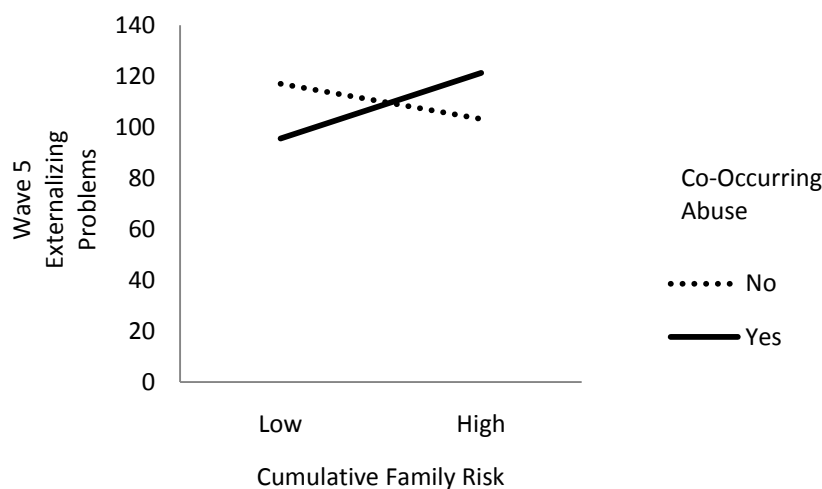


Figure 8.  
Graph of Table 15 Co-Occurring Abuse\*Cumulative Family Risk Interaction

In Model 4 cumulative family risk moderated the relationship between co-occurring abuse and Wave 5 externalizing problems as evidenced by a significant interaction term ( $b=3.59$ ,  $p<0.01$ ). Specifically, the adverse impact of co-occurring abuse on Wave 5 externalizing problems was amplified as cumulative family risk increased (see Figure 8, above). In Model 5 Hispanic children had significantly higher Wave 5 externalizing scores ( $b=7.68$ ,  $p<0.05$ ) while children living with a permanent caregiver had significantly lower scores ( $b=-9.99$ ,  $p<0.001$ ). Digital/oral penetration was the only significant abuse characteristic in this model; boys with reports of digital/oral penetration had lower Wave 5 externalizing problems compared to boys

with reports of vaginal/anal intercourse ( $b=-8.12$ ,  $p<0.05$ ). Better social skills was associated with lower Wave 5 externalizing problems ( $b=-0.28$ ,  $p<0.05$ ). Finally, in Model 5 cumulative family risk moderated the relationship between boys sexually abused by other relatives and Wave 5 externalizing problems, as indicated by a significant interaction term ( $b=2.33$ ,  $p<0.05$ ). Specifically, having other relative perpetrators was more strongly predictive of externalizing symptoms among boys with higher levels of cumulative family risk (see Figure 9, below).

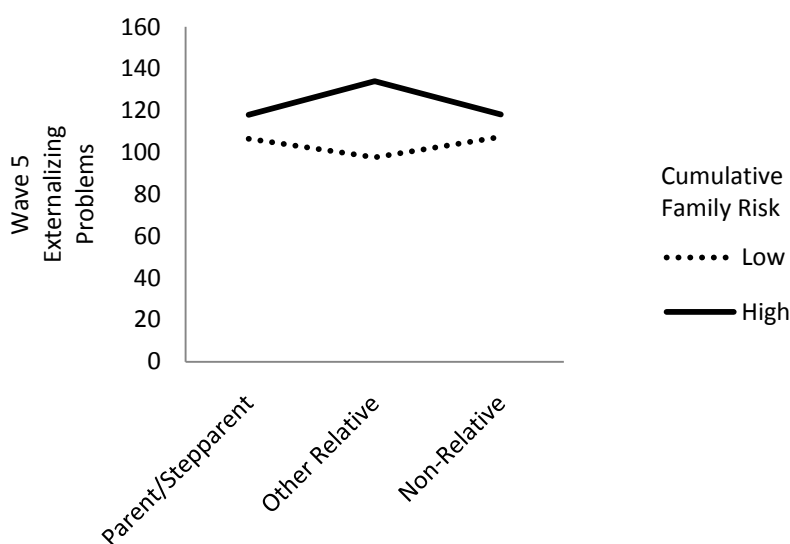


Figure 9.

Graph of Table 15 Perpetrator Relationship\*Cumulative Family Risk Interactions

In Model 6 there were a number of significant interaction effects indicating that the effect of fondling/molestation ( $b=-3.35$ ,  $p<0.01$ ) and digital/oral penetration ( $b=-4.21$ ,  $p<0.05$ ) on Wave 5 externalizing problems varied according to cumulative family risk level. As shown in Figure 10, below, boys with higher levels of cumulative family risk who experienced fondling/molestation and digital/oral penetration had lower Wave 5 externalizing problems scores than those with reports of vaginal/anal intercourse.

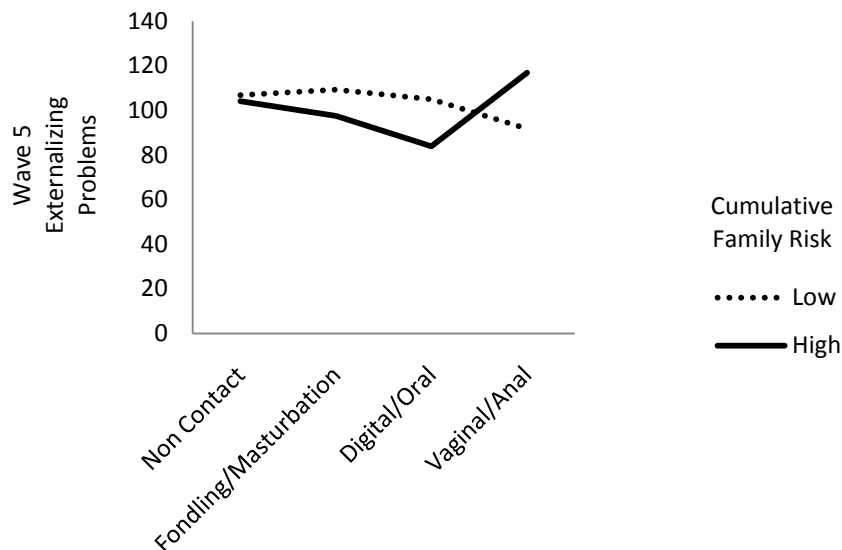


Figure 10.  
Graph of Table 15 Severity\*Cumulative Family Risk Interactions

### Outcome 3.1: Wave 3 TSCC Posttraumatic Stress Standardized Score

Table 16 summarizes the effect of cumulative family risk on Wave 3 posttraumatic stress scores as a function of sociodemographic and abuse characteristics for sexually abused boys. In Model 1 Blacks had higher posttraumatic stress scores than Whites ( $b=15.57$ ,  $p<0.01$ ) while Hispanics and other races/ethnicities had lower posttraumatic stress scores ( $b=-13.45$ ,  $p<0.001$  and  $b=-9.39$ ,  $p<0.01$  respectively). Children living with permanent caregivers had higher posttraumatic stress scores ( $b= 9.22$ ,  $p<0.05$ ). In Model 2, Whites had significantly lower posttraumatic stress scores than Blacks ( $b=10.77$ ,  $p<0.01$ ) and higher posttraumatic stress scores than Hispanic children ( $b=-17.99$ ,  $p<0.001$ ) and children of other races ( $b=-16.4$ ,  $p<0.001$ ). Children living with permanent caregivers continued to report significantly higher posttraumatic stress scores than children living in out-of-home care ( $b=9.69$ ,  $p<0.05$ ). No other significant differences were present in this model. Model 3 adds the main effects for cumulative family risk, social skills and peer relationship moderators. Results showed that in comparison to Whites, Hispanic children ( $b=-18.03$ ,  $p<0.001$ ) and other races/ethnicities ( $b=-14.83$ ,  $p<0.01$ )

reported significantly lower posttraumatic stress symptomology while children living with permanent caregivers reported higher posttraumatic stress scores ( $b=8.597$ ,  $p<0.05$ ). Older age was associated with lower posttraumatic stress scores while increased cumulative family risk was associated with higher posttraumatic stress scores ( $b=0.804$ ,  $p<0.01$ ). Significant differences were not found for any of the categories of abuse characteristics examined.

Model 4 tested the moderating role of cumulative family risk in the relationship between co-occurring abuse and Wave 3 posttraumatic stress; the interaction term was not significant. Older age ( $b=-0.807$ ,  $p<0.05$ ), Hispanics ( $p<-18.01$ ,  $p<0.001$ ), other races/ethnicities ( $b=-14.91$ ,  $p<0.01$ ), and living with a permanent caregiver ( $b=8.61$ ,  $p<0.05$ ) continued to be significant sociodemographic predictors of Wave 3 posttraumatic stress. In Model 5 cumulative family risk did not moderate the association between perpetrator relationship and Wave 3 posttraumatic stress scores as evidenced by the non-significant interaction terms. None of the main effects for the abuse characteristics or moderating variables were significant. White children had higher posttraumatic stress scores than Hispanic children ( $b=-16.66$ ,  $p<0.01$ ) and children of other races/ethnicities ( $b=-14.23$ ,  $p<0.05$ ) as did children living with permanent caregivers ( $b=8.87$ ,  $p<0.05$ ). In Model 6 cumulative family risk moderated the relationship between sexual abuse severity and Wave 3 posttraumatic stress as indicated by significant interaction terms for Non Contact\*Family Risk ( $b=2.196$ ,  $p<0.01$ ), Fondling/Masturbation\*Family Risk ( $b=2.02$ ,  $p<0.001$ ) and Digital/Oral Penetration\*Family Risk ( $b=3.09$ ,  $p<0.001$ ). As shown in Figure 11, below, boys with higher levels of cumulative family risk who experienced less severe sexual abuse types had higher Wave 3 posttraumatic stress scores than those who experienced vaginal/anal intercourse.

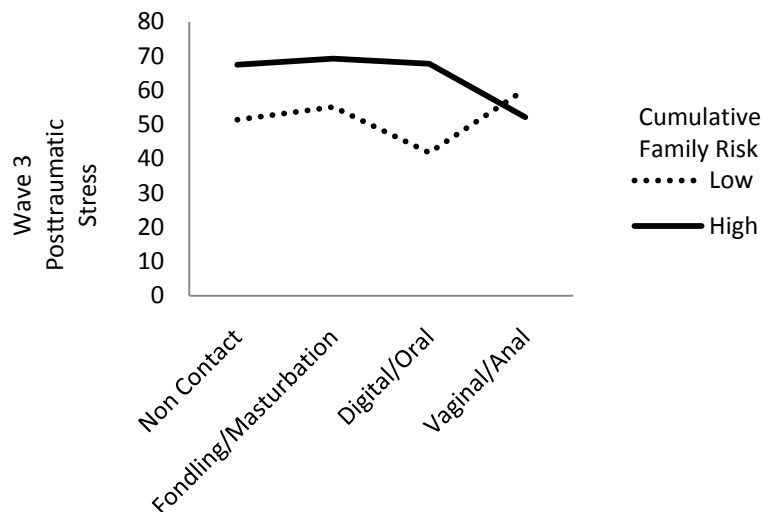


Figure 11.  
Graph of Table 16 Severity\*Cumulative Family Risk Interactions

### Outcome 3.2: Wave 4 TSCC Posttraumatic Stress Standardized Score

Table 17 shows the parameter estimates and significance levels for Wave 4 (36-month follow-up) posttraumatic stress scores for each of the six models. Of the sociodemographic characteristics, Hispanics, other races/ethnicities and living with a permanent caregiver were consistently associated with lower Wave 4 posttraumatic stress scores across all six models while living below the poverty line was consistently associated with higher scores. In Model 2 boys with a parent/stepparent perpetrator ( $b=10.96$ ,  $p<0.001$ ) and co-occurring abuse ( $b=7.56$ ,  $p<0.01$ ) reported significantly greater posttraumatic stress scores. In Model 3, Blacks also reported significantly lower scores ( $b=-5.91$ ,  $p<0.05$ ). Older age was associated with higher Wave 4 posttraumatic stress scores ( $b=1.06$ ,  $p<0.05$ ). Similar to the previous model, children with a parent/stepparent perpetrator ( $b=9.09$ ,  $p<0.01$ ) and those with co-occurring abuse ( $b=8.75$ ,  $p<0.01$ ) reported higher Wave 4 posttraumatic stress scores.

Models 4-6 tested the moderating role of cumulative family risk in the relationship between a series of abuse characteristics and Wave 4 posttraumatic stress. Across all three models, boys with parent/stepparent perpetrators and co-occurring abuse reported significantly

higher Wave 4 posttraumatic stress scores, as did those living with a permanent caregiver. In Model 4, cumulative family risk did not moderate the relationship between co-occurring abuse and Wave 4 posttraumatic stress. In Model 5 cumulative family risk moderated the association between perpetrator relationship and Wave 4 posttraumatic stress scores as indicated by a significant interaction term for Parent/Stepparent\*Family Risk ( $b=-1.521$ ,  $p<0.05$ ). Specifically, boys with high cumulative family risk who experienced sexual abuse by a parent/stepparent had lower Wave 4 posttraumatic stress scores than those who were sexually abused by non-relatives (see Figure 12, below).

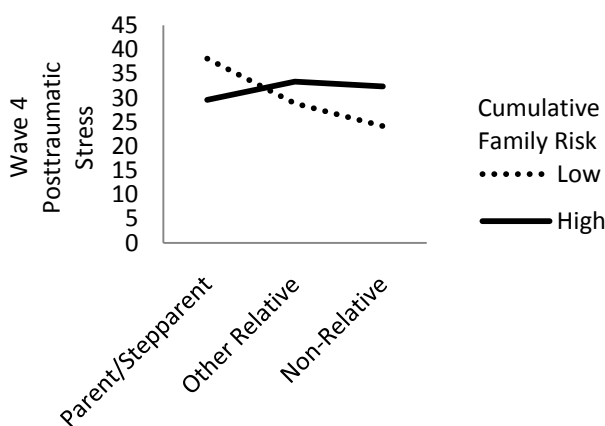


Figure 12.

Graph of Table 17 Perpetrator Relationship\*Cumulative Family Risk Interactions

In addition to this interaction effect, older age ( $b=1.07$ ,  $p<0.05$ ) and digital/oral penetration ( $b=6.46$ ,  $p<0.05$ ) were associated with greater posttraumatic stress. In Model 6 none of the interaction terms for severity and cumulative family risk were significant. Similar to previous models, significant predictors included Hispanics ( $b=-19.66$ ), other races/ethnicities ( $b=-16.71$ ,  $p<0.001$ ), living with permanent caregivers ( $b=12.23$ ,  $p<0.001$ ), parent/stepparent perpetrators ( $b=9.984$ ,  $p<0.01$ ) and co-occurring abuse ( $b=7.683$ ,  $p<0.05$ ).

### Outcome 3.3: Wave 5 TSCC Posttraumatic Stress Standardized Score



Table 18 shows the parameter estimates and significance levels for Wave 5 posttraumatic stress scores for each of the six models. In Model 1, older age was associated with higher posttraumatic stress scores ( $b=0.744$ ,  $p<0.05$ ) while children living below the poverty line reported significantly lower scores ( $b=-6.54$ ,  $p<0.05$ ). None of the sociodemographic characteristics were significant when abuse characteristics were added in Model 2. However boys with reports of digital/oral penetration had lower Wave 5 posttraumatic stress scores than those with reports of vaginal/anal intercourse ( $b=-10.26$ ,  $p<0.01$ ). Children with parent/stepparent perpetrators ( $b=7.014$ ,  $p<0.01$ ) and other relative perpetrators ( $b=7.65$ ,  $p<0.05$ ) had higher posttraumatic stress scores than children with non-relative perpetrators. When the main effects for cumulative family risk, social skills and peer rejection were added in Model 3, the only abuse characteristic to remain significant was digital/oral penetration ( $b=-6.534$ ,  $p<0.05$ ). Better social skills was associated with lower posttraumatic stress scores ( $b=-0.193$ ,  $p<0.05$ ). In addition, older age was once again associated with higher posttraumatic stress scores ( $b=0.733$ ,  $p<0.05$ ) as was being Black ( $b=7.08$ ,  $p<0.05$ ). Living below the poverty line was associated with lower scores ( $b=5.795$ ,  $p<0.05$ ).

Models 4-6 tested the moderating role of cumulative family risk in the relationship between a range of abuse characteristics and Wave 5 posttraumatic stress. Of the sociodemographic characteristics, children who were older, Black and other races/ethnicities reported significantly higher posttraumatic stress scores while better social skills was associated with lower scores across all three models. In Model 4 cumulative family risk moderated the relationship between co-occurring abuse and Wave 5 posttraumatic stress as indicated by a significant interaction term ( $b=1.892$ ,  $p<0.05$ ). As shown in Figure 13, below, boys with high

levels of cumulative family risk who experienced co-occurring abuse had higher Wave 5 posttraumatic stress scores than those without co-occurring abuse.

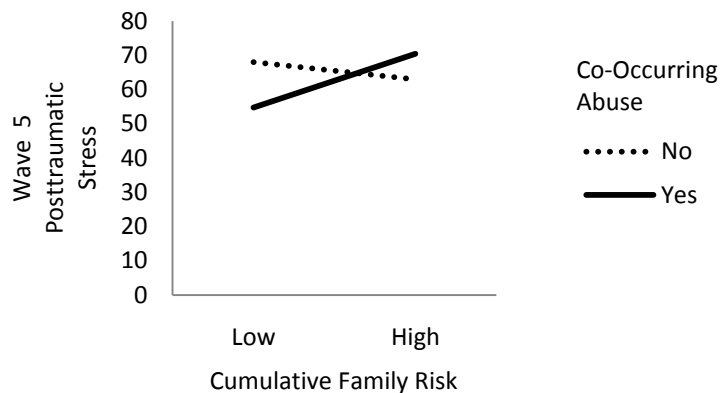


Figure 13.

Graph of Table 18 Co-Occurring Abuse\*Cumulative Family Risk Interaction

In Model 5 unique predictors of higher Wave 5 posttraumatic stress scores in this model included being Hispanic ( $b=7.11$ ,  $p<0.05$ ) and having a parent/stepparent perpetrator ( $b=5.04$ ,  $p<0.05$ ) while living below the poverty line was associated with lower posttraumatic stress. Cumulative family risk moderated the relationship between other relative perpetrators and Wave 5 posttraumatic stress ( $b=1.69$ ,  $p<0.01$ ). As shown in Figure 14, below, boys with high levels of cumulative family risk who were sexually abused by other relative perpetrators had higher Wave 5 posttraumatic stress scores than those sexually abused by non-relatives. In Model 6, below, cumulative family risk moderated the relationship between severity and Wave 5 posttraumatic stress as evidenced by significant interaction terms for non-contact sexual abuse ( $b=-2.598$ ,  $p<0.001$ ), fondling/masturbation ( $b=-2.28$ ,  $p<0.01$ ) and digital/oral penetration ( $b=-2.414$ ,  $p<0.01$ ). Boys with high levels of cumulative family risk who experienced vaginal/anal intercourse had higher Wave 5 posttraumatic stress scores than those in the other three severity types. Figure 15, below, provides an example of this interaction effect.

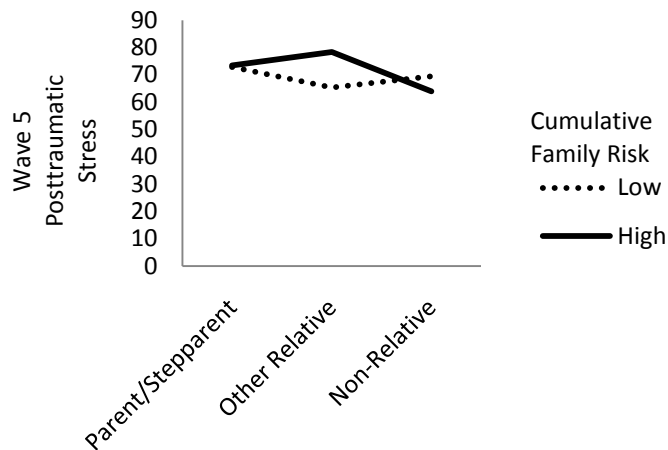


Figure 14.

Graph of Table 18 Perpetrator Relationship \*Cumulative Family Risk Interactions

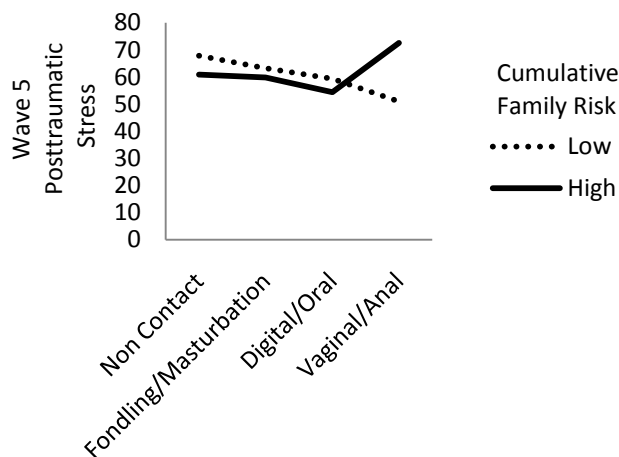


Figure 15.

Graph of Table 18 Severity \*Cumulative Family Risk Interactions

#### Outcome 4.1: Wave 3 MBA Academic Achievement - Score

Table 19 presents the results for the regression models examining the effect of family context interactions on Wave 3 academic achievement scores. Of the sociodemographic characteristics, living below the poverty line was consistently associated with lower Wave 3 academic achievement scores in every model. With the exception of other races/ethnicities in Model 1 ( $b=31.3$ ,  $p<0.01$ ) there were no significant differences based on race/ethnicity and age. When abuse characteristics were added in Model 2, children with co-occurring abuse had

significant higher academic achievement scores ( $b=39.77$ ,  $p<0.01$ ). When the main effects of the moderating variables were added in Model 3, co-occurring abuse remained a significant predictor of better academic achievement ( $b=16.60$ ,  $p<0.01$ ). Boys with other relative perpetrators and those living with their permanent caregivers ( $b=11.61$ ,  $p<0.01$  and  $b=15.83$ ,  $p<0.01$ , respectively) had higher academic achievement scores. Better social skills was associated with higher Wave 3 academic achievement scores ( $b=0.26$ ,  $p<0.05$ ) while increased peer rejection was associated with lower academic achievement ( $b=-0.96$ ,  $p<0.001$ ).

Models 4-6 tested the moderating role of cumulative family risk in the relationship between abuse characteristics and Wave 3 academic achievement scores. In Model 4 cumulative family risk did not moderate the relationship between co-occurring abuse and academic achievement, as evidenced by a non-significant interaction term. Similar to Model 3 better social skills, increased peer rejection and other relative perpetrator continued to be significant predictors of Wave 3 academic achievement scores in Model 4. In Model 5 none of the interaction terms for perpetrator relationship and cumulative family risk were significant. However increased peer rejection continued to be a significant predictor of lower academic achievement ( $b=-0.99$ ,  $p<0.001$ ). Boys with co-occurring abuse ( $b=13.79$ ,  $p<0.05$ ) and other relative perpetrators ( $b=8.924$ ,  $p<0.01$ ) reported significantly higher Wave 3 academic achievement scores. In Model 6 cumulative risk moderated the relationship between severity and Wave 3 academic achievement as indicated by significant interaction terms for Non Contact\*Family Risk ( $b=-2.61$ ,  $p<0.05$ ) and Fondling/Masturbation\*Family Risk ( $b=-2.34$ ,  $p<0.05$ ). Specifically, at higher levels of cumulative family risk boys with the two least severe types had lower academic achievement scores than those with vaginal/anal intercourse (see Figure 16, below).

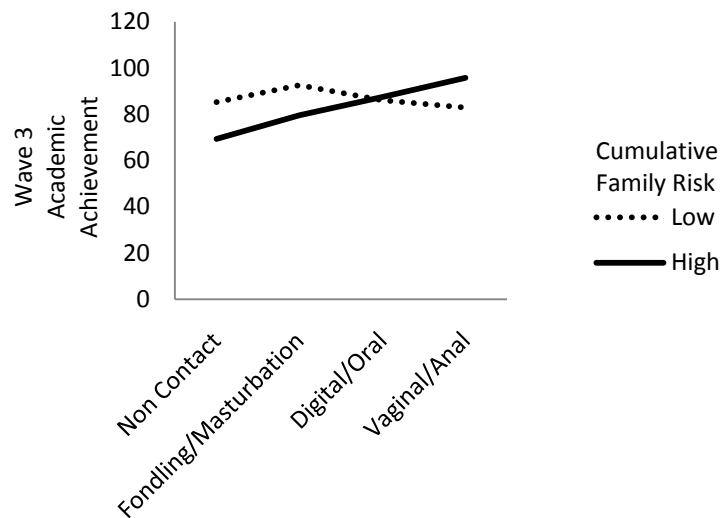


Figure 16.  
Graph of Table 19 Severity\*Cumulative Family Risk Interactions

#### Outcome 4.2: Wave 4 MBA Academic Achievement Standardized Score

Table 20 presents the results for the regression models examining the effect of family context interactions on Wave 4 academic achievement scores. Of the sociodemographic characteristics, boys of other races/ethnicities had significantly higher Wave 4 academic achievement scores than their White counterparts in Model 1 ( $b=23.12$ ,  $p<0.05$ ). However this difference disappeared in Model 2, where living with a permanent caregiver was associated with significantly higher scores ( $b=22.5$ ,  $p<0.05$ ) and living below the poverty line was instead associated with significantly lower scores ( $b=-36.59$ ,  $p<0.01$ ). Living with a permanent caregiver ( $b=22.5$ ,  $p<0.05$ ) and co-occurring abuse ( $b=34.61$ ,  $p<0.05$ ) were consistently associated with higher Wave 4 academic achievement scores in Model 2 and all subsequent models. In Model 3 Hispanics ( $b=-12.11$ ,  $p<0.05$ ) and other races/ethnicities ( $b=-22.31$ ,  $p<0.001$ ) reported significantly lower Wave 4 academic achievement scores than their White counterparts. Boys with reports of fondling/masturbation reported significantly higher academic achievement scores than those with reports of vaginal/anal intercourse ( $b=11.8$ ,  $p<0.05$ ). Finally, the main effects for all three moderating variables added in Model 3 were significant. Increased cumulative family

risk and peer rejection were associated with worse than average academic achievement ( $b=-1.45$ ,  $p<0.05$  and  $b=-0.624$ ,  $p<0.05$ ) while better social skills was associated with higher Wave 4 achievement scores ( $b=0.603$ ,  $p<0.001$ ).

Models 4-6 estimate a series of interaction terms testing whether the effect of abuse characteristics on Wave 4 academic achievement outcomes varies as a function of cumulative family risk. In Model 4, cumulative family risk moderated the relationship between co-occurring abuse and academic achievement ( $b=2.35$ ,  $p<0.05$ ). That is, at higher levels of cumulative family risk boys with co-occurring reports of abuse had higher academic achievement scores than those without co-occurring reports of abuse. Figure 17, below, provides an example of this interaction.

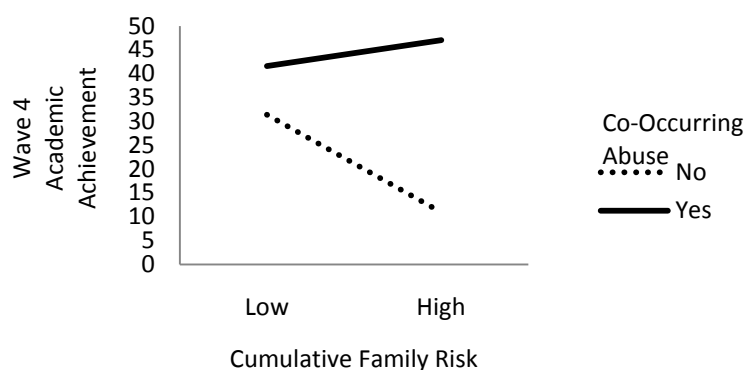


Figure 17.  
Graph of Table 20 Severity\*Cumulative Family Risk Interactions

In Model 5 cumulative family risk moderated the relationship between other relative perpetrators and Wave 4 academic achievement ( $b=3.1$ ,  $p<0.01$ ). As shown in Figure 18, below, at higher levels of cumulative family risk boys with other relative perpetrators had higher academic achievement scores than those with non-relative perpetrators. Finally, in Model 6 cumulative family risk moderated the relationship between fondling/masturbation and Wave 4 academic achievement scores ( $b=-3.198$ ,  $p<0.01$ ). As shown in Figure 19, below, at higher levels of cumulative family risk, boys who experienced non-contact abuse and fondling/masturbation had lower academic achievement scores than those with reports of vaginal/anal intercourse.

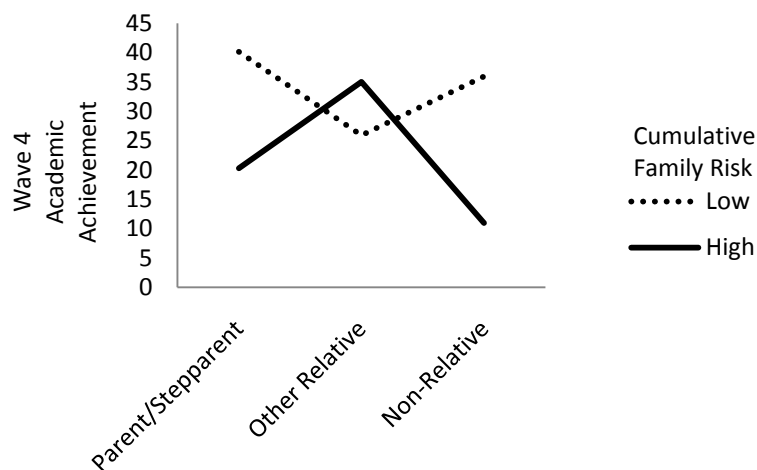


Figure 18.  
Graph of Table 20 Perpetrator Relationship \*Cumulative Family Risk Interactions

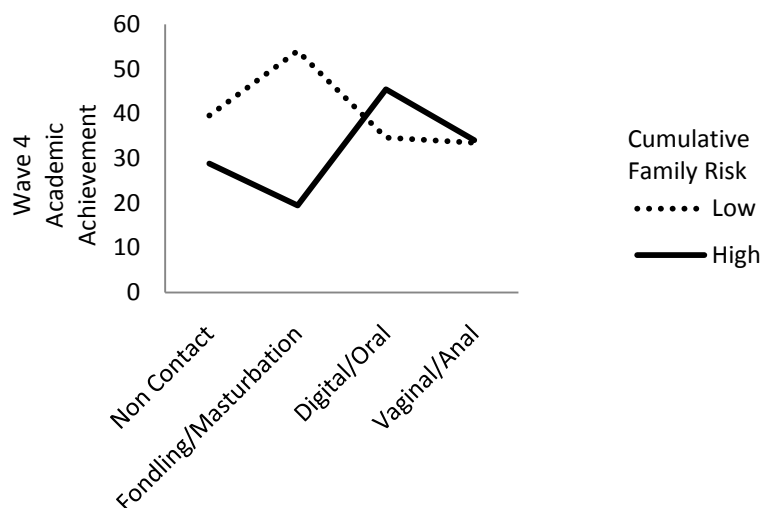


Figure 19.  
Graph of Table 20 Severity \*Cumulative Family Risk Interactions

### Outcome 4.3: Wave 5 MBA Academic Achievement Standardized Score

Table 21 presents the results for the regression models examining the effect of cumulative family risk interactions on Wave 5 academic achievement scores. Of the sociodemographic characteristics, older age ( $b=-1.697$ ,  $p<0.05$ ) was associated with lower Wave 5 academic achievement scores while living with a permanent caregiver ( $b=13.62$ ,  $p<0.05$ ) was associated with higher scores. However when abuse characteristics were added in Model 2 older

age was the only significant predictor of academic achievement ( $b=-2.763$ ,  $p<0.01$ ). When the moderating variables (i.e., cumulative family risk, social skills and peer rejection) were added in Model 3, the abuse characteristics were not significant. However boys living with a permanent caregiver had significantly higher Wave 5 academic achievement scores ( $b=17.87$ ,  $p<0.05$ ).

Models 4-6 tested the moderating role of cumulative family risk in the relationship between abuse characteristics and Wave 5 academic achievement scores. In Model 4, cumulative family risk did not moderate the relationship between co-occurring abuse and Wave 5 academic achievement, as evidenced by the non-significant interaction term. In Model 5 the interaction term for parent/stepparent perpetrator and cumulative family risk was significant ( $b=4.223$ ,  $p<0.01$ ). As shown in Figure 20, below, at higher levels of cumulative family risk boys with parent/stepparent perpetrators had higher academic achievement scores. Finally, in Model 6 cumulative family risk did not moderate the relationship between sexual abuse subtype and Wave 5 academic achievement. Co-occurring abuse was the only significant predictor of academic achievement in this model (14.38 points higher than those without co-occurring abuse,  $p<0.05$ ).

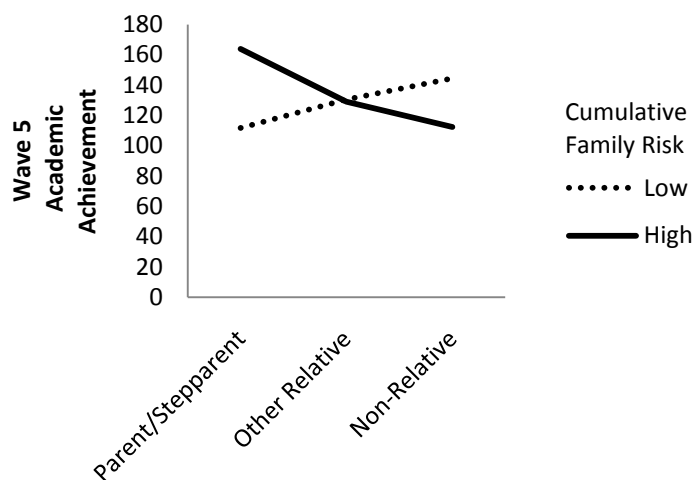


Figure 20.

Graph of Table 21 Perpetrator Relationship\* Cumulative Family Risk Interactions



### V.IIb. Hypothesis 2 Tables

Table 10.

Wave 3 Internalizing Problems with Family Context Interactions (N=140)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age (Years)	-0.661 (0.560)	-1.012+ (0.528)	-0.543 (0.443)	-0.549 (0.441)	-0.540 (0.432)	-0.510 (0.486)
Race <sup>^</sup>						
Black	-10.95*** (2.965)	-13.62*** (3.279)	-3.254 (2.190)	-3.430 (2.395)	-3.470 (2.257)	-1.090 (2.285)
Hispanic	5.129 (9.884)	2.763 (7.822)	5.196* (2.605)	5.253* (2.576)	3.051 (2.781)	4.296 (2.622)
Other	-2.972 (3.712)	-7.346 (4.530)	-1.992 (2.783)	-2.307 (3.013)	-3.390 (3.133)	0.707 (2.694)
Living w/Permanent Caregiver (Yes)	-10.19** (3.433)	-8.693+ (4.557)	-6.895** (2.395)	-6.921** (2.361)	-6.687** (2.187)	-7.448* (3.062)
Living Below Poverty Line	1.822 (4.872)	-3.963 (6.682)	0.413 (1.922)	0.472 (1.826)	0.462 (1.896)	2.628 (1.764)
Sexual Abuse Severity <sup>^^</sup>						
Non-Contact Types		-0.577 (4.937)	-2.127 (5.989)	-2.316 (5.913)	-4.382 (5.610)	-3.779 (5.178)
Fondling/Masturbation		4.869 (4.160)	-1.955 (3.908)	-2.049 (3.743)	-3.900 (3.319)	-2.484 (3.074)
Digital/Oral Penetration		3.569 (6.952)	-7.227* (3.592)	-7.208* (3.596)	-6.223* (3.002)	-6.448+ (3.244)
Perpetrator Relationship <sup>^^^</sup>						
Parent/Stepparent		-4.461 (3.696)	3.969 (2.729)	4.078 (2.730)	4.320+ (2.553)	3.019 (2.572)
Other Relative		0.993 (4.051)	-2.788 (2.193)	-2.670 (2.310)	-1.642 (2.396)	-4.555* (2.177)
Co-Occurring Abuse (Yes)		8.251 (5.324)	-1.334 (2.457)	-0.751 (2.954)	0.0299 (2.662)	-4.591+ (2.625)
Cumulative Family Risk			0.647+ (0.366)	0.677 (0.441)	1.130* (0.512)	1.792*** (0.494)
Social Skills			0.0846 (0.0963)	0.0872 (0.100)	0.134 (0.0838)	0.0685 (0.0909)
Peer Relationships			0.527*** (0.133)	0.527*** (0.133)	0.607*** (0.112)	0.660*** (0.148)
Family Context Interactions						
Parent/Stepparent*Family Risk					-1.001+ (0.520)	
Other Relative*Family Risk					-1.258+ (0.705)	
Co-Occurring Abuse*Family Risk				-0.176 (0.694)		
Non-Contact*Family Risk						-0.609 (0.545)
Fondling/ Masturbation*Family Risk						-2.005*** (0.571)
Digital/Oral Penetration*Family Risk						-1.039+ (0.524)
Constant	68.38*** (4.847)	68.99*** (6.798)	67.74*** (4.160)	67.87*** (4.003)	67.83*** (3.670)	68.43*** (6.149)
Subpopulation Observations (Unweighted)	125	122	82	82	82	90
F-Statistic	F(6,78)= 4.79***	F(12,72)= 6.22***	F(15,69)= 23.96***	F(16, 68)= 23.7***	F(17,67)= 30.67***	F(17,67)= 85.24***
R-squared	0.169	0.271	0.491	0.492	0.526	0.577

Standard Errors in Parentheses \*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

<sup>^</sup>Omitted category is White; <sup>^^</sup>Omitted category is Vaginal/Anal Penetration; <sup>^^^</sup>Omitted category is Non-Relative Perpetrator

Table 11.  
*Wave 4 Internalizing Problems with Family Context Interactions (N=137)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age (Years)	-0.642 (0.708)	-0.673 (0.617)	-0.556 (0.349)	-0.603 (0.368)	-0.503 (0.353)	-0.675+ (0.371)
Race <sup>^</sup>						
Black	-9.001** (3.378)	-6.795+ (3.533)	3.368 (2.620)	2.633 (2.542)	3.726 (2.652)	3.219 (3.152)
Hispanic	7.216 (8.431)	7.737 (6.959)	-0.867 (3.017)	-0.523 (3.011)	0.946 (3.912)	-0.467 (3.197)
Other	-8.064* (3.499)	-7.014 (4.651)	2.884 (4.905)	1.399 (4.439)	4.762 (5.272)	2.318 (4.701)
Living w/Permanent Caregiver (Yes)	-12.58** (3.855)	-9.786* (3.928)	-4.839+ (2.647)	-5.047* (2.471)	-6.045* (2.908)	-4.242 (2.848)
Living Below Poverty Line	-4.055 (4.008)	-3.860 (4.377)	-5.752* (2.281)	-5.575* (2.198)	-5.846* (2.337)	-5.634* (2.550)
Sexual Abuse Severity <sup>^^</sup>						
Non-Contact Types		-15.81* (7.884)	-17.97*** (5.007)	-18.45*** (5.089)	-18.09*** (5.176)	-19.77** (6.535)
Fondling/Molestation/Masturbation		-14.33* (6.447)	-20.20*** (5.119)	-20.44*** (5.007)	-20.00*** (5.101)	-21.62*** (6.190)
Digital/Oral Penetration		-10.27 (6.712)	-21.81*** (4.313)	-21.67*** (4.111)	-20.99*** (4.426)	-23.39*** (5.728)
Perpetrator Relationship <sup>^^^</sup>						
Parent/Stepparent		1.343 (4.247)	6.233** (2.132)	6.869** (2.209)	6.089** (2.192)	6.449* (2.804)
Other Relative		1.375 (4.302)	1.065 (2.319)	1.549 (2.301)	0.782 (2.346)	0.850 (2.224)
Co-Occurring Abuse (Yes)		3.188 (3.838)	-7.865* (3.368)	-5.092 (3.962)	-9.562* (3.943)	-7.451* (3.323)
Cumulative Family Risk			0.797** (0.265)	0.930** (0.324)	0.845+ (0.480)	0.464 (0.686)
Social Skills			-0.198+ (0.102)	-0.185+ (0.0975)	-0.188+ (0.104)	-0.200* (0.0926)
Peer Relationships			0.471+ (0.251)	0.472+ (0.253)	0.508+ (0.263)	0.499+ (0.256)
Family Context Interactions						
Parent/Stepparent*Family Risk					-0.337 (0.597)	
Other Relative*Family Risk					0.314 (0.643)	
Co-Occurring Abuse*Family Risk				-0.767 (0.739)		
Non-Contact*Family Risk						0.620 (0.892)
Fondling/Masturbation*Family Risk						0.253 (0.824)
Digital/Oral Penetration*Family Risk						0.368 (0.930)
Constant	70.38*** (6.485)	77.52*** (8.840)	86.43*** (14.94)	85.89*** (14.48)	84.93*** (14.98)	87.97*** (14.82)
Subpopulation Observations (Unweighted)	123	121	78	78	78	78
F-Statistic	F(6,78)= 9.99***	F(12,72)= 9.78***	F(15,69)= 18.22***	F(16,68)= 20.41***	F(17,67)= 20.43***	F(18,66)= 29.97***
R-squared	0.314	0.393	0.696	0.700	0.699	0.698

Standard Errors in Parentheses \*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

<sup>^</sup>Omitted category is White; <sup>^^</sup>Omitted category is Vaginal/Anal Penetration; <sup>^^^</sup>Omitted category is Non-Relative Perpetrator

Table 12.  
Wave 5 Internalizing Problems with Family Context Interactions (N=120)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age (Years)	-0.346 (0.572)	-0.346 (0.494)	0.193 (0.801)	0.309 (0.706)	0.539 (0.741)	0.717 (0.845)
Race <sup>^</sup>						
Black	1.164 (5.289)	1.688 (6.880)	4.653 (4.702)	7.054 (4.469)	4.577 (4.961)	8.907+ (4.938)
Hispanic	2.405 (7.107)	-1.579 (6.037)	4.368 (4.392)	1.884 (4.345)	8.517* (3.669)	1.978 (4.157)
Other	-6.850* (3.283)	-10.10* (3.909)	4.769 (6.214)	12.05* (5.117)	7.360 (5.197)	12.17** (4.026)
Living w/Permanent Caregiver (Yes)	-13.21** (3.940)	-14.04** (4.405)	-3.886 (3.948)	-2.289 (3.522)	-5.466 (3.687)	-7.210* (3.565)
Living Below The Poverty Line	-5.468 (3.398)	-9.077* (4.366)	-4.220 (3.105)	-4.697 (3.036)	-3.221 (3.083)	0.951 (2.950)
Sexual Abuse Severity <sup>^^</sup>						
Non Contact		5.709 (6.288)	1.295 (6.736)	5.417 (5.512)	1.274 (5.785)	13.77+ (7.143)
Fondling/Masturbation		0.853 (4.688)	0.663 (4.875)	2.799 (4.354)	1.728 (4.838)	12.54* (5.710)
Digital/Oral Penetration		1.838 (5.307)	-4.624 (4.727)	-5.000 (3.856)	-1.597 (4.217)	10.18+ (5.256)
Perpetrator Relationship <sup>^^^</sup>						
Parent/Stepparent		0.503 (6.288)	-1.409 (4.700)	-5.342 (5.048)	-1.543 (3.731)	0.532 (5.142)
Other Relative		9.819 (6.369)	-2.363 (4.612)	-4.444 (4.540)	-3.784 (4.614)	-0.581 (4.109)
Co-Occurring Abuse (Yes)		2.700 (5.782)	2.746 (3.836)	-6.887+ (3.509)	1.201 (3.580)	1.567 (4.079)
Cumulative Family Risk			-0.317 (0.389)	-1.049* (0.501)	-0.452 (0.570)	3.358*** (0.618)
Social Skills			-0.233* (0.110)	-0.316* (0.124)	-0.258* (0.112)	-0.331** (0.121)
Peer Rejection			0.253 (0.391)	0.211 (0.388)	0.268 (0.413)	0.343 (0.332)
Family Context Interactions						
Co-Occurring Abuse*Family Risk				3.469** (1.264)		
Parent/Stepparent*Family Risk					-0.460 (1.210)	
Other Relative*Family Risk					1.071 (1.229)	
Non Contact*Family Risk						-3.350** (1.041)
Fondling/Masturbation*Family Risk						-4.596*** (0.966)
Digital/Oral Penetration*Family Risk						-5.097*** (1.193)
Constant	67.63*** (5.248)	64.13*** (6.686)	69.01*** (18.27)	73.73*** (17.55)	67.61*** (17.66)	58.21** (17.25)
Subpopulation Observations (Unweighted)	110	109	72	72	72	72
F-Statistic	F(6,78)= 6.21***	F(12,72)= 5.66***	F(15,69)= 13.5***	F(16,68)= 18.15***	F(17,67)= 27.15***	F(18,66)= 26.38***
R-squared	0.122	0.249	0.345	0.424	0.378	0.473

Standard Errors in Parentheses \*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

<sup>^</sup>Omitted category is White; <sup>^^</sup>Omitted category is Vaginal/Anal Penetration; <sup>^^^</sup>Omitted category is Non-Relative Perpetrator

Table 13.  
Wave 3 CBCL Externalizing Problems with Family Context Interactions(N=140)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age (Years)	-0.119 (0.410)	-0.379 (0.341)	-1.055* (0.427)	-1.007* (0.406)	-1.279** (0.435)	-0.528 (0.647)
Race <sup>^</sup>						
Black	-10.04*** (2.709)	-11.85** (4.244)	-7.237 (4.908)	-5.896 (4.997)	-6.954 (4.583)	-5.758 (4.010)
Hispanic	4.272 (5.651)	4.125 (4.073)	4.413 (2.685)	3.979 (2.496)	2.275 (3.028)	2.083 (3.158)
Other	-6.617+ (3.399)	-9.843*** (2.746)	-9.342** (3.417)	-6.939* (3.327)	-10.80** (3.451)	-7.315* (2.869)
Living w/Permanent Caregiver (Yes)	-13.33*** (3.378)	-11.80** (3.784)	-3.133 (2.714)	-2.932 (2.915)	-2.181 (3.208)	-4.580 (3.344)
Living Below The Poverty Line	7.638** (2.430)	2.578 (2.743)	5.116* (2.178)	4.669* (2.154)	4.605* (2.199)	6.283** (2.283)
Sexual Abuse Severity <sup>^^</sup>						
Non Contact		0.317 (2.993)	-10.43*** (2.993)	-8.989** (3.020)	-9.919** (3.215)	-5.399 (4.885)
Fondling/Masturbation		0.945 (2.309)	-5.922* (2.773)	-5.211+ (2.984)	-5.528 (3.337)	-3.359 (3.229)
Digital/Oral Penetration		4.389 (4.103)	-5.971* (2.606)	-6.116* (2.679)	-8.113* (3.481)	-1.972 (3.636)
Perpetrator Relationship <sup>^^^</sup>						
Parent/Stepparent		-5.657+ (2.933)	-1.793 (1.964)	-2.624 (2.105)	-2.111 (1.853)	-3.495 (3.029)
Other Relative		-2.800 (3.617)	-3.318 (2.990)	-4.214 (2.929)	-2.597 (2.698)	-4.492 (3.103)
Co-Occurring Abuse (Yes)		7.628* (3.388)	1.944 (3.420)	-2.497 (3.710)	2.944 (3.157)	-0.529 (2.774)
Cumulative Family Risk			0.327 (0.311)	0.0952 (0.318)	0.221 (0.309)	1.876* (0.770)
Social Skills			-0.297* (0.117)	-0.317* (0.120)	-0.291** (0.107)	-0.282* (0.126)
Peer Relationships			0.508* (0.199)	0.506* (0.197)	0.454* (0.195)	0.529** (0.183)
Family Context Interactions						
Co-Occurring Abuse*Family Risk				1.346+ (0.803)		
Parent/Stepparent*Family Risk					0.651 (0.699)	
Other Relative*Family Risk					-0.211 (0.721)	
Non Contact*Family Risk						-2.302* (1.032)
Fondling/Masturbation*Family Risk						-1.859* (0.792)
Digital/Oral Penetration*Family Risk						-1.703 (1.146)
Constant	66.77*** (4.228)	68.73*** (5.472)	75.80*** (4.832)	74.86*** (4.708)	77.53*** (5.063)	70.26*** (9.038)
Subpopulation Observations (Unweighted)	125	122	82	82	82	82
F-Statistic	F(6,78)= 6.55***	F(12,72)= 25.6***	F(15,69)= 12.23***	F(16,68)= 9.89***	F(17,67)= 16.16***	F(18,66)= 10.79***
R-squared	0.300	0.423	0.527	0.543	0.540	0.570

Standard Errors in Parentheses \*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

<sup>^</sup>Omitted category is White; <sup>^^</sup>Omitted category is Vaginal/Anal Penetration; <sup>^^^</sup>Omitted category is Non-Relative Perpetrator

Table 14.  
Wave 4 Externalizing Problems with Family Context Interactions (N=137)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age (Years)	0.128 (0.695)	-0.324 (0.555)	-1.092+ (0.590)	-1.002+ (0.566)	-1.003+ (0.584)	-1.000 (0.832)
Race <sup>^</sup>						
Black	-5.274* (2.455)	-4.995 (3.597)	-0.878 (3.223)	0.509 (2.970)	-0.0589 (3.524)	-0.0396 (2.773)
Hispanic	6.409 (8.124)	4.757 (6.406)	-1.140 (3.179)	-1.788 (3.239)	2.892 (3.559)	-2.163 (3.684)
Other	-4.867 (5.064)	-6.496 (5.015)	-0.656 (4.431)	2.145 (3.686)	3.646 (3.847)	1.444 (2.978)
Living w/Permanent Caregiver (Yes)	-11.30*** (2.429)	-8.570** (2.812)	-4.856+ (2.791)	-4.463 (3.195)	-7.762* (3.123)	-6.239* (2.996)
Living Below The Poverty Line	4.481 (3.899)	-0.0963 (3.482)	1.864 (1.750)	1.530 (1.861)	1.474 (1.645)	2.431 (2.154)
Sexual Abuse Severity <sup>^^</sup>						
Non Contact		-18.44** (6.607)	-20.16*** (4.074)	-19.26*** (3.821)	-20.85*** (3.836)	-16.97** (5.264)
Fondling/Masturbation		-10.28** (3.865)	-14.16*** (3.138)	-13.71*** (3.215)	-13.94*** (2.879)	-11.37** (4.189)
Digital/Oral Penetration		-9.886 (6.020)	-19.16*** (4.012)	-19.42*** (4.083)	-16.83*** (4.126)	-16.03** (5.143)
Perpetrator Relationship <sup>^^^</sup>						
Parent/Stepparent		-5.809 (4.372)	0.766 (2.205)	-0.433 (2.424)	0.679 (2.145)	-0.0731 (3.433)
Other Relative		-1.335 (3.935)	0.175 (2.157)	-0.739 (2.101)	-0.131 (2.397)	-0.0792 (2.754)
Co-Occurring Abuse (Yes)		3.511 (4.468)	-1.597 (4.143)	-6.829+ (3.621)	-5.370 (3.364)	-3.687 (3.208)
Cumulative Family Risk			0.175 (0.174)	-0.0761 (0.245)	0.436 (0.411)	1.234 (1.125)
Social Skills			-0.447*** (0.102)	-0.470*** (0.110)	-0.409*** (0.0916)	-0.442*** (0.109)
Peer Rejection			0.0751 (0.251)	0.0722 (0.250)	0.185 (0.249)	0.0909 (0.259)
Family Context Interactions						
Co-Occurring Abuse*Family Risk				1.447+ (0.826)		
Parent/Stepparent*Family Risk					-1.046 (0.719)	
Other Relative*Family Risk					0.447 (0.886)	
Non Contact*Family Risk						-1.258 (1.519)
Fondling/Masturbation*Family Risk						-1.339 (1.187)
Digital/Oral Penetration*Family Risk						-0.897 (1.564)
Constant	62.94*** (5.426)	78.03*** (8.492)	123.6*** (17.13)	124.6*** (17.43)	118.5*** (15.04)	120.7*** (20.28)
F-Statistic	123 F(6,78)= 5.63***	121 F(12,72)= 13.6***	78 F(15,69)= 13.77***	78 F(16,68)= 10.63***	78 F(17,67)= 12.18***	78 F(18,66)= 23.72***
R-squared	0.167	0.326	0.514	0.534	0.540	0.528

Standard Errors in Parentheses \*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

<sup>^</sup>Omitted category is White; <sup>^^</sup>Omitted category is Vaginal/Anal Penetration; <sup>^^^</sup>Omitted category is Non-Relative Perpetrator

Table 15.  
Wave 5 Externalizing Problems with Family Context Interactions (N=120)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age (Years)	-0.443 (0.459)	-0.339 (0.355)	-0.630 (0.871)	-0.510 (0.786)	-0.185 (0.817)	-0.135 (0.959)
Race <sup>^</sup>						
Black	6.747 (5.618)	6.396 (5.679)	9.182 (5.533)	11.67* (5.406)	9.561+ (5.490)	12.70* (5.715)
Hispanic	3.388 (4.141)	-0.802 (4.473)	0.642 (4.468)	-1.930 (4.528)	7.681* (3.789)	-0.970 (4.749)
Other	-10.59** (3.834)	-11.14** (4.161)	1.319 (5.699)	8.855 (5.753)	4.982 (4.619)	6.694 (4.577)
Living w/Permanent Caregiver (Yes)	-12.14*** (2.788)	-12.60*** (3.007)	-8.134* (3.774)	-6.480+ (3.645)	-9.990*** (2.905)	-10.93** (3.986)
Living Below the Poverty Line	-7.018* (2.915)	-6.604** (2.253)	-5.577 (3.530)	-6.071+ (3.497)	-4.412 (3.564)	-1.535 (3.604)
Sexual Abuse Severity <sup>^^</sup>						
Non Contact		-5.794 (5.499)	-2.258 (7.561)	2.009 (6.576)	-2.506 (6.174)	7.818 (6.958)
Fondling/Masturbation		-5.334 (3.613)	-1.914 (5.320)	0.298 (4.821)	-0.334 (4.823)	7.821 (5.992)
Digital/Oral Penetration		-6.993+ (3.778)	-10.74** (3.766)	-11.13*** (2.939)	-8.115* (3.266)	1.120 (5.461)
Perpetrator Relationship <sup>^^^</sup>						
Parent/Stepparent		-0.328 (3.875)	-1.467 (4.857)	-5.540 (5.370)	-0.723 (4.017)	1.099 (5.423)
Other Relative		6.423 (4.549)	-1.082 (5.357)	-3.238 (5.373)	-2.948 (5.092)	0.932 (5.371)
Co-Occurring Abuse (Yes)		-5.246+ (2.682)	-1.159 (5.532)	-11.13* (5.053)	-5.335 (4.887)	-1.197 (6.394)
Cumulative Family Risk			-0.492 (0.402)	-1.250* (0.554)	-0.973+ (0.578)	2.291** (0.833)
Social Skills			-0.316* (0.155)	-0.402* (0.172)	-0.378* (0.152)	-0.394* (0.173)
Peer Rejection			-0.272 (0.422)	-0.316 (0.430)	-0.279 (0.441)	-0.187 (0.384)
Family Context Interactions						
Co-Occurring Abuse*Family Risk				3.592** (1.334)		
Parent/Stepparent*Family Risk					0.0705 (0.959)	
Other Relative*Family Risk					2.329* (1.125)	
Non Contact*Family Risk						-2.547+ (1.343)
Fondling/Masturbation*Family Risk						-3.348** (1.082)
Digital/Oral Penetration*Family Risk						-4.206* (1.596)
Constant	70.56*** (3.787)	75.64*** (4.676)	108.5*** (24.44)	113.4*** (24.25)	110.2*** (22.68)	98.32*** (23.88)
Subpopulation Observations	110	109	72	72	72	72
F-Statistic	F(6,78)= 7.85***	F(12,72)= 11.16***	F(15,69)= 11.88***	F(16,68)= 41.32***	F(17,67)= 156.56***	F(18,66)= 14.53***
R-squared	0.230	0.346	0.504	0.560	0.562	0.554

Standard Errors in Parentheses \*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

<sup>^</sup>Omitted category is White; <sup>^^</sup>Omitted category is Vaginal/Anal Penetration; <sup>^^^</sup>Omitted category is Non-Relative Perpetrator

Table 16.  
Wave 3 Posttraumatic Stress with Family Context Interactions (N=84)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age (Years)	-0.392 (0.473)	-0.587 (0.417)	-0.804* (0.346)	-0.807* (0.362)	-0.873 (0.715)	-1.396** (0.425)
Race <sup>^</sup>						
Black	15.57** (5.151)	10.77** (4.005)	5.931+ (3.518)	5.884 (3.746)	5.942 (3.777)	4.008 (3.410)
Hispanic	-13.45*** (1.960)	-17.99*** (2.399)	-18.03*** (2.636)	-18.01*** (2.632)	-16.66** (4.993)	-15.66*** (2.471)
Other	-9.385** (2.767)	-16.40*** (4.528)	-14.83** (4.465)	-14.91** (5.123)	-14.23* (6.300)	-17.06*** (4.707)
Living w/Permanent Caregiver (Yes)	9.215* (4.073)	9.688* (3.966)	8.597* (3.891)	8.605* (3.884)	8.868* (4.124)	10.09** (3.522)
Living Below The Poverty Line	-1.167 (2.254)	0.550 (2.919)	-2.340 (2.620)	-2.342 (2.614)	-2.486 (2.998)	-3.634 (2.515)
Sexual Abuse Severity <sup>^^</sup>						
Non Contact		0.131 (6.467)	2.026 (5.380)	1.967 (5.539)	3.123 (5.218)	-2.479 (5.917)
Fondling/Masturbation		1.986 (4.008)	3.502 (3.991)	3.447 (4.011)	4.669 (3.558)	0.701 (3.870)
Digital/Oral Penetration		-2.624 (3.718)	0.737 (4.119)	0.717 (4.212)	0.652 (4.500)	-9.531+ (5.564)
Perpetrator Relationship <sup>^^^</sup>						
Parent/Stepparent		-1.916 (2.473)	-2.400 (3.028)	-2.359 (3.090)	-3.052 (3.530)	-0.938 (3.313)
Other Relative		4.131 (2.577)	3.581 (3.460)	3.635 (3.577)	2.431 (3.541)	4.892+ (2.723)
Co-Occurring Abuse (Yes)		3.717 (3.068)	1.042 (3.477)	1.231 (5.413)	0.0108 (4.183)	2.894 (3.467)
Cumulative Family Risk			0.870** (0.275)	0.879** (0.308)	0.578 (0.413)	-0.735+ (0.397)
Social Skills			0.169+ (0.0972)	0.170+ (0.0942)	0.143 (0.0947)	0.176+ (0.105)
Peer Rejection			-0.246 (0.223)	-0.246 (0.224)	-0.300 (0.249)	-0.238 (0.228)
Family Context Interactions						
Co-Occurring Abuse*Family Risk				-0.0515 (0.985)		
Parent/Stepparent*Family Risk					0.611 (0.917)	
Other Relative*Family Risk					0.731 (0.843)	
Non Contact*Family Risk						2.196** (0.752)
Fondling/Masturbation*Family Risk						2.015*** (0.560)
Digital/Oral Penetration*Family Risk						3.094*** (0.780)
Constant	47.74*** (6.130)	48.50*** (7.093)	51.38*** (7.158)	51.42*** (7.348)	52.03*** (10.33)	58.13*** (6.921)
Subpopulation Observations	74	73	68	68	68	68
F-Statistic	F(6,72)= 22.56***	F(12,66)= 24.57***	F(15,63)= 53.61***	F(16,62)= 53.21***	F(17,61)= 73.08***	F(18,60)= 105.94***
R-squared	0.635	0.685	0.741	0.741	0.746	0.785

Standard Errors in Parentheses \*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

<sup>^</sup>Omitted category is White; <sup>^^</sup>Omitted category is Vaginal/Anal Penetration; <sup>^^^</sup>Omitted category is Non-Relative Perpetrator

Table 17.  
Wave 4 Post-Traumatic Stress with Family Context Interactions (N=99)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age (Years)	0.766 (0.703)	0.730 (0.563)	1.056* (0.517)	0.991+ (0.523)	1.066* (0.467)	0.554 (0.485)
Race <sup>^</sup>						
Black	-1.345 (4.117)	-2.264 (2.454)	-5.914* (2.784)	-6.862* (2.942)	-5.069+ (2.818)	-4.815 (3.244)
Hispanic	-12.17* (5.887)	-13.16*** (3.177)	-20.40*** (3.097)	-20.01*** (3.012)	-17.51*** (4.314)	-19.66*** (2.523)
Other	-10.33*** (2.962)	-16.57*** (3.003)	-17.24*** (3.006)	-19.06*** (3.048)	-13.65*** (3.443)	-16.71*** (3.291)
Living w/Permanent Caregiver (Yes)	11.42*** (3.144)	15.08*** (3.091)	11.77*** (3.154)	11.51*** (3.159)	9.118** (3.115)	12.23*** (3.392)
Living Below The Poverty Line	-2.781 (2.752)	0.404 (1.915)	0.0302 (2.136)	0.234 (2.073)	-0.837 (2.076)	2.196 (1.772)
Sexual Abuse Severity <sup>^^</sup>						
Non Contact		-1.673 (5.540)	4.074 (4.329)	3.581 (4.264)	2.570 (4.256)	1.373 (4.203)
Fondling/Masturbation		0.852 (2.512)	4.541 (2.792)	4.292 (2.661)	4.076+ (2.356)	2.401 (2.431)
Digital/Oral Penetration		-0.0919 (3.245)	3.380 (2.946)	3.525 (2.953)	6.463* (3.007)	1.246 (3.606)
Perpetrator Relationship <sup>^^^</sup>						
Parent/Stepparent		10.96*** (2.456)	9.087** (3.097)	9.827** (3.116)	9.574*** (2.651)	9.984** (3.270)
Other Relative		1.531 (2.399)	3.240 (2.304)	3.839+ (2.214)	3.767 (2.561)	2.469 (2.599)
Co-Occurring Abuse (Yes)		7.562** (2.269)	8.752** (2.640)	12.07*** (3.428)	5.952* (2.930)	7.683* (2.949)
Cumulative Family Risk			0.150 (0.304)	0.314 (0.382)	0.747 (0.502)	0.371 (0.586)
Social Skills			-0.0298 (0.0986)	-0.0135 (0.100)	0.0371 (0.0795)	-0.0252 (0.0495)
Peer Rejection			-0.282 (0.254)	-0.282 (0.248)	-0.134 (0.250)	-0.0707 (0.207)
Family Context Interactions						
Co-Occurring Abuse*Family Risk				-0.914 (0.728)		
Parent/Stepparent*Family Risk					-1.521* (0.699)	
Other Relative*Family Risk					-0.337 (0.770)	
Non Contact*Family Risk						1.314 (0.808)
Fondling/Masturbation*Family Risk						-1.114 (0.674)
Digital/Oral Penetration*Family Risk						-0.0915 (0.823)
Constant	36.61*** (6.243)	28.13*** (6.899)	34.54** (12.33)	33.87** (12.48)	26.29** (9.259)	34.81*** (9.678)
Subpopulation Observations	88	86	76	76	76	76
F-Statistic	F(6,78)= 4.76***	F(12,72)= 12.79***	F(15,69)= 9.97***	F(16,68)= 11.78***	F(17,67)= 14.37***	F(18,66)= 15.34***
R-squared	0.412	0.625	0.700	0.705	0.723	0.761

Standard Errors in Parentheses \*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

<sup>^</sup>Omitted category is White; <sup>^^</sup>Omitted category is Vaginal/Anal Penetration; <sup>^^^</sup>Omitted category is Non-Relative Perpetrator



Table 18.  
Wave 5 Post-Traumatic Stress with Family Context Interactions (N=106)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age (Years)	0.744* (0.293)	0.471+ (0.253)	0.733* (0.362)	0.805* (0.327)	0.917* (0.367)	1.059** (0.355)
Race <sup>^</sup>						
Black	3.567 (3.163)	4.220 (3.252)	7.076* (2.738)	8.436** (2.530)	7.707** (2.319)	8.077** (2.833)
Hispanic	4.610 (2.780)	1.210 (3.557)	3.051 (2.996)	1.607 (3.123)	7.110* (3.383)	1.443 (2.953)
Other	8.361 (5.030)	-2.154 (3.218)	7.878+ (4.700)	11.89** (4.045)	9.724* (4.085)	11.70** (3.439)
Living w/Permanent Caregiver (Yes)	4.197 (2.897)	4.509 (2.779)	-2.194 (2.843)	-1.666 (2.797)	-3.283 (2.764)	-4.645+ (2.567)
Living Below The Poverty Line	-6.540* (2.601)	-3.586+ (2.013)	-5.795* (2.346)	-5.925** (2.210)	-5.203* (2.128)	-3.684 (2.511)
Sexual Abuse Severity <sup>^^</sup>						
Non Contact		0.475 (4.159)	1.825 (4.940)	4.219 (4.134)	1.629 (3.838)	9.426* (4.483)
Fondling/Masturbation		-5.411 (4.048)	-1.301 (4.073)	0.0160 (3.533)	-0.391 (3.242)	5.747 (3.564)
Digital/Oral Penetration		-10.26** (3.248)	-6.534* (3.048)	-6.731** (2.543)	-6.519* (2.939)	1.455 (2.499)
Perpetrator Relationship <sup>^^^</sup>						
Parent/Stepparent		7.014** (2.370)	4.208 (2.677)	1.864 (2.725)	5.039* (2.460)	3.793 (2.818)
Other Relative		7.650* (3.445)	1.638 (2.958)	0.365 (2.903)	0.728 (2.988)	1.804 (2.818)
Co-Occurring Abuse (Yes)		-4.228 (2.560)	-2.796 (3.508)	-7.844* (3.747)	-6.079+ (3.225)	-4.110 (4.012)
Cumulative Family Risk			-0.0351 (0.286)	-0.462 (0.338)	-0.509 (0.391)	1.966*** (0.564)
Social Skills			-0.193* (0.0931)	-0.241** (0.0874)	-0.246** (0.0924)	-0.215* (0.0899)
Peer Rejection			-0.00255 (0.239)	-0.0270 (0.246)	-0.0287 (0.230)	0.0373 (0.241)
Family Context Interactions						
Co-Occurring Abuse*Family Risk				1.892* (0.723)		
Parent/Stepparent*Family Risk					0.562 (0.544)	
Other Relative*Family Risk					1.690** (0.619)	
Non Contact*Family Risk						-2.598*** (0.718)
Fondling/Masturbation*Family Risk						-2.277** (0.703)
Digital/Oral Penetration*Family Risk						-2.414** (0.836)
Constant	39.03*** (4.089)	44.16*** (3.899)	63.71*** (13.68)	66.68*** (13.03)	68.04*** (12.97)	56.62*** (12.96)
Subpopulation Observations	97	96	69	69	69	69
F-Statistic	F(6,78)= 7.95***	F(12,72)= 21.42***	F(15,69)= 91.42***	F(16,68)= 73.87***	F(17,67)= 148.49***	F(18,66)= 106.71***
R-squared	0.272	0.511	0.685	0.711	0.723	0.724

Standard Errors in Parentheses \*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

<sup>^</sup>Omitted category is White; <sup>^^</sup>Omitted category is Vaginal/Anal Penetration; <sup>^^^</sup>Omitted category is Non-Relative Perpetrator

Table 19.  
Wave 3 Academic Achievement with Family Context Moderators(N=103)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age (Years)	2.125 (1.564)	-0.506 (1.030)	-0.590 (0.401)	-0.531 (0.419)	-0.306 (0.487)	-0.252 (0.540)
Race <sup>^</sup>						
Black	32.13+ (16.16)	19.73 (12.29)	5.610 (4.372)	6.559 (4.354)	5.438 (3.904)	5.756 (4.343)
Hispanic	-10.59 (18.39)	-6.133 (9.180)	2.037 (3.536)	1.574 (3.454)	7.332 (4.485)	-0.854 (3.431)
Other	31.30** (11.62)	-13.55 (13.65)	3.184 (5.060)	4.451 (5.517)	5.989 (5.431)	5.677 (5.322)
Living w/Permanent Caregiver (Yes)	9.138 (9.151)	13.49 (10.66)	15.83** (5.147)	15.78** (5.164)	14.23** (4.944)	14.12** (4.656)
Living Below The Poverty Line	-31.23* (15.15)	-39.68*** (10.67)	-11.94*** (3.192)	-11.96*** (3.138)	-11.02*** (2.935)	-10.91** (3.346)
Sexual Abuse Severity <sup>^^</sup>						
Non Contact		-13.47 (10.54)	-9.956 (6.516)	-8.035 (6.645)	-7.127 (6.514)	-5.230 (7.290)
Fondling/Masturbation		10.40 (10.69)	0.0935 (4.314)	1.428 (4.286)	2.719 (4.476)	2.890 (5.159)
Digital/Oral Penetration		-9.886 (9.002)	-3.405 (4.120)	-3.023 (3.915)	-1.610 (4.586)	0.192 (4.463)
Perpetrator Relationship <sup>^^^</sup>						
Parent/Stepparent		-4.069 (7.135)	1.398 (2.781)	0.372 (3.090)	1.021 (2.830)	-3.069 (4.193)
Other Relative		-9.390 (11.10)	11.61** (3.582)	10.54** (3.785)	8.924** (3.329)	8.237* (3.865)
Co-Occurring Abuse (Yes)		39.77** (13.61)	16.60** (5.312)	13.04+ (6.562)	13.79* (5.331)	11.87* (5.585)
Cumulative Family Risk			-0.599 (0.406)	-0.807+ (0.460)	-1.094* (0.546)	1.160 (0.728)
Social Skills			0.257* (0.110)	0.243* (0.111)	0.190 (0.122)	0.291* (0.117)
Peer Rejection			-0.959*** (0.268)	-0.961*** (0.259)	-0.991*** (0.281)	-0.951** (0.282)
Family Context Interactions						
Co-Occurring Abuse*Family Risk				1.108 (1.140)		
Parent/Stepparent*Family Risk					0.459 (0.842)	
Other Relative*Family Risk					1.834+ (0.926)	
Non Contact*Family Risk						-2.607* (1.022)
Fondling/Masturbation*Family Risk						-2.339* (0.915)
Digital/Oral Penetration*Family Risk						-1.032 (0.729)
Constant	77.33*** (14.87)	98.26*** (16.51)	87.96*** (6.509)	86.71*** (6.950)	85.35*** (6.741)	86.30*** (7.589)
Subpopulation Observations	92	90	77	77	77	77
F Statistic	F(6,72)= 1.79	F(12,66)= 3.99***	F(13,63)= 33.22***	F(16,62)= 40.52***	F(17,61)= 55.59***	F(18,60)= 46.68***
R-squared	0.298	0.552	0.712	0.716	0.728	0.734

Standard Errors in Parentheses \*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

<sup>^</sup>Omitted category is White; <sup>^^</sup>Omitted category is Vaginal/Anal Penetration; <sup>^^^</sup>Omitted category is Non-Relative Perpetrator

Table 20.

*Wave 4 Academic Achievement with Family Context Moderators(N=125)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age (Years)	0.238 (0.841)	-1.704 (1.111)	0.529 (0.876)	0.684 (0.848)	0.947 (0.851)	-0.142 (0.533)
Race <sup>^</sup>						
Black	7.873 (8.102)	4.317 (7.892)	-4.375 (5.028)	-2.020 (4.537)	-2.906 (4.709)	-4.599 (3.978)
Hispanic	-13.15 (15.93)	-9.928 (10.01)	-12.11* (4.677)	-13.15* (5.076)	-3.940 (5.821)	-14.99** (4.556)
Other	23.12* (10.50)	-17.71 (12.33)	-22.31*** (5.963)	-17.68** (6.522)	-14.70+ (7.715)	-18.03** (5.742)
Living w/Permanent Caregiver (Yes)	15.22+ (7.911)	22.50* (9.377)	22.11*** (4.438)	22.75*** (4.484)	18.16*** (4.890)	21.68*** (4.555)
Living Below The Poverty Line	-32.14+ (16.44)	-36.59** (12.33)	-3.549 (3.874)	-4.131 (3.758)	-2.763 (3.180)	-3.112 (3.633)
Sexual Abuse Severity <sup>^^</sup>						
Non Contact		-0.242 (10.21)	5.914 (10.00)	7.384 (10.28)	8.178 (10.23)	3.126 (8.532)
Fondling/Masturbation		16.93+ (9.217)	11.80* (4.822)	12.52** (4.741)	14.31** (4.514)	11.32* (5.250)
Digital/Oral Penetration		1.436 (10.01)	6.497 (6.090)	6.122 (5.810)	6.797 (6.728)	3.835 (6.198)
Perpetrator Relationship <sup>^^^</sup>						
Parent/Stepparent		2.875 (6.521)	7.784 (5.367)	5.823 (5.675)	5.569 (5.740)	0.553 (5.446)
Other Relative		-11.46 (8.493)	2.382 (4.401)	0.855 (4.164)	-1.052 (4.403)	-3.332 (4.382)
Co-Occurring Abuse (Yes)		34.61* (13.25)	25.57*** (6.664)	17.04* (6.967)	17.92* (7.161)	18.34** (5.495)
Cumulative Family Risk			-1.450* (0.588)	-1.857** (0.640)	-2.272* (0.886)	0.0492 (1.024)
Social Skills			0.603*** (0.148)	0.564*** (0.141)	0.543*** (0.151)	0.603*** (0.122)
Peer Rejection			-0.624* (0.294)	-0.628* (0.278)	-0.635* (0.289)	-0.504+ (0.272)
Family Context Interactions						
Co-Occurring Abuse*Family Risk				2.347* (1.154)		
Parent/Stepparent*Family Risk					0.465 (1.389)	
Other Relative*Family Risk					3.100** (1.108)	
Non Contact*Family Risk						-1.025 (1.020)
Fondling/Masturbation*Family Risk						-3.198** (1.166)
Digital/Oral Penetration*Family Risk						0.930 (1.182)
Constant	89.37*** (9.665)	94.04*** (20.78)	24.33 (21.08)	26.00 (19.52)	29.35 (20.23)	33.64* (15.62)
Subpopulation Observations	111	109	77	77	77	77
F Statistic	F(6,78)= 1.96+	F(12,72)= 2.08*	F(15,69)= 10.13***	F(16,68)= 12.03***	F(17,67)= 14.28***	F(18,66)= 63.17***
R-squared	0.281	0.521	0.662	0.679	0.697	0.754

Standard Errors in Parentheses \*\*\* p&lt;0.001; \*\* p&lt;0.01; \* p&lt;0.05; + p&lt;0.1

<sup>^</sup>Omitted category is White; <sup>^^</sup>Omitted category is Vaginal/Anal Penetration; <sup>^^^</sup>Omitted category is Non-Relative Perpetrator

Table 21.

*Wave 5 Academic Achievement with Family Context Moderators(N=114)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age (Years)	-1.697*	-2.763**	-1.428	-1.485	-2.344*	-0.940
	(0.745)	(0.939)	(1.043)	(1.043)	(0.945)	(1.259)
Race <sup>^</sup>						
Black	-1.864	-5.331	-3.702	-4.685	-1.337	-1.898
	(7.544)	(6.839)	(4.956)	(4.709)	(5.237)	(6.469)
Hispanic	-10.77	-0.597	3.193	4.248	-0.0212	2.832
	(14.21)	(8.678)	(5.891)	(6.435)	(6.994)	(6.471)
Other	-12.57+	-17.65	-12.61+	-15.48+	-17.98**	-11.12
	(7.078)	(11.99)	(7.495)	(8.087)	(6.800)	(9.142)
Living w/Permanent Caregiver (Yes)	13.62*	10.74	17.87*	17.49*	22.43**	15.60+
	(5.751)	(7.018)	(7.130)	(7.049)	(6.840)	(7.973)
Living Below The Poverty Line	-18.44	-23.17	-2.130	-2.009	-4.971	-0.264
	(13.69)	(14.78)	(5.013)	(4.934)	(4.604)	(7.175)
Sexual Abuse Severity <sup>^^</sup>						
Non Contact		-2.428	-3.131	-4.868	-3.744	3.181
		(9.234)	(9.319)	(9.599)	(7.925)	(12.15)
Fondling/Masturbation		3.375	-9.079	-10.03+	-10.65+	-2.825
		(10.04)	(5.578)	(5.800)	(5.691)	(7.631)
Digital/Oral Penetration		-7.314	-7.943	-7.813	-21.76**	-1.435
		(6.587)	(6.182)	(6.111)	(6.649)	(7.773)
Perpetrator Relationship <sup>^^^</sup>						
Parent/Stepparent		-7.592	-3.852	-2.168	0.502	-0.504
		(7.118)	(7.193)	(7.977)	(6.042)	(8.609)
Other Relative		-11.59	-5.349	-4.418	-1.878	-3.144
		(7.024)	(6.240)	(6.220)	(5.819)	(6.166)
Co-Occurring Abuse (Yes)		24.97+	12.18+	15.78*	6.649	14.38*
		(14.75)	(7.002)	(6.900)	(6.329)	(7.090)
Cumulative Family Risk			-0.527	-0.221	-1.611	0.597
			(0.891)	(1.238)	(1.016)	(1.027)
Social Skills			0.139	0.172	0.0763	0.114
			(0.210)	(0.218)	(0.182)	(0.257)
Peer Rejection			-1.440+	-1.423+	-1.610*	-1.370+
			(0.770)	(0.752)	(0.711)	(0.716)
Family Context Interactions						
Co-Occurring Abuse*Family Risk				-1.352		
				(1.975)		
Parent/Stepparent*Family Risk					4.223**	
					(1.508)	
Other Relative*Family Risk					1.530	
					(1.267)	
Non Contact*Family Risk						-1.337
						(1.496)
Fondling/Masturbation*Family Risk						-0.955
						(2.395)
Digital/Oral Penetration*Family Risk						-2.510
						(2.209)
Constant	100.7***	115.7***	112.1***	110.1***	131.8***	101.9**
	(7.595)	(12.69)	(32.75)	(31.84)	(29.12)	(33.76)
Subpopulation Observations	104	103	68	68	68	68
F Statistic	F(6,78)=	F(12,72)=	F(15,69)=	F(16,68)=	F(17,67)=	F(18,66)=
	2.9*	2.95**	69.47***	76.97***	21.21***	81.82***
R-squared	0.245	0.336	0.477	0.481	0.554	0.487

Standard Errors in Parentheses \*\*\* p&lt;0.001; \*\* p&lt;0.01; \* p&lt;0.05; + p&lt;0.1

<sup>^</sup>Omitted category is White; <sup>^^</sup>Omitted category is Vaginal/Anal Penetration; <sup>^^^</sup>Omitted category is Non-Relative Perpetrator

### V.IIIa. Hypothesis 3

Analyses for Hypothesis 3 involve 9 OLS regression models for each of the outcome variables across 3 waves. Model 1 includes coefficients for sociodemographic characteristics alone. Model 2 adds abuse characteristics. Model 3 includes sociodemographic and abuse characteristics as well as the cumulative family risk, social skills and peer rejection moderators without any interactions. The final stage of the analyses estimates a series of interaction terms, which test whether the effect of abuse characteristics (severity/subtype, perpetrator and co-occurring abuse) on each outcome varies as a function of the two peer context moderators. Each interaction term was entered separately; thus all interaction terms were tested separately for each category of abuse characteristics. Models 4 to 6 test the interaction between each abuse characteristic (co-occurring abuse, perpetrator relationship and severity) and peer rejection. Models 7 to 9 test the interactions between each abuse characteristic (co-occurring abuse, perpetrator relationship and severity) and social skills. Tables are presented at the end of this section.

#### **Outcome 1.1: Wave 3 CBCL Internalizing Problems Standardized Score**

Table 22 presents the parameter estimates and significance levels for the effect of both peer context moderators on Wave 3 (18-month follow-up) internalizing problems as a function of sociodemographic and abuse characteristics. In Model 1, Black (vs. White) males reported significantly lower internalizing problems ( $b=-10.95$ ,  $p<0.001$ ) as did those living with a permanent caregiver ( $b=-10.19$ ,  $p<0.01$ ). In Model 2, with abuse characteristics added, Blacks continued to be a significant predictor ( $b=-13.62$ ,  $p<0.001$ ). In Model 3 Hispanic males reported significantly higher internalizing problems ( $b=5.196$ ,  $p<0.05$ ) while living with a permanent caregiver was associated with fewer internalizing problems ( $b=-6.895$ ,  $p<0.01$ ). Males reporting

digital/oral penetration had significantly lower internalizing problems scores compared to males who experienced vaginal/anal intercourse ( $b=-7.23$ ,  $p<0.05$ ).

Models 4-6 tested the interaction terms for abuse characteristics and peer rejection. In Model 4, peer rejection was not a significant moderator of the relationship between co-occurring abuse and internalizing problems. Similar to the previous model, living with a permanent caregiver ( $b=-6.89$ ,  $p<0.01$ ) and digital/oral penetration ( $b=-7.32$ ,  $p<0.05$ ) continued to be significant predictors of Wave 3 internalizing problems. In Model 5, peer rejection moderated the relationship between parent/stepparent perpetrators and Wave 3 internalizing problems ( $b=-1.24$ ,  $p<0.05$ ). At higher levels of peer rejection, boys with parent/stepparent perpetrators had lower Wave 3 internalizing problems than those with non-relative perpetrators (see Figure 21, below). In Model 6, peer rejection did not moderate the relationship between abuse subtype and Wave 3 internalizing problems as evidenced by non-significant interaction terms.

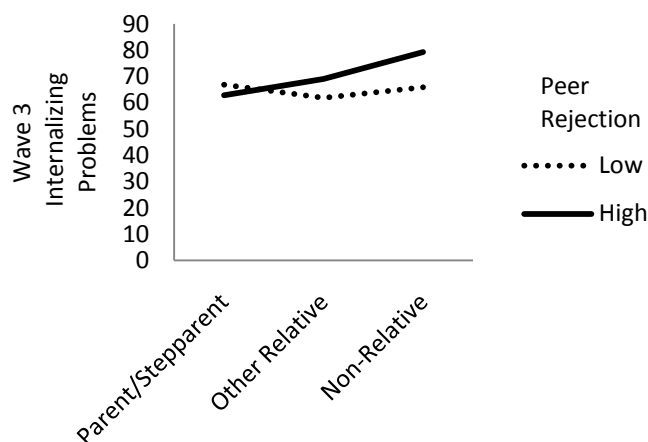


Figure 21.

Graph of Table 22 Perpetrator Relationship\*Peer Rejection Interactions

Models 7-9 tested the interaction terms for abuse characteristics and social skills. In all three models living with a permanent caregiver was associated with lower Wave 3 internalizing problems scores while greater peer rejection was consistently associated with higher Wave 3

internalizing problems scores. In Model 7, the interaction term for co-occurring abuse and social skills was not significant. In Model 8, none of the interactions between perpetrator relationship and social skills were significant. Finally, in Model 9 the interaction term for Non-Contact\*Social Skills was significant ( $b=0.635$ ,  $p<0.05$ ). As shown in Figure 22, below, boys with better social skills who experienced non-contact abuse had higher Wave 3 internalizing subscale scores than those with reports of vaginal/anal intercourse.

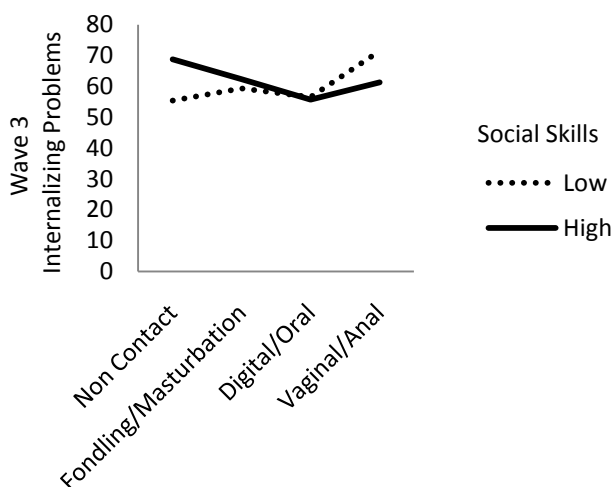


Figure 22.  
Graph of Table 22 Severity\*Social Skills Interactions

### Outcome 1.2: Wave 4 CBCL Internalizing Problems Standardized Score

Table 23 summarizes the effect of peer context interactions on Wave 4 internalizing problems scores. In Model 1, Blacks and other races/ethnicities reported significantly lower internalizing problems scores than Whites ( $b=-9.001$ ,  $p>0.01$  &  $b=-8.06$ ,  $p<0.05$ ) as did those living with a permanent caregiver ( $b=-12.58$ ,  $p<0.01$ ). When abuse characteristics were added in Model 2, the only sociodemographic characteristic remaining significant was living with a permanent caregiver ( $b=-9.79$ ,  $p<0.05$ ). When the moderating variables (cumulative family risk, social skills, and peer rejection) were entered in Model 3, boys with reports of non-contact abuse ( $b=-17.97$ ,  $p<0.001$ ), fondling/molestation ( $b=-20.2$ ,  $p<0.001$ ) and digital/oral penetration ( $b=-$

21.81,  $p < 0.001$ ) exhibited significantly lower scores on Wave 4 internalizing problems; as did boys with co-occurring abuse ( $b = -7.89$ ,  $p < 0.05$ ). Boys with parent/stepparent perpetrators (vs. non-relative perpetrators) had significantly higher internalizing problems ( $b = 6.23$ ,  $p < 0.01$ ) as did boys with higher cumulative family risk ( $b = 0.797$ ,  $p < 0.01$ ).

Models 4-6 tested the interactions for abuse characteristics and peer rejection. Peer rejection moderated the relationship between co-occurring abuse and Wave 4 internalizing problems ( $b = -1.05$ ,  $p < 0.01$ ). Specifically, boys with higher peer rejection and co-occurring abuse had lower internalizing problems than their counterparts without co-occurring reports of abuse (see Figure 23, below). Peer rejection did not moderate the relationship between perpetrator relationship and Wave 4 internalizing problems in Model 5; nor did it moderate the relationship between severity and Wave 4 internalizing problems in Model 6.

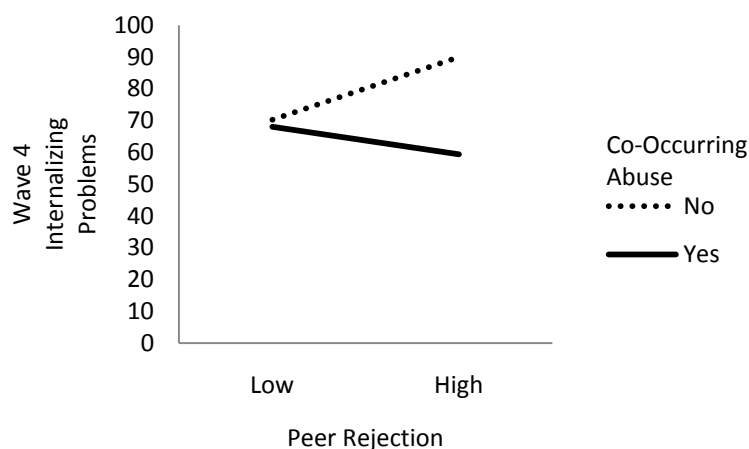


Figure 23.  
Graph of Table 23 Co-Occurring Abuse\*Peer Rejection Interaction

Models 7-9 tested the interaction terms for abuse characteristics and social skills. Living below the poverty line was consistently associated with lower Wave 4 internalizing problems across all three models. Similarly, having a parent/stepparent perpetrator, increased cumulative family risk, and greater peer rejection were associated with higher Wave 4 internalizing



problems scores across all three models. In Model 7, social skills did not moderate the relationship between co-occurring abuse and Wave 4 internalizing problems as evidenced by the non-significant interaction term. In Model 8 social skills moderated the relationship between other relative perpetrators and Wave 4 internalizing problems ( $b=0.682$ ,  $p<0.001$ ). The effect of having other relative perpetrators on Wave 4 internalizing problems was amplified for boys with better social skills. In Model 9 social skills moderated the relationship between severity and Wave 4 outcomes as indicated by the interaction terms for Non-Contact\*Social Skills ( $b=-0.65$ ,  $p<0.01$ ) and Fondling/Masturbation\*Social Skills ( $b=-0.73$ ,  $p<0.01$ ). As shown in Figure 24, boys with better social skills who experienced non-contact abuse and fondling/masturbation had lower Wave 4 internalizing problems scores than their counterparts with reports of vaginal/anal intercourse.

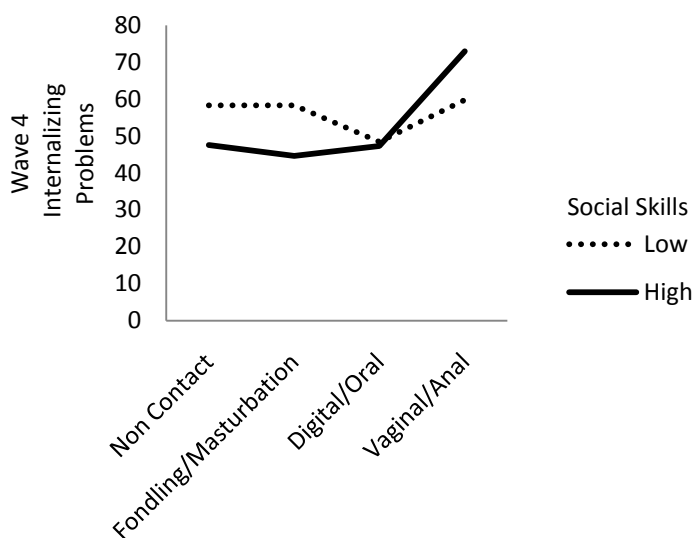


Figure 24.  
Graph of Table 23 Severity\*Social Skills Interactions

### Outcome 1.3: Wave 5 CBCL Internalizing Problems Standardized Score

Table 24 summarizes the effect of peer context interactions on Wave 5 internalizing problems scores as a function of sociodemographic and abuse characteristics. In Model 1, other

racesses/ethnicities ( $b=-6.85$ ,  $p<0.05$ ) exhibited significantly lower Wave 5 internalizing problems than Whites; as did boys living with a permanent caregiver ( $b=-13.21$ ,  $p<0.01$ ). When abuse characteristics were added in Model 2, these two variables remained significant. Living below the poverty line was also associated with lower internalizing problems ( $b=-9.08$ ,  $p<0.05$ ). When moderating variables were added in Model 3, better social skills was associated with lower Wave 5 internalizing problems ( $b=-0.233$ ,  $p<0.05$ ).

Models 4-6 tested the interactions between abuse characteristics and peer rejection. In Model 4, peer rejection did not moderate the relationship between co-occurring abuse and internalizing problems. Peer rejection did moderate the relationship between parent/stepparent perpetrators and Wave 5 internalizing problems ( $b=1.971$ ,  $p<0.01$ ) in Model 5. Specifically, at higher levels peer rejection boys with a parent/stepparent perpetrator had higher internalizing problems than those with non-relative perpetrators. See Figure 25, below, for a graphic example of the interaction effects with peer rejection. In Model 6, the interactions between severity and peer rejection were not significant.

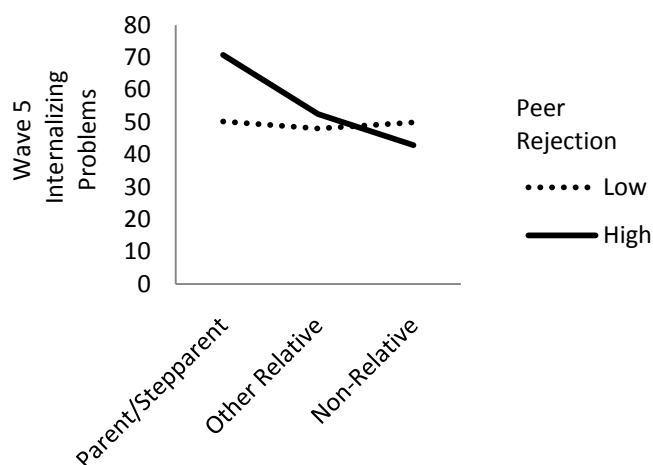


Figure 25.

Graph of Table 24 Perpetrator Relationship\*Peer Rejection Interactions

Models 7-9 tested the interactions between abuse characteristics and social skills. In Model 7 social skills did not play a moderating role in the relationship between co-occurring abuse and Wave 5 internalizing problems as indicated by the non-significant interaction term. Model 8 tested the interaction of perpetrator relationship and social skills. None of the predictors in this model were significantly associated with Wave 5 internalizing problems. In Model 9 social skills moderated the relationship between fondling/masturbation and Wave 5 internalizing problems as evidenced by a significant interaction term ( $b=-1.324$ ,  $p<0.01$ ). Boys with better social skills who experienced fondling/masturbation had significantly lower internalizing problems scores than those with reports of vaginal/anal intercourse. See Figure 26, below, for a graphic example of the interaction effects with social skills.

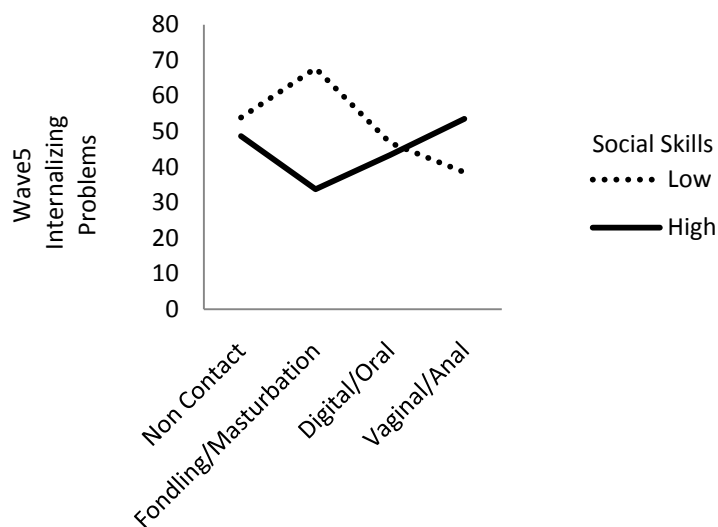


Figure 26.  
Graph of Table 24 Severity\*Social Skills Interactions

### Outcome 2.1: Wave 3 CBCL Externalizing Problems Standardized Score

Table 25 presents the parameter estimates and significance levels for the effect of both peer context moderators on Wave 3 externalizing problems. Of the sociodemographic variables, in Model 1, Blacks were more likely to have lower externalizing problems scores than Whites

( $b=-10.04$ ,  $p<0.001$ ); as did children living with a permanent caregiver ( $b=-13.33$ ,  $p<0.001$ ). Living below the poverty line was associated with higher externalizing problems ( $b=7.64$ ,  $p<0.01$ ). When abuse characteristics are added in Model 2, Blacks ( $b=-11.85$ ,  $p<0.01$ ), other races/ethnicities ( $b=-9.84$ ,  $p<0.001$ ) and boys living with a permanent caregiver ( $b=-11.8$ ,  $p<0.01$ ) exhibited lower Wave 5 externalizing problems while boys with co-occurring abuse had higher scores ( $b=7.63$ ,  $p<0.05$ ). None of the other abuse characteristics were significant. In Model 3, older age ( $b=-1.06$ ,  $p<0.05$ ) and other races/ethnicities ( $b=-9.34$ ,  $p<0.01$ ) were associated with lower externalizing problems while living below the poverty line was associated with higher externalizing problems ( $b=5.12$ ,  $p<0.05$ ). Of the abuse characteristics, vaginal/anal intercourse was associated with significantly higher Wave 3 externalizing problems than non-contact sexual abuse ( $b=-10.43$ ,  $p<0.001$ ), fondling/masturbation ( $b=-5.92$ ,  $p<0.05$ ) and digital/oral penetration ( $b=-5.97$ ,  $p<0.05$ ). Better social skills was associated with lower externalizing scores ( $b=-0.297$ ,  $p<0.05$ ) while peer rejection was associated with higher externalizing problems scores ( $b=0.51$ ,  $p<0.05$ ).

In Models 4-6, peer rejection did not moderate the association between abuse characteristics and Wave 3 externalizing problems as evidenced by the non-significant interaction terms. Across all three models, older age, other races/ethnicities, and increased social skills were consistently associated with lower Wave 3 externalizing problems scores while living below the poverty line was consistently associated with higher externalizing problems scores. In Model 4 and 6, boys with reports of non-contact abuse, fondling/masturbation, and digital/oral penetration had significantly lower externalizing problems than boys with reports of vaginal/anal intercourse. In Model 5, however, only non-contact abuse ( $b=-10.31$ ,  $p<0.001$ ) and digital/oral penetration ( $b=-6.21$ ,  $p<0.05$ ) were more likely to have lower Wave 3 externalizing problems.

Models 7-9 tested the interactions between abuse characteristics and social skills. In Model 7, social skills moderated the association between co-occurring abuse and Wave 3 externalizing problems ( $b=0.453$ ,  $p<0.05$ ). Specifically, the adverse impact of co-occurring abuse on Wave 3 externalizing problems was amplified as social skills increased. In Model 8, social skills did not moderate the relationship between perpetrator relationship and externalizing problems. However social skills did moderate the relationship between non-contact sexual abuse ( $b=-0.782$ ,  $p<0.001$ ) and digital/oral penetration ( $b=-0.695$ ,  $p<0.01$ ) and Wave 3 externalizing problems in Model 9. As shown in Figure 27, in comparison to boys with reports of vaginal/anal intercourse, boys with better social skills who experienced non-contact types of sexual abuse had amplified externalizing subscale scores while those with reports of digital/oral penetration had lower scores.

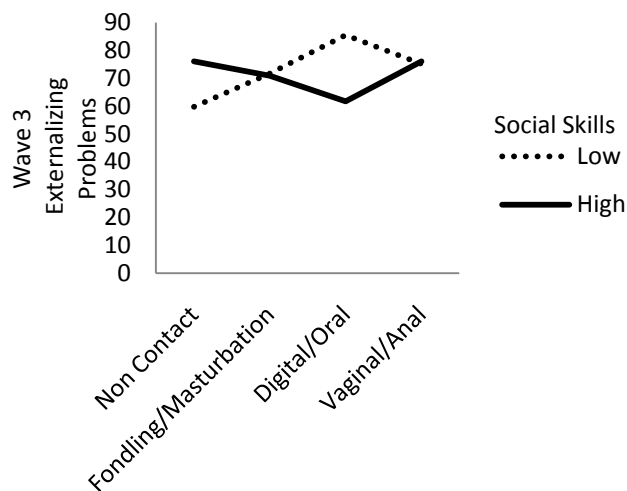


Figure 27.  
Graph of Table 25 Severity\*Social Skills Inteactions

## Outcome 2.2: Wave 4 CBCL Externalizing Problems Standardized Score

Table 26 presents the parameter estimates and significance levels for the effect of both peer context moderators on Wave 4 externalizing problems. In Model 1, boys who were Black and living with a permanent caregiver had lower Wave 4 externalizing problems scores ( $b=-5.27$ ,

$p < 0.05$  and  $b = -11.3$ ,  $p < 0.001$ , respectively), however this difference disappeared for Blacks once abuse characteristics were added in Model 2. In Model 2, boys with non-contact abuse ( $b = -18.44$ ,  $p < 0.01$ ) and fondling/masturbation ( $b = -10.28$ ,  $p < 0.01$ ) had lower Wave 4 externalizing scores. No other abuse characteristics were significant. In Model 3, when main effects of the moderating variables were added, boys with reports of vaginal/anal intercourse reported significantly greater Wave 4 externalizing problems than boys with non-contact abuse ( $b = -20.16$ ,  $p < 0.001$ ), fondling/masturbation ( $b = -14.16$ ,  $p < 0.001$ ) and digital/oral penetration ( $b = -19.16$ ,  $p < 0.001$ ). Of the moderating variables, better social skills was associated with fewer Wave 4 externalizing problems.

Similar to Wave 3, in Models 4-6 peer rejection did not moderate the association between abuse characteristics and Wave 4 externalizing problems. In Models 7-9, social skills moderated the relationship between several abuse characteristics and Wave 4 externalizing problems. Social skills moderated the relationship between boys with other relative perpetrators and Wave 4 externalizing problems, as indicated by a significant interaction term ( $b = 0.463$ ,  $p < 0.005$ ). Specifically, the adverse impact of perpetrator relationship on Wave 4 externalizing problems is buffered by higher social skills (see Figure 28).

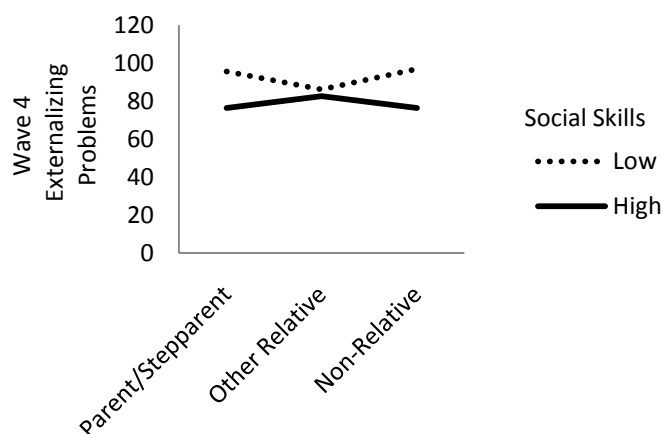


Figure 28.  
Graph of Table 26 Perpetrator Relationship\*Social Skills Interactions

Social skills was also a significant moderator of the relationship between: 1) non-contact sexual abuse and Wave 4 externalizing problems ( $b=-0.782$ ,  $p<0.001$ ); and 2) digital/oral penetration and Wave 4 externalizing problems ( $b=-0.695$ ,  $p<0.01$ ). The effect of both abuse subtypes on Wave 4 externalizing problems diminished as social skills improved. See Figure 29, below, for a graphic example of the interaction effects with social skills.

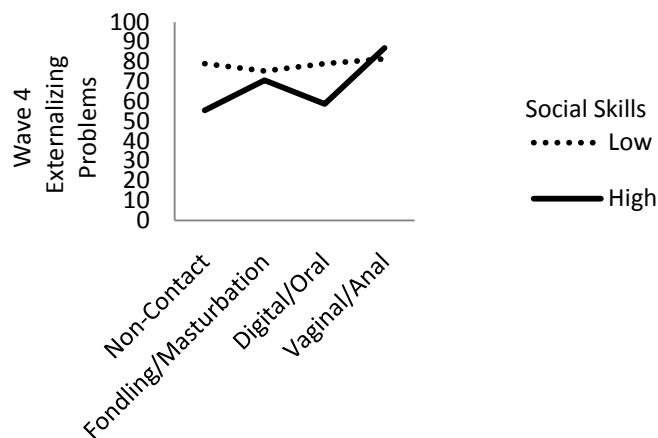


Figure 29.  
Graph of Table 26 Severity\*Social Skills Interactions

### Outcome 2.3: Wave 5 CBCL Externalizing Problems Standardized Score

Table 27 presents the parameter estimates and significance levels for the effect of both peer context moderators on Wave 5 externalizing problems. Of the sociodemographic characteristics, other races/ethnicities, living with a permanent caregiver and living below the poverty line were associated with significantly lower Wave 5 externalizing scores in Models 1 and 2. None of the abuse characteristics in Model 2 were significant. However when moderating variables were added in Model 3, boys with reports of digital/oral penetration had significantly lower externalizing symptoms than boys with reports of vaginal/anal intercourse ( $b=-10.74$ ,  $p<0.01$ ). Additionally, in Model 3 better social skills was associated with diminished externalizing problems ( $b=-0.32$ ,  $p<0.05$ ). Living with a permanent caregiver was the only significant sociodemographic characteristic ( $b=-8.134$ ,  $p<0.05$ ).

Models 4-6 tested the interactions between abuse characteristics and peer rejection. In Model 5 the interaction effect for perpetrator relationship and peer rejection was significant. As shown in Figure 30, below, at higher levels of peer rejection boys with intrafamilial perpetrators (i.e., parent/stepparent and other relatives) had higher Wave 5 externalizing problems score than those with non-relative perpetrators. In Models 7-9, social skills was not a significant moderator of the relationship between abuse characteristics and Wave 5 externalizing problems, as indicated by the non-significant interaction terms in Models 7-9. Living with a permanent caregiver (8.17 points lower than those living in out-of-home care,  $p < 0.05$ ) and digital/oral penetration ( $b = -10.56$ ,  $p < 0.01$ ) were the only significant predictors of Wave 5 externalizing problems. In Model 8 the results were substantively identical, with very little change in the coefficients for living with a permanent caregiver ( $b = -8.16$ ,  $p < 0.05$ ) and digital/oral penetration.

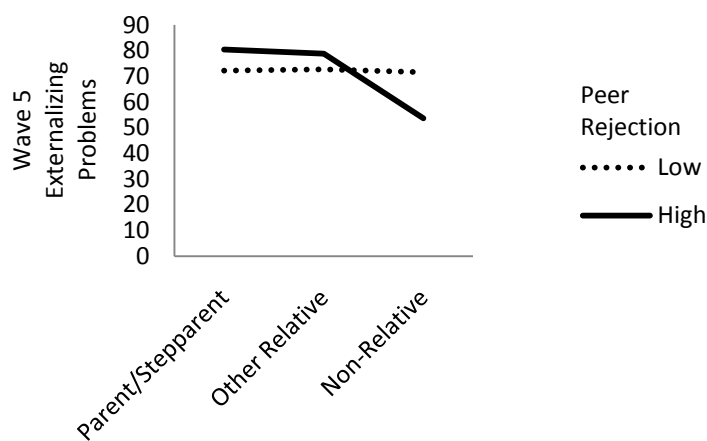


Figure 30.

Graph of Table 27 Perpetrator Relationship\*Peer Rejection Interactions

### Outcome 3.1: Wave 3 TSCC Posttraumatic Stress Standardized Score

Table 28 shows the results for the regression models examining the effect of peer context interactions on Wave 3 posttraumatic stress scores as a function of sociodemographic and abuse characteristics. Hispanics and other race/ethnicities consistently reported lower Wave 3



posttraumatic stress scores compared to Whites across all models. Boys living with a permanent (vs. out-of-home) caregiver reported significantly higher Wave 3 posttraumatic stress scores across all models as well. Cumulative family risk was consistently associated with elevated posttraumatic stress across all models. None of the abuse characteristics were significant; the main and interaction effects for social skills and peer rejection also were non-significant suggesting that the effect of abuse characteristics on Wave 3 posttraumatic stress scores did not depend on peer context.

### **Outcome 3.2: Wave 4 TSCC Posttraumatic Stress Standardized Score**

Table 29 presents the parameter estimates and significance levels for the effect of both peer context moderators on Wave 4 posttraumatic stress scores. Similar to Wave 3, Hispanics and other races/ethnicities reported significantly lower posttraumatic stress than Whites across all models while boys living with permanent (vs. out-of-home) caregivers reported significantly higher posttraumatic stress scores across all models. Similarly, boys with a parent or stepparent perpetrators (vs. non-relative perpetrators) and co-occurring abuse had elevated posttraumatic stress scores across all models. In Model 3, Blacks ( $b=-5.914$ ,  $p<0.05$ ) had higher scores while older age was associated with higher scores ( $b=1.06$ ,  $p<0.05$ ).

In Model 4-6, none of the peer context interactions were significant. With the exception of Model 5, Blacks continued to report significantly lower Wave 4 posttraumatic stress scores than Whites. In Models 4 and 5, older age continued to be associated with elevated posttraumatic stress scores ( $b=1.07$ ,  $p<0.05$  and  $b=1.17$ ,  $p<0.05$ ). In Model 6, boys with other relative (vs. non-relative) perpetrators reported significantly higher posttraumatic stress ( $b=4.44$ ,  $p<0.05$ ). Models 7-9 tested the interactions between each abuse characteristic and social skills. In Model 8 social skills moderated the association between perpetrator relationship and Wave 4

externalizing problems as indicated by a significant interaction terms for Parent/Stepparent\* Social Skills ( $b=1.323$ ,  $p<0.001$ ) and Other Relative\*Social Skills ( $b=0.598$ ,  $p<0.001$ ). In other words, boys with better social skills who had intrafamilial perpetrators had higher Wave 4 posttraumatic stress scores compared to those with non-relative perpetrators (see Figure 31, below). In Model 9, none of the interaction terms between sexual abuse severity and social skills were significant. As with the previous models, co-occurring abuse ( $b=9.55$ ,  $p<0.001$ ) and parent/stepparent perpetrator ( $b=10.03$ ,  $p<0.01$ ) continued to be significant predictors of higher posttraumatic stress scores. However fondling/masturbation also emerged as a significant predictor of posttraumatic stress ( $b=7.47$ ,  $p<0.05$ ).

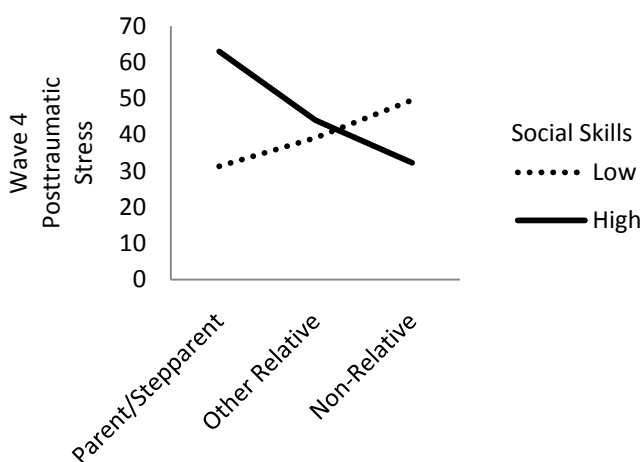


Figure 31.  
Graph of Table 29 Perpetrator Relationship\*Social Skills Interactions

### Outcome 3.3: Wave 5 TSCC Posttraumatic Stress Standardized Score

Table 30 presents the parameter estimates and significance levels for the effect of both peer context moderators on Wave 5 posttraumatic stress scores. In Model 1, increased age was associated with elevated posttraumatic stress scores ( $b=0.744$ ,  $p<0.05$ ) while living below the poverty line was associated with lower posttraumatic stress scores ( $b=-6.54$ ,  $p<0.05$ ). When abuse characteristics were added in Model 2 none of the sociodemographic characteristics were

significant. Boys with reports of digital/oral penetration (vs. vaginal/anal intercourse) reported significantly lower posttraumatic stress scores ( $b=-10.26$ ,  $p<0.01$ ) while those with parent/stepparent ( $b=7.014$ ,  $p<0.01$ ) or other relative ( $b=7.65$ ,  $p<0.05$ ) perpetrators reported significantly higher posttraumatic stress scores compared to boys with non-relative perpetrators. When main effects for the moderating variables were added in Model 3, being older ( $b=0.733$ ,  $p<0.05$ ) and Black ( $b=7.08$ ,  $p<0.05$ ) was associated with elevated Wave 5 posttraumatic stress scores while living below the poverty line was associated with lower scores ( $b=5.795$ ,  $p<0.05$ ). Similar to the previous model, boys with reports of digital/oral penetration had lower posttraumatic stress scores ( $b=-6.534$ ,  $p<0.05$ ). Boys with better social skills reported lower posttraumatic stress scores ( $b=-0.193$ ,  $p<0.05$ ). Models 4-6 tested the moderating role of peer rejection in the association between abuse characteristics and Wave 5 posttraumatic stress scores while Models 7-9 tested the moderating role of social skills. None of the interaction terms in these models were significant, indicating that the effect of abuse characteristics on Wave 5 posttraumatic stress scores did not vary according to peer context.

#### **Outcome 4.1: Wave 3 MBA Academic Achievement Standardized Score**

Table 31 presents the results for the regression models examining the effect of peer context interactions on Wave 3 academic achievement scores. Of the sociodemographic characteristics, living below the poverty line was consistently associated with lower Wave 3 academic achievement scores in every model. Other races/ethnicities had significantly higher scores in Model 1 ( $b=31.3$ ,  $p<0.01$ ) but this difference disappeared in all subsequent models. When abuse characteristics were added in Model 2, boys with co-occurring reports of abuse had significantly higher academic achievement scores ( $b=39.77$ ,  $p<0.01$ ). In Model 3 living below the poverty line and co-occurring abuse continued to be significant predictors. Boys with other

relative (vs. non-relative) perpetrators ( $b=11.61$ ,  $p<0.01$ ) and boys living with a permanent caregiver ( $b=15.83$ ,  $p<0.01$ ) had higher academic achievement scores. Finally, better social skills was associated with higher academic achievement ( $b=0.26$ ,  $p<0.05$ ) while increased peer rejection was associated with worse than average academic achievement ( $b=-0.96$ ,  $p<0.001$ ).

Models 4-6 tested the moderating role of peer rejection in the association between abuse characteristics and Wave 3 academic achievement scores. In all three models, living below the poverty line continued to be associated with lower scores while living with a permanent caregiver was associated with higher scores. Similarly, boys with other relative perpetrators had significant higher academic achievement scores than boys with non-relative perpetrators. The only significant interaction term across all three models was for co-occurring abuse and peer rejection in Model 4 ( $b=-1.19$ ,  $p<0.05$ ). As shown in Figure 32, below, at higher levels of peer rejection, boys with reports of co-occurring abuse had lower academic achievement scores than those without co-occurring reports of abuse. Models 7-9 tested the moderating role of social skills in the association between abuse characteristics and Wave 3 academic achievement scores. The only significant interaction term across all three models was for co-occurring abuse and social skills in Model 7 ( $b=0.72$ ,  $p<0.01$ ). As shown in Figure 33, below, boys with higher levels of social skills who experienced co-occurring abuse had higher Wave 3 academic achievement scores than their counterparts without co-occurring abuse.

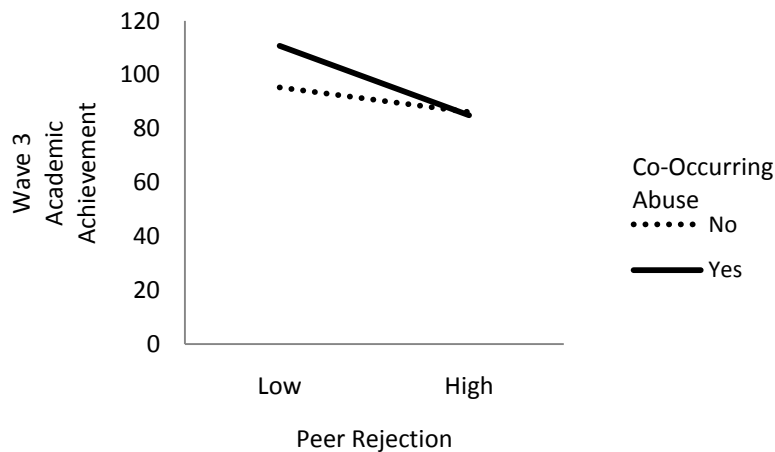


Figure 32.  
Graph of Table 31 Co-Occurring Abuse\*Peer Rejection Interactions



Figure 33.  
Graph of Table 31 Co-Occurring Abuse\*Social Skills Interaction

## Outcome 4.2: Wave 4 MBA Academic Achievement Standardized Score

Table 32 presents the results for the regression models examining the effect of peer context interactions on Wave 4 academic achievement scores. Other races/ethnicities had higher academic scores in Model 1, however when abuse characteristics were added in Model 2 this difference disappeared and living below the poverty line emerged as a significant predictor of lower academic achievement scores ( $b=-36.39$ ,  $p<0.01$ ). Living with a permanent caregiver was associated with better academic achievement outcomes in Model 2 ( $b=22.5$ ,  $p<0.05$ ) as well as in

all subsequent models. In Model 3, Hispanics ( $b=-12.11$ ,  $p<0.05$ ) and other races/ethnicities ( $b=-22.31$ ,  $p<0.001$ ) had lower academic achievement scores. Co-occurring abuse was associated with higher academic achievement scores in Model 2 ( $b=34.61$ ,  $p<0.05$ ) and Model 3 ( $b=25.57$ ,  $p<0.001$ ). In Model 3, boys with reports of fondling/masturbation had higher academic achievement scores than those with reports of vaginal/anal intercourse ( $b=11.8$ ,  $p<0.05$ ). All three moderating variables added in Model 3 were significant. Specifically, increased cumulative family risk ( $b=-1.45$ ,  $p<0.05$ ) and peer rejection ( $b=-0.624$ ,  $p<0.05$ ) were both associated with lower academic achievement scores while better social skills was associated with higher scores ( $b=0.603$ ,  $p<0.05$ ).

Models 4-6 tested the moderating role of peer rejection in the relationship between abuse characteristics and Wave 4 academic achievement. Peer rejection played a moderating role in the association between perpetrator relationship and Wave 4 academic achievement outcomes as indicated by significant interaction terms for Parent/Stepparent\*Peer Rejection ( $b=-2.76$ ,  $p<0.001$ ) and Other Relative\*Peer Rejection ( $b=-1.25$ ,  $p<0.05$ ). At higher levels of peer rejection, boys with intrafamilial perpetrators had lower Wave 4 academic achievement scores than those with non-relative perpetrators (see Figure 34).

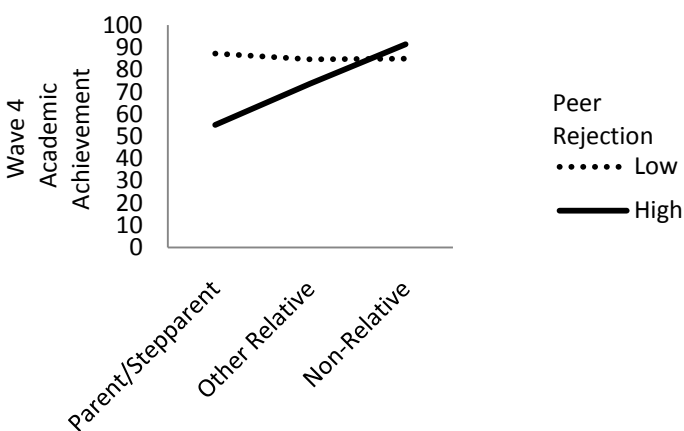


Figure 34.

Graph of Table 32 Perpetrator Relationship\*Peer Rejection Interactions

Models 7-9 tested the moderating role of social skills in the relationship between abuse characteristics and Wave 4 academic achievement outcomes. In all three models Hispanics and other races/ethnicities reported lower academic achievement scores than Whites. Living with a permanent caregiver and co-occurring abuse were both associated with higher academic achievement scores. In Model 9, social skills moderated the relationship between sexual abuse severity and Wave 4 academic achievement outcomes as evidenced by significant interaction terms for Non-Contact\*Social Skills ( $b=1.432$ ,  $p<0.001$ ), Fondling/Masturbation\*Social Skills ( $b=1.023$ ,  $p<0.01$ ), and Digital/Oral Penetration\*Social Skills ( $b=0.81$ ,  $p<0.05$ ). Boys with higher social skills who experienced non-contact abuse, fondling/masturbation and digital/oral penetration had higher Wave 4 academic achievement scores than their counterparts with reports of vaginal/anal intercourse. See Figure 35, below for a graphic example of this interaction.

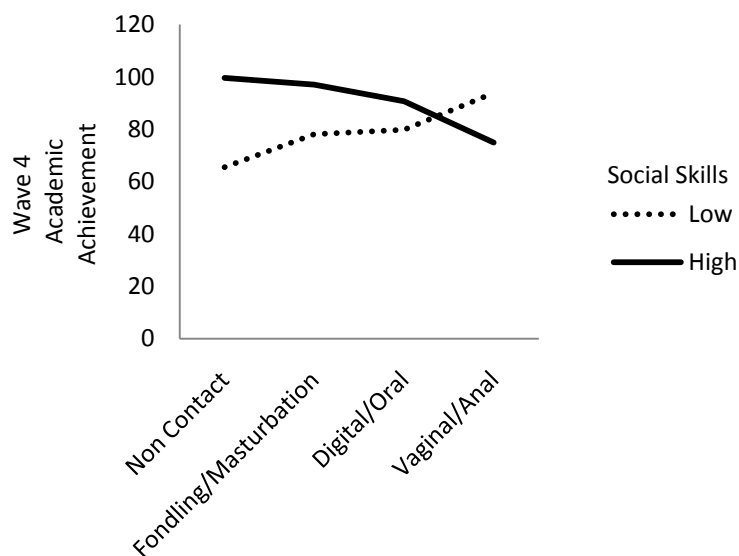


Figure 35.  
Graph of Table 32 Severity\*Social Skills Interactions

### Outcome 4.3: Wave 5 MBA Academic Achievement Standardized Score

Table 33 presents the results for the regression models examining the effect of peer context interactions on Wave 5 academic achievement scores. Of the sociodemographic

characteristics, older age was associated with lower scores in Model 1 ( $b=-1.697$ ,  $p<0.05$ ) and Model 2 ( $b=-2.763$ ,  $p<0.01$ ). None of the abuse characteristics added in Model 2 were significant. In Model 3 living with a permanent caregiver was a significant predictor of better Wave 5 academic achievement scores ( $b=17.87$ ,  $p<0.05$ ). No other significant differences were found in this model.

Models 4 – 9 tested the moderating role of peer rejection and social skills in the relationship between abuse characteristics and Wave 5 academic achievement. In Model 5, peer rejection moderated the relationship between parent/stepparent perpetrators and Wave 5 academic achievement as indicated by a significant interaction term ( $b=-3.521$ ,  $p<0.001$ ). For boys with high levels of peer rejection, having a parent/stepparent perpetrator was associated with lower Wave 5 academic achievement scores than having a non-relative perpetrator (see figure 36, below).

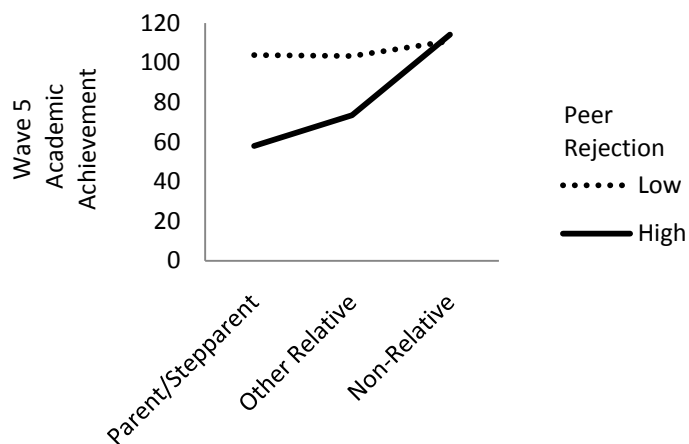


Figure 36.

Graph of Table 33 Perpetrator Relationship\*Peer Rejection Interactions

In Model 8 the interaction term for other relative perpetrators and social skills was significant ( $b=0.65$ ,  $p<0.05$ ). Boys with better social skills and other relative perpetrators had significantly higher Wave 5 academic achievement scores than those with non-relative perpetrators (see



Figure 37, below). In Model 9 social skills moderated the relationship between boys with reports of digital/oral penetration and Wave 5 academic achievement ( $b=0.684$ ,  $p<0.05$ ). As shown in Figure 38, below, boys with better social skills who experienced digital/oral penetration had better academic achievement scores than those with reports of vaginal/anal intercourse.

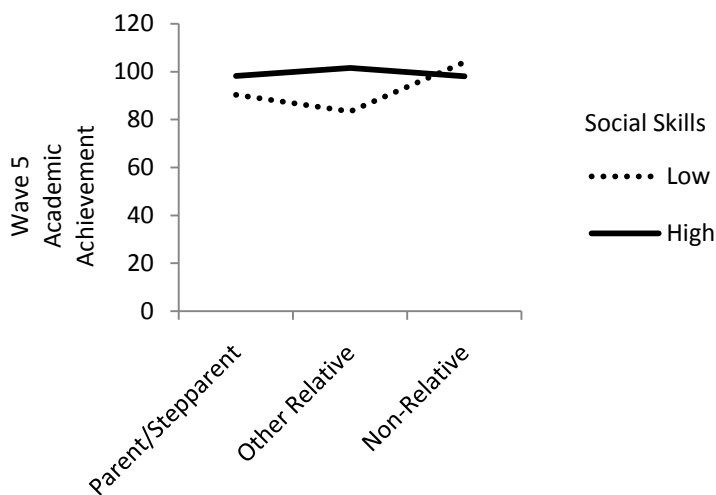


Figure 37.  
Graph of Table 33 Perpetrator Relationship\*Social Skills Interactions

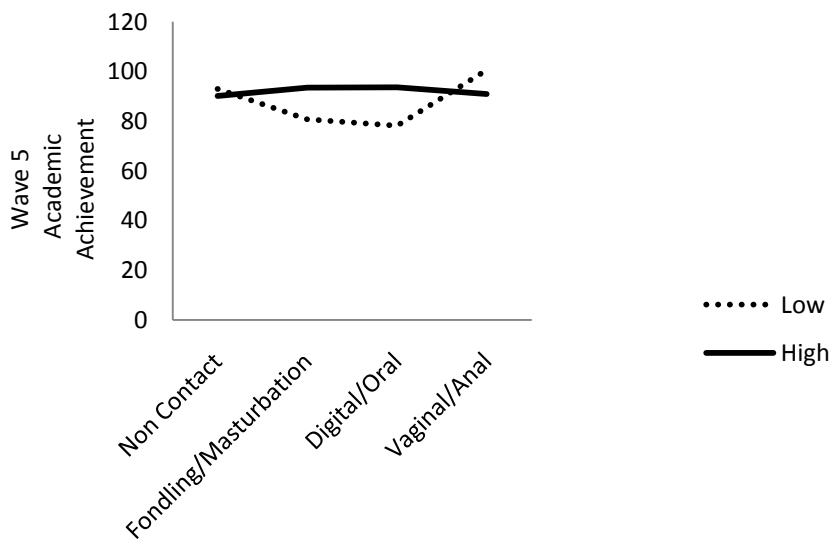


Figure 38.  
Graph of Table 33 Severity\*Social Skills Interactions

### V.IIIb. Hypothesis 3 Tables

Table 22.

*Wave 3 Internalizing Problems with Peer Context Interactions (N=140)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Age (Years)	-0.661 (0.560)	-1.012+ (0.528)	-0.543 (0.443)	-0.534 (0.442)	-0.548 (0.400)	-0.540 (0.433)	-0.636 (0.477)	-0.610 (0.441)	-0.620 (0.492)
Race <sup>^</sup>									
Black	-10.95*** (2.965)	-13.62*** (3.279)	-3.254 (2.190)	-3.02 (2.343)	-2.434 (2.243)	-3.831 (2.461)	-2.211 (2.494)	-3.813 (2.420)	-2.743 (2.107)
Hispanic	5.129 (9.884)	2.763 (7.822)	5.196* (2.605)	4.881+ (2.512)	6.970* (2.656)	4.325+ (2.495)	4.998+ (2.722)	5.915* (2.593)	4.983+ (2.862)
Other	-2.972 (3.712)	-7.346 (4.530)	-1.992 (2.783)	-2.251 (2.803)	-0.897 (2.411)	-2.877 (2.745)	-1.348 (2.884)	-2.541 (2.854)	-1.798 (3.167)
Living w/Permanent Caregiver (Yes)	-10.19** (3.433)	-8.693+ (4.557)	-6.895** (2.395)	-6.89** (2.393)	-7.41** (2.237)	-6.96** (2.492)	-6.70** (2.422)	-6.76** (2.420)	-6.07* (2.489)
Living Below The Poverty Line	1.822 (4.872)	-3.963 (6.682)	0.413 (1.922)	0.610 (2.006)	0.825 (1.791)	1.201 (2.047)	0.442 (1.885)	0.904 (1.692)	0.892 (1.965)
Sexual Abuse Severity <sup>^^</sup>									
Non Contact		-0.577 (4.937)	-2.127 (5.989)	-1.837 (6.102)	-1.841 (5.012)	-3.680 (5.095)	-2.092 (5.797)	-2.022 (5.866)	-4.767 (4.991)
Fondling/Masturbation		4.869 (4.160)	-1.955 (3.908)	-2.120 (3.951)	-5.082 (3.840)	-4.074 (3.574)	-2.331 (3.848)	-2.671 (4.002)	-5.798 (3.493)
Digital/Oral Penetration		3.569 (6.952)	-7.227* (3.592)	-7.320* (3.589)	-6.602+ (3.512)	-9.082* (3.519)	-8.525* (3.608)	-7.025+ (3.624)	-10.40** (3.562)
Perpetrator Relationship <sup>^^^</sup>									
Parent/Stepparent		-4.461 (3.696)	3.969 (2.729)	4.081 (2.799)	2.437 (2.716)	2.885 (2.307)	3.601 (2.757)	3.257 (2.802)	3.797 (2.594)
Other Relative		0.993 (4.051)	-2.788 (2.193)	-2.416 (2.209)	-3.466+ (2.035)	-3.030 (2.200)	-2.235 (2.376)	-3.927 (2.505)	-2.249 (2.214)
Co-Occurring Abuse (Yes)		8.251 (5.324)	-1.334 (2.457)	-1.384 (2.490)	-2.294 (2.084)	-1.310 (2.449)	-0.473 (2.712)	-0.734 (2.349)	-1.442 (2.268)
Cumulative Family Risk			0.647+ (0.366)	0.654+ (0.363)	0.576+ (0.318)	0.611+ (0.354)	0.663+ (0.361)	0.554+ (0.332)	0.514 (0.318)
Social Skills			0.0846 (0.0963)	0.0939 (0.096)	0.0457 (0.105)	0.102 (0.098)	0.128 (0.084)	-0.00894 (0.129)	-0.273 (0.226)
Peer Rejection			0.527***	0.480**	0.961***	1.386	0.475**	0.575***	0.521**

<b>Peer Context Interactions</b>				(0.133)	(0.169)	(0.169)	(0.876)	(0.153)	(0.130)	(0.175)
Co-Occurring Abuse*Peer Rejection				0.183	(0.238)					
Parent/Stepparent*Peer Rejection						-1.243*				
Other Relative*Peer Rejection						(0.514)				
Co-Occurring Abuse*Peer Rejection						-0.449				
Non Contact*Peer Rejection						(0.331)				
Fondling/ Masturbation*Peer Rejection							-0.968			
Digital/Oral Penetration*Peer Rejection							(1.074)			
Co-Occurring Abuse*Social Skills							-0.969			
Parent*Social Skills							(0.898)			
Other Relative*Social Skills							-0.673			
Non-Contact *Social Skills							(0.865)			
Fondling/Masturbation*Social Skills								-0.212		
Digital/Oral Penetration*Social Skills								(0.154)		
Constant	68.38***	68.99***	61.99***	61.62***	64.74***	64.79***	62.56***	64.10***	66.59***	
	(4.847)	(6.798)	(5.956)	(5.806)	(5.042)	(5.877)	(5.781)	(6.003)	(5.882)	
Subpopulation Observations	125	122	82	82	82	82	82	82	82	
F-Statistic	F(6,78)=	F(12,72)=	F(15,69)=	F(16,68)=	F(17,67)=	F(18,66)=	F(16,68)=	F(17,67)=	F(18,66)=	
	4.79***	6.22***	23.96***	25.96***	36.81***	61.92***	40.05***	20.47***	37.48***	
R-squared	0.169	0.271	0.491	0.493	0.547	0.504	0.501	0.500	0.542	

\*\*\* p≤0.001 \*\* p≤0.01 \*p≤0.05 +p≤0.1

^Omitted category is White ^^Omitted category is Vaginal/Anal Penetration ^^Omitted category is Non-Relative Perpetrator

Table 23.

*Wave 4 Internalizing Problems with Peer Context Interactions(N=137)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Age (Years)	-0.642 (0.708)	-0.673 (0.617)	-0.556 (0.349)	-0.542 (0.354)	-0.758* (0.360)	-0.563 (0.353)	-0.553 (0.351)	-1.095** (0.411)	-0.279 (0.411)
Race <sup>^</sup>									
Black	-9.00** (3.378)	-6.795+ (3.533)	3.368 (2.620)	2.533 (2.466)	2.522 (2.701)	2.029 (2.627)	2.714 (2.602)	1.664 (2.493)	4.120 (2.769)
Hispanic	7.216 (8.431)	7.737 (6.959)	-0.867 (3.017)	0.668 (2.895)	-1.349 (3.311)	-0.858 (2.771)	-0.648 (3.038)	0.933 (3.208)	-1.516 (3.257)
Other	-8.064* (3.499)	-7.014 (4.651)	2.884 (4.905)	4.377 (4.670)	2.727 (5.064)	2.004 (4.375)	2.593 (4.702)	1.927 (4.356)	3.322 (4.827)
Living w/Permanent Caregiver (Yes)	-12.58** (3.855)	-9.786* (3.928)	-4.839+ (2.647)	-4.917* (2.358)	-4.292 (2.776)	-5.662* (2.503)	-6.093* (2.574)	-5.480* (2.456)	-5.279+ (3.091)
Living below the poverty line	-4.055 (4.008)	-3.860 (4.377)	-5.752* (2.281)	-6.517** (2.142)	-6.172** (2.255)	-5.658* (2.203)	-6.797** (2.429)	-6.907** (2.194)	-6.822** (2.393)
Sexual Abuse Severity <sup>^^</sup>									
Non Contact		-15.81* (7.884)	-17.97*** (5.007)	-19.47*** (4.895)	-19.71*** (4.914)	-17.17** (6.326)	-17.59*** (4.921)	-16.79*** (4.239)	-12.97** (3.994)
Fondling/Masturbation		-14.33* (6.447)	-20.20*** (5.119)	-19.20*** (5.109)	-20.94*** (5.313)	-21.23*** (5.944)	-18.81*** (5.197)	-18.84*** (5.066)	-14.38*** (3.641)
Digital/Oral Penetration		-10.27 (6.712)	-21.81*** (4.313)	-20.67*** (4.281)	-21.36*** (4.366)	-25.12*** (5.296)	-19.93*** (4.416)	-20.48*** (3.931)	-18.23*** (3.373)
Perpetrator Relationship <sup>^^^</sup>									
Parent/Stepparent		1.343 (4.247)	6.233** (2.132)	5.729** (2.099)	6.135** (2.140)	7.712** (2.376)	6.043** (2.090)	3.731* (1.864)	5.747* (2.466)
Other Relative		1.375 (4.302)	1.065 (2.319)	-1.028 (2.145)	1.009 (2.326)	2.541 (2.426)	0.584 (2.173)	-2.808 (2.102)	-0.432 (2.111)
Co-Occurring Abuse (Yes)		3.188 (3.838)	-7.865* (3.368)	-7.333* (3.021)	-9.045* (3.639)	-7.735* (3.094)	-10.37** (3.349)	-7.860* (3.117)	-7.587* (3.261)
Cumulative Family Risk			0.797** (0.265)	0.717** (0.250)	0.882** (0.281)	0.835*** (0.243)	0.797** (0.252)	0.741** (0.241)	0.799** (0.287)
Social Skills			-0.198+ (0.102)	-0.259** (0.0982)	-0.235* (0.0939)	-0.207* (0.0797)	-0.254* (0.099)	-0.437** (0.137)	0.357+ (0.195)
Peer Rejection			0.471+ (0.251)	0.730*** (0.213)	0.790* (0.363)	1.391 (1.106)	0.572* (0.220)	0.677** (0.209)	0.487* (0.205)

<b>Peer Context Interactions</b>									
Co-Occurring Abuse*Peer Rejection									
				-1.049**					
				(0.357)					
Parent/Stepparent*Peer Rejection									
Other Relative*Peer Rejection									
Non-Contact *Peer Rejection									
Fondling/Masturbation*Peer Rejection									
Digital/Oral Penetration*Peer Rejection									
Co-Occurring Abuse*Social Skills									
Parent*Social Skills									
Other Relative*Social Skills									
Non Contact*Social Skills									
Fondling/Masturbation*Social Skills									
Digital/Oral Penetration*Social Skills									
Constant	70.38***	77.52***	72.29***	73.79***	74.16***	73.66***	73.11***	79.54***	66.09***
	(6.485)	(8.840)	(5.556)	(5.304)	(5.305)	(6.495)	(5.274)	(6.545)	(5.567)
Subpopulation Observations	123	121	78	78	78	78	78	78	78
F-Statistic	F(6,78)=	F(12,72)=	F(15,69)=	F(16,68)=	F(17,67)=	F(18,66)=	F(16,68)=	F(17,67)=	F(18,66)=
	9.99***	9.78***	18.22***	19.96***	23.0***	20.22***	21.52***	41.94***	16.92***
R-squared	0.314	0.393	0.696	0.724	0.705	0.723	0.710	0.734	0.729

Standard Errors in Parentheses

\*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

^Omitted category is White; ^^Omitted category is Vaginal/Anal Penetration; ^^Omitted category is Non-Relative Perpetrator

Table 24.

*Wave 5 Internalizing Problems with Peer Context Interactions(N=120)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Age (Years)	-0.346 (0.572)	-0.346 (0.494)	0.193 (0.801)	0.246 (0.799)	0.489 (0.711)	0.298 (0.831)	0.203 (0.841)	0.211 (0.786)	0.651 (0.802)
Race <sup>^</sup>									
Black	1.164 (5.289)	1.688 (6.880)	4.653 (4.702)	4.805 (4.569)	3.248 (4.566)	6.315 (5.220)	4.592 (4.645)	5.107 (5.031)	5.994 (4.222)
Hispanic	2.405 (7.107)	-1.579 (6.037)	4.368 (4.392)	6.885+ (3.771)	2.579 (5.111)	6.719 (4.438)	4.336 (4.469)	4.510 (4.420)	4.522 (3.988)
Other	-6.850* (3.283)	-10.10* (3.909)	4.769 (6.214)	6.046 (5.712)	5.568 (5.891)	7.278 (5.715)	4.751 (6.237)	5.619 (6.472)	2.454 (5.803)
Living w/Permanent Caregiver (Yes)	-13.21** (3.940)	-14.04** (4.405)	-3.886 (3.948)	-5.172 (3.471)	-4.264 (3.785)	-4.037 (4.000)	-3.927 (3.850)	-3.947 (3.914)	-1.715 (4.500)
Living Below The Poverty Line	-5.468 (3.398)	-9.077* (4.366)	-4.220 (3.105)	-6.112+ (3.434)	-3.794 (3.016)	-5.503 (3.857)	-4.238 (3.157)	-3.987 (3.044)	-7.167* (3.384)
Sexual Abuse Severity <sup>^^</sup>									
Non Contact		5.709 (6.288)	1.295 (6.736)	-0.362 (6.879)	4.144 (5.921)	3.948 (5.965)	1.382 (6.626)	0.956 (6.610)	5.637 (5.838)
Fondling/Masturbation		0.853 (4.688)	0.663 (4.875)	1.033 (4.448)	6.273 (5.768)	3.195 (5.213)	0.786 (5.065)	0.437 (4.945)	5.658 (4.617)
Digital/Oral Penetration		1.838 (5.307)	-4.624 (4.727)	-3.550 (3.902)	-4.226 (4.459)	-2.778 (4.530)	-4.442 (4.715)	-5.117 (4.499)	-0.588 (4.309)
Perpetrator Relationship <sup>^^^</sup>									
Parent/Stepparent		0.503 (6.288)	-1.409 (4.700)	-1.477 (4.447)	-1.979 (3.470)	1.022 (5.108)	-1.416 (4.708)	-0.823 (4.487)	2.246 (3.879)
Other Relative		9.819 (6.369)	-2.363 (4.612)	-4.634 (4.795)	-2.798 (4.170)	-2.042 (5.296)	-2.395 (4.802)	-1.683 (4.507)	-1.445 (3.901)
Co-Occurring Abuse (Yes)		2.700 (5.782)	2.746 (3.836)	2.718 (3.625)	4.963 (4.465)	2.342 (4.812)	2.735 (3.838)	2.082 (3.940)	0.905 (3.741)
Cumulative Family Risk			-0.317 (0.389)	-0.329 (0.347)	-0.245 (0.410)	-0.246 (0.412)	-0.320 (0.396)	-0.278 (0.418)	-0.224 (0.369)
Social Skills			-0.233* (0.110)	-0.255* (0.104)	-0.189 (0.114)	-0.271* (0.122)	-0.237* (0.114)	-0.176 (0.157)	0.404+ (0.241)
Peer Rejection			0.253 (0.391)	0.510 (0.492)	-0.502 (0.366)	-0.986 (0.966)	0.254 (0.395)	0.251 (0.380)	0.229 (0.375)

<b>Peer Context Interactions</b>									
Co-Occurring Abuse*Peer Rejection				-1.298+					
				(0.715)					
Parent/Stepparent*Peer Rejection					1.971**				
					(0.659)				
Other Relative*Peer Rejection					0.818				
					(0.592)				
Non Contact*Peer Rejection						1.037			
						(1.221)			
Fondling/Masturbation*Peer Rejection						1.557			
						(1.250)			
Digital/Oral Penetration*Peer Rejection						0.728			
						(0.976)			
Co-Occurring Abuse*Social Skills							0.0181		
							(0.211)		
Parent/Stepparent*Social Skills								-0.0949	
								(0.301)	
Other Relative*Social Skills								-0.121	
								(0.220)	
Non Contact* Social Skills									-0.545
									(0.363)
Fondling/Masturbation*Social Skills									-1.324**
									(0.407)
Digital/Oral Penetration*Social Skills									-0.496
									(0.328)
Constant	67.63***	64.13***	56.94***	58.53***	50.50***	52.01***	56.83***	56.34***	45.73***
	(5.248)	(6.686)	(8.212)	(7.486)	(8.178)	(8.192)	(8.311)	(8.655)	(10.42)
Subpopulation Observations	110	109	72	72	72	72	72	72	72
F-Statistic	F(6,78)=	F(12,72)=	F(15,69)=	F(16,68)=	F(17,67)=	F(18,66)=	F(16,68)=	F(17,67)=	F(18,66)=
	6.21***	5.66***	13.5***	16.07***	6.85***	15.34***	12.71***	10.49***	7.68***
R-squared	0.122	0.249	0.345	0.392	0.465	0.376	0.345	0.347	0.442

Standard Errors in Parentheses

\*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

^Omitted category is White; ^^Omitted category is Vaginal/Anal Penetration; ^^Omitted category is Non-Relative Perpetrator

Table 25

Wave 3 Externalizing Problems with Peer Context Interactions(N=140)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Age (Years)	-0.119 (0.410)	-0.379 (0.341)	-1.055* (0.427)	-1.041* (0.431)	-1.033* (0.473)	-1.027* (0.433)	-1.13*** (0.327)	-0.949* (0.450)	-1.442** (0.493)
Race <sup>^</sup>									
Black	-10.04*** (2.709)	-11.85** (4.244)	-7.237 (4.908)	-6.884 (5.007)	-7.414 (5.111)	-6.874 (5.142)	2.128 (2.977)	-6.608 (4.934)	-7.260 (4.480)
Hispanic	4.272 (5.651)	4.125 (4.073)	4.413 (2.685)	3.937 (2.494)	3.804 (3.378)	3.964+ (2.252)	-4.148 (2.744)	2.813 (2.596)	3.219 (2.432)
Other	-6.617+ (3.399)	-9.84*** (2.746)	-9.342** (3.417)	-9.734** (3.373)	-9.721** (3.630)	-9.924** (3.149)	-3.898 (3.707)	-8.604* (3.472)	-10.62*** (3.001)
Living w/Permanent Caregiver (Yes)	-13.33*** (3.378)	-11.80** (3.784)	-3.133 (2.714)	-3.119 (2.710)	-2.974 (2.660)	-3.337 (2.813)	4.773+ (2.650)	-3.414 (2.554)	-3.975 (2.814)
Living Below The Poverty Line	7.638** (2.430)	2.578 (2.743)	5.116* (2.178)	5.414* (2.256)	4.954* (2.336)	5.767* (2.362)	0.228 (1.856)	3.870+ (2.235)	5.817** (2.087)
Sexual Abuse Severity <sup>^^</sup>									
Non Contact		0.317 (2.993)	-10.43*** (2.993)	-9.995** (3.040)	-10.31*** (2.690)	-12.71*** (2.803)	8.57** (3.210)	-10.81*** (3.120)	-7.998* (3.428)
Fondling/Masturbation		0.945 (2.309)	-5.922* (2.773)	-6.171* (2.902)	-4.430 (3.717)	-6.779* (3.154)	2.291 (2.788)	-4.023 (2.973)	-4.293 (3.940)
Digital/Oral Penetration		4.389 (4.103)	-5.971* (2.606)	-6.112* (2.641)	-6.208* (2.462)	-5.472* (2.699)	0.917 (3.274)	-6.370* (2.533)	-1.536 (3.219)
Perpetrator Relationship <sup>^^^</sup>									
Parent/Stepparent		-5.657+ (2.933)	-1.793 (1.964)	-1.624 (1.963)	-1.113 (2.366)	-3.953+ (2.034)	-1.155 (2.671)	-0.580 (1.940)	-4.601+ (2.407)
Other Relative		-2.800 (3.617)	-3.318 (2.990)	-2.757 (2.626)	-2.984 (2.999)	-4.713 (3.211)	4.477* (2.057)	-1.742 (2.720)	-2.645 (2.500)
Co-Occurring Abuse (Yes)		7.628* (3.388)	1.944 (3.420)	1.868 (3.477)	2.501 (3.220)	2.352 (3.301)	-4.262 (2.810)	0.703 (3.529)	0.572 (3.157)
Cumulative Family Risk			0.327 (0.311)	0.338 (0.308)	0.351 (0.380)	0.309 (0.334)	-0.288 (0.256)	0.523 (0.321)	0.321 (0.368)
Social Skills			-0.297* (0.117)	-0.283* (0.116)	-0.279* (0.128)	-0.230* (0.114)	-0.227* (0.113)	-0.124 (0.124)	0.0250 (0.163)
Peer Rejection			0.508* (0.199)	0.437+ (0.229)	0.277 (0.251)	0.891 (0.546)	0.521*** (0.128)	0.425* (0.189)	0.385+ (0.215)



<b>Peer Context Interactions</b>									
Co-Occurring Abuse*Peer Rejection				0.276 (0.358)					
Parent/Stepparent*Peer Rejection					0.574 (0.580)				
Other Relative*Peer Rejection					0.280 (0.450)				
Non Contact*Peer Rejection						0.534 (0.688)			
Fondling/Masturbation*Peer Rejection						-0.668 (0.541)			
Digital/Oral Penetration*Peer Rejection						0.108 (0.646)			
Co-Occurring Abuse*Social Skills							0.453* (0.172)		
Parent/Stepparent*Social Skills								-0.456 (0.290)	
Other Relative*Social Skills								-0.188 (0.257)	
Non Contact*Social Skills									-0.417+ (0.235)
Fondling/Masturbation*Social Skills									-0.0457 (0.258)
Digital/Oral Penetration*Social Skills									-0.666* (0.279)
Constant	66.77*** (4.228)	68.73*** (5.472)	72.89*** (5.896)	72.32*** (5.803)	71.41*** (6.863)	73.92*** (5.638)	57.82*** (4.772)	69.04*** (5.601)	75.59*** (6.925)
Subpopulation Observations	125	122	82	82	82	82	82	82	82
F-Statistic	F(6,78)= 6.55***	F(12,72)= 25.6***	F(15,69)= 12.23***	F(16,68)= 11.09***	F(17,67)= 13.05***	F(18,66)= 16.49***	F(16,62)= 41.5***	F(17,67)= 22.87***	F(18,66)= 38.86***
R-squared	0.300	0.423	0.527	0.530	0.535	0.554	0.717	0.549	0.571

Standard Errors in Parentheses

\*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

^Omitted category is White; ^^Omitted category is Vaginal/Anal Penetration; ^^Omitted category is Non-Relative Perpetrator

Table 26.

*Wave 4 Externalizing Problems with Peer Context Interactions(N=137)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Age (Years)	0.128 (0.695)	-0.324 (0.555)	-1.092+ (0.590)	-1.087+ (0.595)	-1.121+ (0.630)	-1.090+ (0.596)	-1.090+ (0.594)	-1.323+ (0.673)	-1.287* (0.625)
Race <sup>^</sup>									
Black	-5.274* (2.455)	-4.995 (3.597)	-0.878 (3.223)	-1.196 (3.431)	-1.268 (3.415)	-0.731 (3.020)	-1.292 (3.445)	-2.457 (3.277)	-1.857 (2.218)
Hispanic	6.409 (8.124)	4.757 (6.406)	-1.140 (3.179)	-0.554 (3.034)	-1.630 (4.027)	-1.240 (2.803)	-1.001 (3.181)	-0.915 (3.922)	-2.142 (3.448)
Other	-4.867 (5.064)	-6.496 (5.015)	-0.656 (4.431)	-0.0866 (4.129)	-0.923 (4.601)	-0.587 (4.040)	-0.841 (4.433)	-1.795 (4.631)	-3.101 (4.168)
Living w/Permanent Caregiver (Yes)	-11.30*** (2.429)	-8.570** (2.812)	-4.856+ (2.791)	-4.886+ (2.816)	-4.679 (2.873)	-4.731 (2.877)	-5.650* (2.478)	-5.159+ (2.602)	-6.013* (2.508)
Living Below The Poverty Line	4.481 (3.899)	-0.0963 (3.482)	1.864 (1.750)	1.571 (1.786)	1.739 (1.823)	1.925 (1.859)	1.201 (1.865)	0.764 (1.943)	2.103 (1.790)
Sexual Abuse Severity <sup>^^</sup>									
Non Contact		-18.44** (6.607)	-20.16*** (4.074)	-20.74*** (4.314)	-20.57*** (3.944)	-20.73*** (4.024)	-19.92*** (4.015)	-19.86*** (3.964)	-16.37*** (3.602)
Fondling/Masturbation		-10.28** (3.865)	-14.16*** (3.138)	-13.78*** (3.311)	-13.81*** (3.661)	-14.21*** (2.982)	-13.28*** (3.375)	-12.23*** (3.363)	-10.98*** (3.027)
Digital/Oral Penetration		-9.886 (6.020)	-19.16*** (4.012)	-18.72*** (4.032)	-19.14*** (4.019)	-18.73*** (3.146)	-17.97*** (4.005)	-18.06*** (3.700)	-14.88*** (2.977)
Perpetrator Relationship <sup>^^^</sup>									
Parent/Stepparent		-5.809 (4.372)	0.766 (2.205)	0.574 (2.248)	0.928 (2.534)	0.292 (2.699)	0.646 (2.238)	-0.593 (2.319)	-1.823 (2.550)
Other Relative		-1.335 (3.935)	0.175 (2.157)	-0.624 (1.805)	0.245 (2.172)	-0.151 (2.437)	-0.130 (2.068)	-2.525 (2.536)	-0.224 (2.209)
Co-Occurring Abuse (Yes)		3.511 (4.468)	-1.597 (4.143)	-1.394 (4.174)	-1.702 (3.952)	-1.611 (4.057)	-3.180 (3.775)	-1.610 (4.068)	-2.537 (3.623)
Cumulative Family Risk			0.175 (0.174)	0.144 (0.172)	0.201 (0.186)	0.170 (0.178)	0.175 (0.170)	0.200 (0.185)	0.240 (0.210)
Social Skills			-0.447*** (0.102)	-0.470*** (0.103)	-0.443*** (0.120)	-0.445*** (0.103)	-0.483*** (0.106)	-0.557*** (0.153)	0.146 (0.200)
Peer Rejection			0.0751 (0.251)	0.174 (0.304)	0.0783 (0.388)	0.0254 (0.815)	0.139 (0.264)	0.181 (0.222)	0.0891 (0.239)

<b>Peer Context Interactions</b>										
Co-Occurring Abuse*Peer Rejection										
				-0.400						
				(0.432)						
Parent/Stepparent*Peer Rejection						0.131				
						(0.655)				
Other Relative*Peer Rejection						-0.0685				
						(0.554)				
Non Contact*Peer Rejection							0.215			
							(1.092)			
Fondling/Masturbation*Peer Rejection							-0.0199			
							(0.794)			
Digital/Oral Penetration*Peer Rejection							0.188			
							(0.775)			
Co-Occurring Abuse*Social Skills								0.256		
								(0.226)		
Parent/Stepparent*Social Skills									0.0376	
									(0.287)	
Other Relative*Social Skills									0.463*	
									(0.211)	
Non Contact*Social Skills										-0.782***
										(0.218)
Fondling/Masturbation*Social Skills										-0.275
										(0.260)
Digital/Oral Penetration*Social Skills										-0.695**
										(0.244)
Constant	62.94***	78.03***	84.44***	85.01***	84.33***	84.50***	84.96***	87.02***	84.03***	
	(5.426)	(8.492)	(7.511)	(7.630)	(8.795)	(8.382)	(7.586)	(9.145)	(8.069)	
Subpopulation Observations	123	121	78	78	78	78	78	78	78	
F-Statistic	F(6,78)=	F(12,72)=	F(15,69)=	F(16,68)=	F(17,67)=	F(18,66)=	F(16,68)=	F(17,67)=	F(18,66)=	
	5.63***	13.6***	13.77***	12.05***	14.42***	11.82***	11.47***	13.25***	75.72***	
R-squared	0.167	0.326	0.514	0.520	0.515	0.516	0.522	0.544	0.582	

Standard Errors in Parentheses

\*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

^Omitted category is White; ^^Omitted category is Vaginal/Anal Penetration; ^^Omitted category is Non-Relative Perpetrator

Table 27.

Wave 5 Externalizing Problems with Peer Context Interactions (N=120)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Age (Years)	-0.443 (0.459)	-0.339 (0.355)	-0.630 (0.871)	-0.606 (0.879)	-0.237 (0.750)	-0.673 (0.894)	-0.620 (0.916)	-0.583 (0.861)	-0.172 (0.916)
Race <sup>^</sup>									
Black	6.747 (5.618)	6.396 (5.679)	9.182 (5.533)	9.251+ (5.509)	9.555+ (5.263)	9.064 (6.096)	9.122+ (5.395)	9.691 (5.880)	9.892+ (5.448)
Hispanic	3.388 (4.141)	-0.802 (4.473)	0.642 (4.468)	1.790 (3.836)	2.232 (4.938)	0.0732 (4.403)	0.612 (4.610)	1.087 (4.516)	0.550 (4.565)
Other	-10.59** (3.834)	-11.14** (4.161)	1.319 (5.699)	1.901 (5.505)	1.558 (5.428)	1.036 (5.872)	1.302 (5.734)	2.331 (6.250)	0.859 (5.692)
Living w/Permanent Caregiver (Yes)	-12.14*** (2.788)	-12.60*** (3.007)	-8.134* (3.774)	-8.720* (3.535)	-9.188** (3.357)	-7.880* (3.919)	-8.173* (3.677)	-8.155* (3.760)	-7.547+ (3.856)
Living Below The Poverty Line	-7.018* (2.915)	-6.604** (2.253)	-5.577 (3.530)	-6.439 (3.975)	-5.103 (3.553)	-5.367 (4.288)	-5.595 (3.634)	-4.970 (3.491)	-7.853+ (4.067)
Sexual Abuse Severity <sup>^^</sup>									
Non Contact		-5.794 (5.499)	-2.258 (7.561)	-3.013 (7.929)	1.077 (6.832)	-2.000 (7.861)	-2.174 (7.330)	-2.263 (7.543)	0.742 (6.583)
Fondling/Masturbation		-5.334 (3.613)	-1.914 (5.320)	-1.745 (5.182)	2.766 (5.847)	-1.793 (5.839)	-1.794 (5.445)	-2.658 (5.804)	2.588 (5.394)
Digital/Oral Penetration		-6.993+ (3.778)	-10.74** (3.766)	-10.25** (3.400)	-11.22** (3.329)	-10.21* (4.400)	-10.56** (3.874)	-10.84** (3.639)	-7.861+ (3.965)
Perpetrator Relationship <sup>^^^</sup>									
Parent/Stepparent		-0.328 (3.875)	-1.467 (4.857)	-1.499 (4.780)	-1.465 (3.924)	-2.470 (5.289)	-1.475 (4.877)	-0.934 (4.940)	1.634 (3.964)
Other Relative		6.423 (4.549)	-1.082 (5.357)	-2.118 (5.545)	-0.796 (4.762)	-1.637 (5.767)	-1.114 (5.487)	-0.336 (4.987)	-0.410 (4.853)
Co-Occurring Abuse (Yes)		-5.246+ (2.682)	-1.159 (5.532)	-1.172 (5.441)	2.108 (5.611)	-0.518 (5.621)	-1.169 (5.531)	-1.462 (5.269)	-1.788 (5.731)
Cumulative Family Risk			-0.492 (0.402)	-0.497 (0.388)	-0.534 (0.409)	-0.560 (0.439)	-0.494 (0.406)	-0.503 (0.408)	-0.333 (0.380)
Social Skills			-0.316* (0.155)	-0.326* (0.155)	-0.271+ (0.146)	-0.299+ (0.171)	-0.320+ (0.168)	-0.286 (0.182)	0.0776 (0.244)
Peer Rejection			-0.272 (0.422)	-0.155 (0.506)	-1.276** (0.407)	-0.304 (1.012)	-0.271 (0.426)	-0.255 (0.421)	-0.269 (0.432)

<b>Peer Context Interactions</b>									
Co-Occurring Abuse*Peer Rejection									
				-0.592					
				(0.708)					
Parent*Peer Rejection					1.863**				
					(0.610)				
Other Relative*Peer Rejection					1.713**				
					(0.595)				
Non Contact*Peer Rejection						0.0879			
						(1.374)			
Fondling/ Masturbation*Peer Rejection						-0.0779			
						(1.171)			
Digital/Oral Penetration*Peer Rejection						0.294			
						(0.938)			
Co-Occurring Abuse*Social Skills							0.0175		
							(0.191)		
Parent/Stepparent*Social Skills								0.0810	
								(0.263)	
Other Relative*Social Skills								-0.139	
								(0.194)	
Non Contact*Social Skills									-0.489
									(0.442)
Fondling/Masturbation*Social Skills									-0.833+
									(0.422)
Digital/Oral Penetration*Social Skills									-0.152
									(0.372)
Constant	70.56***	75.64***	79.19***	79.91***	73.00***	80.14***	79.09***	78.77***	69.07***
	(3.787)	(4.676)	(7.764)	(7.580)	(7.637)	(8.688)	(7.914)	(8.070)	(10.01)
Subpopulation Observations	110	109	72	72	72	72	72	72	72
F-Statistic	F(6,78)=	F(12,72)=	F(15,69)=	F(16,68)=	F(17,67)=	F(18,66)=	F(16,68)=	F(17,67)=	F(18,66)=
	7.85***	11.16***	11.88***	14.26***	8.54***	13.11***	12.78***	13.56***	8.0***
R-squared	0.230	0.346	0.504	0.510	0.596	0.506	0.504	0.507	0.537

Standard Errors in Parentheses

\*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

^Omitted category is White; ^^Omitted category is Vaginal/Anal Penetration; ^^Omitted category is Non-Relative Perpetrator

Table 28.

*Wave 3 Post-Traumatic Stress with Peer Context Interactions(N=84)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Age (Years)	-0.392 (0.473)	-0.587 (0.417)	-0.804* (0.346)	-0.825* (0.339)	-0.746* (0.338)	-0.758* (0.369)	-0.642+ (0.378)	-0.796* (0.355)	-0.547 (0.357)
Race^									
Black	15.57** (5.151)	10.77** (4.005)	5.931+ (3.518)	6.013+ (3.604)	6.596 (4.205)	6.754 (4.415)	5.276 (3.619)	6.129+ (3.564)	4.442 (4.212)
Hispanic	-13.45*** (1.960)	-17.99*** (2.399)	-18.03*** (2.636)	-18.83*** (2.438)	-17.45*** (3.017)	-17.18*** (2.896)	-17.73*** (2.840)	-17.70*** (2.731)	-17.30*** (2.778)
Other	-9.385** (2.767)	-16.40*** (4.528)	-14.83** (4.465)	-16.00*** (4.280)	-14.31** (4.706)	-15.20** (4.497)	-14.88** (4.507)	-14.77** (4.392)	-12.49* (5.066)
Living w/Permanent Caregiver (Yes)	9.215* (4.073)	9.688* (3.966)	8.597* (3.891)	8.694* (3.938)	8.395* (3.695)	8.400* (3.763)	8.200* (3.682)	8.555* (3.858)	8.886* (3.989)
Living Below The Poverty Line	-1.167 (2.254)	0.550 (2.919)	-2.340 (2.620)	-2.076 (2.602)	-2.048 (2.857)	-2.202 (2.831)	-1.905 (2.871)	-1.689 (2.649)	-3.649 (2.780)
Sexual Abuse Severity^^									
Non Contact		0.131 (6.467)	2.026 (5.380)	3.252 (5.181)	2.382 (4.962)	2.328 (5.597)	1.231 (5.163)	2.257 (4.955)	1.654 (5.382)
Fondling/Masturbation		1.986 (4.008)	3.502 (3.991)	3.560 (3.955)	2.869 (4.399)	6.048 (3.958)	3.623 (4.096)	2.865 (4.022)	4.261 (3.889)
Digital/Oral Penetration		-2.624 (3.718)	0.737 (4.119)	1.358 (4.190)	0.279 (4.620)	2.987 (4.367)	1.235 (4.132)	0.551 (4.086)	1.610 (4.576)
Perpetrator Relationship^^^									
Parent/Stepparent		-1.916 (2.473)	-2.400 (3.028)	-2.772 (3.076)	-2.286 (3.172)	-2.695 (3.056)	-1.302 (3.771)	-2.344 (3.077)	-1.064 (3.350)
Other Relative		4.131 (2.577)	3.581 (3.460)	3.895 (3.261)	3.878 (3.818)	2.716 (3.661)	3.653 (3.560)	3.979 (3.996)	2.348 (3.420)
Co-Occurring Abuse (Yes)		3.717 (3.068)	1.042 (3.477)	1.025 (3.430)	1.098 (3.421)	1.380 (3.800)	0.0185 (3.615)	1.296 (3.742)	0.865 (3.713)
Cumulative Family Risk			0.870** (0.275)	0.881** (0.258)	0.853** (0.277)	0.912** (0.280)	0.856** (0.295)	0.817** (0.307)	0.888** (0.282)
Social Skills			0.169+ (0.0972)	0.203* (0.102)	0.157 (0.109)	0.189+ (0.105)	0.113 (0.111)	0.139 (0.145)	0.146 (0.158)
Peer Rejection			-0.246 (0.223)	-0.361 (0.251)	-0.198 (0.361)	-0.929 (0.667)	-0.178 (0.255)	-0.233 (0.218)	-0.200 (0.243)

<b>Peer Context Interactions</b>									
Co-Occurring Abuse*Peer Rejection				0.412 (0.392)					
Parent*Peer Rejection					-0.215 (0.612)				
Other Relative*Peer Rejection					0.0113 (0.505)				
Non Contact*Peer Rejection						1.632+ (0.896)			
Fondling/Masturbation*Peer Rejection						0.649 (0.728)			
Digital/Oral Penetration*Peer Rejection						0.750 (0.949)			
Co-Occurring Abuse*Social Skills							0.203 (0.281)		
Parent/Stepparent*Social Skills								0.104 (0.250)	
Other Relative*Social Skills								-0.0296 (0.296)	
Non Contact*Social Skills									0.0969 (0.253)
Fondling /Masturbation*Social Skills									-0.223 (0.304)
Digital/Oral Penetration*Social Skills									0.310 (0.247)
Constant	47.74*** (6.130)	48.50*** (7.093)	43.64*** (7.128)	43.27*** (7.106)	43.28*** (7.137)	40.34*** (7.804)	42.15*** (7.706)	44.06*** (6.785)	41.09*** (6.855)
Subpopulation Observations	74	73	68	68	68	68	68	68	68
F-Statistic	F(6,72)= 22.56***	F(12,66)= 24.57***	F(15,63)= 53.61***	F(16,62)= 55.23***	F(17,61)= 41.19***	F(18,60)= 47.19***	F(16,62)= 70.87***	F(17,61)= 56.86***	F(18,60)= 74.86***
R-squared	0.635	0.685	0.741	0.745	0.742	0.748	0.744	0.742	0.754

Standard Errors in Parentheses

\*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

^Omitted category is White; ^^Omitted category is Vaginal/Anal Penetration; ^^Omitted category is Non-Relative Perpetrator

Table 29.  
*Wave 4 Post-Traumatic Stress with Peer Context Interactions(N=99)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Age (Years)	0.766 (0.703)	0.730 (0.563)	1.056* (0.517)	1.074* (0.504)	1.170* (0.466)	1.018+ (0.514)	1.074* (0.484)	-0.0406 (0.513)	1.381** (0.516)
Race^									
Black	-1.345 (4.117)	-2.264 (2.454)	-5.914* (2.784)	-6.362* (2.519)	-3.478 (2.637)	-6.698* (2.744)	-6.582** (2.436)	-5.686* (2.314)	-4.668* (2.303)
Hispanic	-12.17* (5.887)	-13.16*** (3.177)	-20.40*** (3.097)	-19.45*** (3.142)	-17.25*** (2.557)	-20.36*** (3.209)	-20.11*** (3.059)	-14.42*** (2.730)	-20.46*** (3.253)
Other	-10.33*** (2.962)	-16.57*** (3.003)	-17.24*** (3.006)	-16.29*** (2.996)	-15.35*** (2.789)	-17.77*** (3.031)	-17.50*** (2.793)	-16.00*** (2.741)	-15.56*** (3.092)
Living w/Permanent Caregiver (Yes)	11.42*** (3.144)	15.08*** (3.091)	11.77*** (3.154)	11.75*** (2.924)	10.80*** (2.780)	11.43*** (3.000)	10.29*** (2.382)	10.56*** (2.680)	12.22*** (3.040)
Living Below The Poverty Line	-2.781 (2.752)	0.404 (1.915)	0.0302 (2.136)	-0.397 (2.001)	0.595 (1.708)	-0.0168 (2.073)	-1.208 (2.028)	0.359 (1.582)	-0.901 (2.204)
Sexual Abuse Severity^^									
Non Contact		-1.673 (5.540)	4.074 (4.329)	3.005 (4.274)	6.173+ (3.357)	6.575 (4.580)	4.371 (4.319)	7.610* (3.598)	5.978 (4.817)
Fondling/Masturbation		0.852 (2.512)	4.541 (2.792)	5.093+ (2.674)	1.838 (2.582)	4.390 (2.681)	6.150* (2.720)	1.361 (2.173)	7.474* (3.375)
Digital/Oral Penetration		-0.0919 (3.245)	3.380 (2.946)	4.081 (2.714)	3.544 (2.722)	1.699 (3.033)	5.674* (2.824)	3.616 (2.850)	4.320 (3.163)
Perpetrator Relationship^^^									
Parent/Stepparent		10.96*** (2.456)	9.087** (3.097)	8.824** (3.150)	7.871** (2.853)	10.55** (3.381)	8.897** (3.121)	5.294* (2.141)	10.03** (3.166)
Other Relative		1.531 (2.399)	3.240 (2.304)	1.950 (2.286)	2.659 (2.341)	4.442* (2.174)	2.627 (2.067)	0.193 (2.874)	2.215 (2.130)
Co-Occurring Abuse (Yes)		7.562** (2.269)	8.752** (2.640)	9.088*** (2.530)	8.854** (2.605)	8.814*** (2.430)	5.726+ (3.362)	8.826*** (2.307)	9.546*** (2.429)
Cumulative Family Risk			0.150 (0.304)	0.0905 (0.327)	0.0180 (0.245)	0.153 (0.298)	0.139 (0.307)	-0.159 (0.185)	0.0913 (0.295)
Social Skills			-0.0298 (0.0986)	-0.0697 (0.113)	-0.0715 (0.109)	-0.0318 (0.0806)	-0.101 (0.114)	-0.467*** (0.0918)	0.0959 (0.150)
Peer Rejection			-0.282 (0.254)	-0.121 (0.339)	-0.161 (0.220)	0.0267 (0.456)	-0.158 (0.282)	0.0480 (0.196)	-0.290 (0.254)



<b>Peer Context Interactions</b>									
Co-Occurring Abuse*Peer Rejection									
				-0.641					
				(0.524)					
Parent*Peer Rejection									
Other Relative*Peer Rejection									
Non Contact*Peer Rejection									
Fondling/Masturbation*Peer Rejection									
Digital/Oral Penetration*Peer Rejection									
Co-Occurring Abuse*Social Skills									
Parent/Stepparent*Social Skills									
Other Relative*Social Skills									
Non Contact*Social Skills									
Fondling/Masturbation*Social Skills									
Digital/Oral Penetration*Social Skills									
Constant	36.61***	28.13***	24.42***	25.33***	25.90***	24.96***	25.37***	41.26***	19.80**
	(6.243)	(6.899)	(7.087)	(7.134)	(6.418)	(7.170)	(6.580)	(6.132)	(7.401)
Subpopulation Observations	88	86	76	76	76	76	76	76	76
F-Statistic	F(6,78)=	F(12,72)=	F(15,69)=	F(16,68)=	F(17,67)=	F(18,66)=	F(16,68)=	F(17,67)=	F(18,66)=
	4.76***	12.79***	9.97***	25.34***	16.19***	16.08***	30.97***	23.29***	14.86***
R-squared	0.412	0.625	0.700	0.710	0.727	0.716	0.719	0.789	0.713

Standard Errors in Parentheses

\*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

^Omitted category is White; ^^Omitted category is Vaginal/Anal Penetration; ^^Omitted category is Non-Relative Perpetrator

Table 30.

*Wave 5 Post-Traumatic Stress with Peer Context Interactions(N=106)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Age (Years)	0.744* (0.293)	0.471+ (0.253)	0.733* (0.362)	0.754* (0.373)	0.793* (0.354)	0.800* (0.356)	0.817* (0.369)	0.721* (0.348)	0.810+ (0.417)
Race <sup>^</sup>									
Black	3.567 (3.163)	4.220 (3.252)	7.076* (2.738)	7.164** (2.655)	8.209** (2.717)	7.180* (2.779)	6.540* (2.802)	7.207** (2.670)	7.024* (2.674)
Hispanic	4.610 (2.780)	1.210 (3.557)	3.051 (2.996)	4.209 (2.875)	5.122+ (2.979)	2.593 (2.474)	2.789 (3.056)	2.839 (3.140)	2.778 (2.941)
Other	8.361 (5.030)	-2.154 (3.218)	7.878+ (4.700)	8.538+ (4.590)	7.466 (4.774)	8.225+ (4.596)	7.800 (4.901)	8.035+ (4.630)	8.231 (5.412)
Living w/Permanent Caregiver (Yes)	4.197 (2.897)	4.509 (2.779)	-2.194 (2.843)	-2.855 (2.788)	-2.672 (2.827)	-2.866 (2.935)	-2.617 (2.888)	-2.203 (2.757)	-2.988 (3.035)
Living Below The Poverty Line	-6.540* (2.601)	-3.586+ (2.013)	-5.795* (2.346)	-6.649** (2.384)	-5.709* (2.392)	-6.132* (2.368)	-5.946* (2.439)	-6.007* (2.420)	-5.989* (2.748)
Sexual Abuse Severity <sup>^^</sup>									
Non Contact		0.475 (4.159)	1.825 (4.940)	0.966 (5.161)	2.213 (5.166)	1.123 (5.077)	2.496 (4.653)	1.511 (4.816)	2.388 (4.536)
Fondling/Masturbation		-5.411 (4.048)	-1.301 (4.073)	-1.159 (4.054)	-1.925 (4.353)	0.497 (3.918)	-0.235 (3.871)	-0.927 (4.051)	-0.124 (3.893)
Digital/Oral Penetration		-10.26** (3.248)	-6.534* (3.048)	-6.022* (2.946)	-7.109* (2.970)	-5.478+ (3.018)	-4.870 (3.107)	-7.088* (3.011)	-5.685* (2.474)
Perpetrator Relationship <sup>^^^</sup>									
Parent/Stepparent		7.014** (2.370)	4.208 (2.677)	4.130 (2.759)	4.556+ (2.552)	3.771 (2.922)	4.123 (2.687)	4.526 (2.925)	4.445 (2.743)
Other Relative		7.650* (3.445)	1.638 (2.958)	0.590 (2.863)	2.065 (2.783)	1.057 (3.444)	1.345 (2.902)	1.878 (3.491)	1.645 (2.984)
Co-Occurring Abuse (Yes)		-4.228 (2.560)	-2.796 (3.508)	-2.873 (3.444)	-2.075 (3.814)	-1.547 (3.897)	-2.984 (3.502)	-3.304 (3.589)	-2.693 (3.703)
Cumulative Family Risk			-0.0351 (0.286)	-0.0432 (0.278)	-0.115 (0.310)	-0.0289 (0.308)	-0.0578 (0.280)	0.0243 (0.281)	0.0291 (0.297)
Social Skills			-0.193* (0.0931)	-0.208* (0.094)	-0.190* (0.087)	-0.156 (0.096)	-0.237* (0.113)	-0.143 (0.155)	-0.115 (0.181)
Peer Rejection			-0.00255 (0.239)	0.118 (0.307)	-0.144 (0.347)	-0.286 (0.613)	0.00948 (0.244)	-0.0229 (0.255)	-0.00450 (0.242)

<b>Peer Context Interactions</b>									
Co-Occurring Abuse*Peer Rejection				-0.589+					
				(0.346)					
Parent*Peer Rejection					-0.108				
					(0.468)				
Other Relative*Peer Rejection					0.534				
					(0.524)				
Co-Occurring Abuse*Peer Rejection									
Non Contact*Peer Rejection						1.027			
						(0.946)			
Fondling/Masturbation*Peer Rejection						0.210			
						(0.593)			
Digital/Oral Penetration*Peer Rejection						0.231			
						(0.628)			
Co-Occurring Abuse*Social Skills							0.163		
							(0.142)		
Parent/Stepparent*Social Skills								-0.187	
								(0.249)	
Other Relative*Social Skills								-0.0365	
								(0.202)	
Non Contact*Social Skills									-0.201
									(0.238)
Fondling/Masturbation*Social Skills									-0.0283
									(0.319)
Digital/Oral Penetration*Social Skills									-0.0136
									(0.211)
Constant	39.03***	44.16***	47.01***	47.94***	47.29***	45.40***	46.23***	46.45***	45.26***
	(4.089)	(3.899)	(4.610)	(4.513)	(5.011)	(4.979)	(4.530)	(4.917)	(5.965)
Subpopulation Observations	97	69	69	69	69	69	69	69	69
F-Statistic	F(6,78)=	F(12,72)=	F(15,69)=	F(16,68)=	F(17,67)=	F(18,66)=	F(16,68)=	F(17,67)=	F(18,66)=
	7.95***	21.42***	91.42***	75.48***	162.74***	78.86***	80.8***	76.88***	107.17***
R-squared	0.272	0.511	0.685	0.696	0.699	0.698	0.689	0.689	0.691

Standard Errors in Parentheses

\*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

^Omitted category is White; ^^Omitted category is Vaginal/Anal Penetration; ^^Omitted category is Non-Relative Perpetrator

Table 31.

*Wave 3 Academic Achievement with Peer Context Interactions(N=103)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Age (Years)	2.125 (1.564)	-0.506 (1.030)	-0.590 (0.401)	-0.671+ (0.371)	-0.744* (0.369)	-0.709+ (0.372)	-0.274 (0.385)	-0.801* (0.388)	-0.467 (0.498)
Race <sup>^</sup>									
Black	32.13+ (16.16)	19.73 (12.29)	5.610 (4.372)	4.239 (4.146)	4.047 (4.035)	5.023 (4.351)	2.011 (4.322)	3.656 (4.282)	4.794 (4.275)
Hispanic	-10.59 (18.39)	-6.133 (9.180)	2.037 (3.536)	4.214 (3.311)	0.582 (4.083)	1.875 (3.866)	2.703 (3.008)	3.481 (3.514)	3.077 (3.668)
Other	31.30** (11.62)	-13.55 (13.65)	3.184 (5.060)	5.636 (4.710)	2.272 (5.083)	4.987 (5.442)	0.417 (4.858)	2.213 (5.462)	2.098 (5.711)
Living w/Permanent Caregiver (Yes)	9.138 (9.151)	13.49 (10.66)	15.83** (5.147)	15.97** (4.731)	16.37** (5.186)	16.70** (5.408)	15.12** (4.838)	16.21** (5.207)	15.92** (5.039)
Living Below The Poverty Line	-31.23* (15.15)	-39.68*** (10.67)	-11.94*** (3.192)	-13.53*** (3.331)	-12.05*** (3.324)	-12.92*** (3.129)	-11.91*** (3.210)	-11.52** (3.685)	-11.22** (3.281)
Sexual Abuse Severity <sup>^^</sup>									
Non Contact		-13.47 (10.54)	-9.956 (6.516)	-12.60* (6.314)	-11.86+ (7.030)	-5.695 (6.731)	-9.727+ (5.452)	-10.71+ (6.130)	-13.69* (6.445)
Fondling/Masturbation		10.40 (10.69)	0.0935 (4.314)	0.382 (3.943)	-0.511 (5.217)	-0.523 (5.698)	1.803 (3.777)	-1.351 (4.605)	-3.632 (4.400)
Digital/Oral Penetration		-9.886 (9.002)	-3.405 (4.120)	-3.297 (3.566)	-3.676 (4.187)	-5.407 (5.660)	1.197 (3.600)	-3.329 (4.011)	-8.298* (4.085)
Perpetrator Relationship <sup>^^^</sup>									
Parent/Stepparent		-4.069 (7.135)	1.398 (2.781)	1.025 (2.731)	1.474 (2.742)	5.109+ (2.948)	2.444 (2.735)	-0.0466 (2.848)	2.463 (2.976)
Other Relative		-9.390 (11.10)	11.61** (3.582)	9.535** (3.442)	11.38** (3.674)	14.77*** (3.330)	9.497** (3.157)	8.399* (3.923)	11.16** (3.486)
Co-Occurring Abuse (Yes)		39.77** (13.61)	16.60** (5.312)	16.75** (4.995)	15.55** (5.412)	15.40** (5.076)	13.95** (5.215)	17.43** (5.515)	17.36** (5.441)
Cumulative Family Risk			-0.599 (0.406)	-0.628 (0.382)	-0.535 (0.429)	-0.615 (0.390)	-0.666+ (0.371)	-0.752+ (0.451)	-0.592 (0.419)
Social Skills			0.257* (0.110)	0.194+ (0.116)	0.251* (0.114)	0.138 (0.123)	0.115 (0.109)	0.0367 (0.113)	-0.170 (0.252)
Peer Rejection			-0.959*** (0.268)	-0.654* (0.269)	-0.680+ (0.372)	-1.220 (1.280)	-0.778** (0.257)	-0.831* (0.336)	-0.865** (0.320)

<b>Peer Context Interactions</b>										
Co-Occurring Abuse*Peer Rejection										
				-1.187*						
				(0.514)						
Parent*Peer Rejection										
Other Relative*Peer Rejection										
Non Contact*Peer Rejection										
Fondling/Masturbation*Peer Rejection										
Digital/Oral Penetration*Peer Rejection										
Co-Occurring Abuse*Social Skills										
Parent/Stepparent*Social Skills										
Other Relative*Social Skills										
Non Contact*Social Skills										
Fondling/Masturbation*Social Skills										
Digital/Oral Penetration*Social Skills										
Constant	77.33***	98.26***	93.29***	96.06***	95.11***	93.99***	91.23***	98.62***	95.16***	
	(14.87)	(16.51)	(6.674)	(6.282)	(7.551)	(7.754)	(6.212)	(7.589)	(7.228)	
Subpopulation Observations	92	90	77	77	77	77	77	77	77	
F-Statistic	F(6,72)=	F(12,66)=	F(15,63)=	F(16,62)=	F(17,61)=	F(18,60)=	F(16,62)=	F(17,61)=	F(18,60)=	
	1.79	3.99***	33.22***	30.85***	30.57***	69.44***	68.33***	52.11***	33.36***	
R-squared	0.298	0.552	0.712	0.730	0.718	0.744	0.737	0.724	0.721	

Standard Errors in Parentheses

\*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

^Omitted category is White; ^^Omitted category is Vaginal/Anal Penetration; ^^Omitted category is Non-Relative Perpetrator

Table 32.  
*Wave 4 Academic Achievement with Peer Context Interactions(N=125)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Age (Years)	0.238 (0.841)	-1.704 (1.111)	0.529 (0.876)	0.536 (0.858)	0.184 (0.653)	0.482 (0.880)	0.527 (0.882)	0.343 (0.885)	0.322 (0.853)
Race^									
Black	7.873 (8.102)	4.317 (7.892)	-4.375 (5.028)	-4.732 (5.046)	-2.358 (5.176)	-5.262 (5.017)	-4.167 (5.038)	-3.959 (5.063)	-4.268 (4.320)
Hispanic	-13.15 (15.93)	-9.928 (10.01)	-12.11* (4.677)	-11.44* (4.776)	-7.773+ (4.113)	-12.67** (4.303)	-12.18* (4.682)	-10.84* (4.549)	-10.91* (4.358)
Other	23.12* (10.50)	-17.71 (12.33)	-22.31*** (5.963)	-21.66*** (5.941)	-19.42*** (5.078)	-23.11*** (5.814)	-22.23*** (6.019)	-21.78*** (6.11)	-21.03*** (5.332)
Living w/Permanent Caregiver (Yes)	15.22+ (7.911)	22.50* (9.377)	22.11*** (4.438)	22.07*** (4.214)	21.89*** (4.453)	22.02*** (4.701)	22.54*** (4.527)	21.92*** (4.340)	24.20*** (3.527)
Living Below The Poverty Line	-32.14+ (16.44)	-36.59** (12.33)	-3.549 (3.874)	-3.881 (3.729)	-3.581 (3.571)	-3.164 (3.994)	-3.183 (3.999)	-3.235 (3.747)	-2.311 (3.586)
Sexual Abuse Severity^^									
Non Contact		-0.242 (10.21)	5.914 (10.00)	5.264 (10.02)	4.701 (7.538)	7.086 (8.357)	5.784 (10.09)	6.558 (9.431)	-2.823 (8.533)
Fondling/Masturbation		16.93+ (9.217)	11.80* (4.822)	12.23* (4.641)	4.902 (5.552)	10.74* (4.844)	11.33* (5.251)	10.68+ (5.514)	2.541 (4.212)
Digital/Oral Penetration		1.436 (10.01)	6.497 (6.090)	6.992 (6.021)	7.955 (6.010)	4.894 (6.207)	5.845 (6.642)	6.327 (6.193)	0.337 (4.992)
Perpetrator Relationship^^^									
Parent/Stepparent		2.875 (6.521)	7.784 (5.367)	7.565 (5.362)	5.424 (4.057)	8.043 (5.526)	7.852 (5.360)	7.258 (5.706)	10.09* (4.780)
Other Relative		-11.46 (8.493)	2.382 (4.401)	1.475 (4.721)	1.229 (3.986)	3.032 (4.647)	2.554 (4.430)	2.271 (4.834)	4.365 (3.812)
Co-Occurring Abuse (Yes)		34.61* (13.25)	25.57*** (6.664)	25.80*** (6.606)	22.61*** (6.004)	25.64*** (6.545)	26.44*** (6.356)	25.59*** (6.587)	26.29*** (6.101)
Cumulative Family Risk			-1.450* (0.588)	-1.485* (0.579)	-1.467* (0.564)	-1.474* (0.596)	-1.450* (0.596)	-1.527* (0.630)	-1.584** (0.570)
Social Skills			0.603*** (0.148)	0.577*** (0.155)	0.424** (0.139)	0.607*** (0.157)	0.623*** (0.147)	0.530* (0.244)	-0.511* (0.197)
Peer rejection			-0.624* (0.294)	-0.511+ (0.303)	0.466 (0.351)	-0.0226 (1.141)	-0.658* (0.291)	-0.573 (0.371)	-0.710* (0.346)

<b>Peer Context Interactions</b>									
Co-Occurring Abuse*Peer Rejection				-0.454 (0.783)					
Parent*Peer Rejection					-2.758*** (0.630)				
Other Relative*Peer Rejection					-1.250* (0.591)				
Non Contact*Peer Rejection						-1.241 (1.260)			
Fondling/Masturbation*Peer Rejection						-0.539 (1.270)			
Digital/Oral Penetration*Peer Rejection						-0.658 (1.297)			
Co-Occurring Abuse*Social Skills							-0.139 (0.369)		
Parent/Stepparent*Social Skills								0.280 (0.466)	
Other Relative*Social Skills								0.0339 (0.450)	
Non Contact*Social Skills									1.432*** (0.214)
Fondling/Masturbation*Social Skills									1.023** (0.320)
Digital/Oral Penetration*Social Skills									0.807* (0.394)
Constant	89.37*** (9.665)	94.04*** (20.78)	76.56*** (10.05)	77.21*** (9.794)	84.37*** (8.325)	78.43*** (11.00)	76.29*** (10.08)	79.68*** (12.28)	84.70*** (10.84)
Subpopulation Observations	111	109	77	77	77	77	77	77	77
F-Statistic	F(6,78)= 1.96+	F(12,72)= 2.08*	F(15,69)= 10.13***	F(16,68)= 10.27***	F(17,67)= 46.97***	F(18,66)= 14.1***	F(16,68)= 15.73***	F(17,67)= 19.17***	F(18,66)= 23.04***
R-squared	0.281	0.521	0.662	0.665	0.721	0.665	0.663	0.665	0.725

Standard Errors in Parentheses

\*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

^Omitted category is White; ^^Omitted category is Vaginal/Anal Penetration; ^^Omitted category is Non-Relative Perpetrator

Table 33.

*Wave 5 Academic Achievement with Peer Context Moderators (N=114)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Age (Years)	-1.697* (0.745)	-2.763** (0.939)	-1.428 (1.043)	-1.379 (1.031)	-2.157** (0.679)	-1.132 (1.076)	-1.239 (1.080)	-1.555 (0.982)	-1.244 (1.150)
Race <sup>^</sup>									
Black	-1.864 (7.544)	-5.331 (6.839)	-3.702 (4.956)	-3.508 (5.063)	-2.679 (4.355)	-4.974 (4.847)	-4.849 (5.606)	-6.052 (5.048)	-4.616 (5.259)
Hispanic	-10.77 (14.21)	-0.597 (8.678)	3.193 (5.891)	5.526 (6.634)	3.800 (4.626)	2.171 (5.047)	2.602 (5.951)	2.320 (5.376)	2.853 (5.378)
Other	-12.57+ (7.078)	-17.65 (11.99)	-12.61+ (7.495)	-11.27 (7.205)	-12.47+ (6.657)	-13.73+ (7.257)	-12.78+ (7.380)	-16.87* (7.333)	-9.950 (7.854)
Living w/Permanent Caregiver (Yes)	13.62* (5.751)	10.74 (7.018)	17.87* (7.130)	16.53* (7.204)	19.20* (7.352)	14.94+ (7.816)	16.96* (7.210)	18.05* (6.951)	16.29* (7.380)
Living Below The Poverty Line	-18.44 (13.69)	-23.17 (14.78)	-2.130 (5.013)	-3.903 (4.392)	-3.051 (4.733)	-2.248 (4.944)	-2.487 (5.089)	-3.769 (4.553)	-1.672 (5.073)
Sexual Abuse Severity <sup>^^</sup>									
Non Contact		-2.428 (9.234)	-3.131 (9.319)	-4.852 (10.48)	-11.03 (6.697)	-9.284 (8.575)	-1.652 (9.448)	-2.163 (9.625)	-4.305 (9.329)
Fondling/Masturbation		3.375 (10.04)	-9.079 (5.578)	-8.783 (5.659)	-19.59** (5.823)	-8.892+ (5.305)	-6.765 (5.939)	-7.740 (5.811)	-9.091 (6.339)
Digital/Oral Penetration		-7.314 (6.587)	-7.943 (6.182)	-6.889 (5.761)	-7.634 (4.920)	-11.24 (6.914)	-4.329 (6.170)	-5.494 (5.475)	-10.34 (6.342)
Perpetrator Relationship <sup>^^^</sup>									
Parent/Stepparent		-7.592 (7.118)	-3.852 (7.193)	-4.020 (7.436)	-3.050 (4.658)	-2.180 (8.621)	-4.046 (7.287)	-7.002 (6.931)	-3.614 (6.763)
Other Relative		-11.59 (7.024)	-5.349 (6.240)	-7.509 (6.982)	-4.837 (6.589)	-3.895 (6.891)	-6.006 (6.390)	-9.008 (6.955)	-5.608 (6.184)
Co-Occurring Abuse (Yes)		24.97+ (14.75)	12.18+ (7.002)	12.05+ (6.794)	5.158 (6.129)	12.17 (8.503)	11.79+ (6.696)	15.00* (7.425)	15.03+ (7.796)
Cumulative Family Risk			-0.527 (0.891)	-0.545 (0.862)	-0.493 (0.766)	-0.231 (0.911)	-0.578 (0.892)	-0.690 (0.892)	-0.420 (0.894)
Social Skills			0.139 (0.210)	0.109 (0.219)	-0.0029 (0.178)	0.194 (0.233)	0.0439 (0.212)	-0.159 (0.287)	-0.264 (0.294)
Peer Rejection			-1.440+ (0.770)	-1.194 (0.887)	0.236 (0.367)	-0.256 (1.003)	-1.413+ (0.769)	-1.420+ (0.783)	-1.396+ (0.743)



<b>Peer Context Interactions</b>									
Co-Occurring Abuse*Peer Rejection				-1.200 (1.543)					
Parent/Stepparent*Peer Rejection					-3.52*** (1.007)				
Other Relative*Peer Rejection					-2.370+ (1.256)				
Non-Contact *Peer Rejection						0.434 (1.270)			
Fondling/ Masturbation*Peer Rejection						-1.150 (1.282)			
Digital/Oral Penetration*Peer Rejection						-2.180 (1.533)			
Co-Occurring Abuse*Social Skills							0.353 (0.349)		
Parent/Stepparent*Social Skills								0.373 (0.459)	
Other Relative*Social Skills								0.649* (0.325)	
Non-Contact *Social Skills									0.187 (0.303)
Fondling/ Masturbation*Social Skills									0.610 (0.398)
Digital/Oral Penetration*Social Skills									0.684* (0.297)
Constant	100.7*** (7.595)	115.7*** (12.69)	97.48*** (13.59)	99.32*** (14.90)	110.7*** (10.70)	94.50*** (13.14)	95.73*** (13.47)	101.1*** (14.68)	95.93*** (14.45)
Subpopulation Observations	104	103	83	68	68	68	68	68	68
F-Statistic	F(6,78)= 2.9*	F(12,72)= 2.95**	F(15,69)= 69.47***	F(16,68)= 49.25***	F(17,67)= 35.86***	F(18,66)= 88.08***	F(16,68)= 49.97***	F(17,67)= 59.53***	F(18,66)= 55.72***
R-squared	0.245	0.336	0.477	0.490	0.602	0.509	0.482	0.494	0.492

Standard Errors in Parentheses

\*\*\* p<0.001; \*\* p<0.01; \* p<0.05; + p<0.1

^Omitted category is White; ^^Omitted category is Vaginal/Anal Penetration; ^^Omitted category is Non-Relative Perpetrator

## CHAPTER VI: DISCUSSION

This chapter synthesizes and interprets the main findings for the study hypotheses. The first section focuses on a discussion of Aim 1, Hypothesis 1. The second section is broken down into four subsections that discuss the major findings for Aims 2 and Aim 3 for each of the developmental outcomes as follows: a) internalizing problems [Hypothesis 2.1.1, Hypothesis 3.1.1, Hypothesis 3.2.1]; b) externalizing problems [Hypothesis 2.2, Hypothesis 3.1.2, Hypothesis 3.2.2]; c) posttraumatic stress [Hypothesis 2.3, Hypothesis 3.1.3, Hypothesis 3.2.3]; and d) academic achievement [Hypothesis 2.4, Hypothesis 3.1.4, Hypothesis 3.2.4]. Finally, the third section of this chapter presents the overall conclusions for the current study. Specifically, future practice, policy and research implications are addressed and study limitations are considered.

To review, the second research aim sought to determine whether cumulative family risk played a moderating role in the strength of the relationship between abuse characteristics and developmental outcomes while the third research aim focused on the moderating role of peer context. Hypothesis 2.1 predicted that the strength of the association between sexual abuse characteristics and developmental outcomes will be amplified for sexually abused boys who live in a family context characterized by higher cumulative family risk. Hypothesis 3.1 predicted that the strength of the association between sexual abuse characteristics and developmental outcomes will be amplified with increased peer rejection. Finally, Hypothesis 3.2 predicted that the strength of the association between sexual abuse characteristics and developmental outcomes will be buffered by social skills.

## **VI.I. Impact of Sexual Abuse Characteristics: Descriptive and Bivariate Analyses**

The first research aim was to describe characteristics of a nationally representative sample of sexually abused boys coming into contact with the child welfare system. In the NSCAW dataset, 2.85% of the boys experienced sexual abuse as the most serious form of maltreatment (n=171). At baseline, nearly two-thirds were 6 years of age or older; with the majority latency age (39.19%). Nearly half of the boys in this sub-sample were living above the poverty line (49.59%) and nearly half were White (48.19%). Given the wide body of research demonstrating an overrepresentation of children from ethno-racial minorities and lower socioeconomic status (SES) in the children welfare system, the findings for race/ethnicity and poverty in this sample of sexually abused boys are unexpected. Indeed, the racial/ethnic breakdown for sexually abused boys in this sample is closer to their representation in the general population. One area worthy of future examination is the extent to which racial disparity and disproportionality with respect to reporting, decision-making strategies, investigations and substantiation may vary by maltreatment type; particularly when comparing neglect to sexual abuse. Boys in this sample were most likely to have experienced a less severe form of sexual abuse by an intrafamilial perpetrator, such as a parent figure. As anticipated given the nature of this data set – a non-clinical, non-treatment seeking, child welfare-involved sample – a majority of sexually abused boys (69.29%) did not have co-occurring reports of physical abuse or neglect and were living in family contexts characterized by a high degree cumulative risk.

Overall, sexually abused boys in this sample are relatively resilient—with behavioral problems, posttraumatic stress, and academic achievement scores averaging in the normal range across all three waves. Still, a substantial minority of boys fall above the clinical threshold across each outcome when conservative clinical cutoffs are used. However subclinical levels of

behavioral problems and posttraumatic stress symptomatology are also associated with substantial impairment (Carrion, Weems, Ray & Reiss, 2003; DeBellis & Keshavan, 2003). This lends further support to the utilization of quantitative approach to the classification of psychological and behavioral problems, that is, continuous rather than dichotomous outcomes. At Wave 3 sexually abused boys were slightly more likely to score in the clinical range for externalizing problems than they were internalizing problems (22% vs. 15%). At Wave 4 the difference in internalizing and externalizing problems disappeared – with 20.94% scoring in the clinical range for internalizing problems and 19.88% scoring in the clinical range for externalizing problems. Academic achievement scores, as measured by the MBA, were relatively stable; with approximately one-fifth scoring in the low range across all three time points. Internalizing and externalizing problems looked similar for sexually abused boys across sociodemographic characteristics with one notable exception – boys who were not living with a permanent caregiver at baseline had significantly higher mean internalizing problems scores at Wave 3 and Wave 4 and significantly higher mean externalizing problems scores across all three time points. These findings are consistent with a large body of prior research establishing that maltreated children placed in out-of-home care are at heightened risk for a range of negative developmental outcomes; but particularly so for behavioral problems (Leve, Fisher and DeGarmo, 2007; McCrae, 2009; Zima et al., 2000).

Posttraumatic stress was much less common, with approximately 7% scoring in the clinical range at Wave 3 and Wave 5. Interestingly, the percentage of boys scoring in the clinical range nearly doubled at Wave 4. While these rates are comparable to children in the general population, they are lower than prior studies with maltreated children and children placed in out-of-home care. However it's important to note that many of these studies utilized convenience

samples of treatment-seeking children. Though behavioral problems and academic achievement look similar across race/ethnicity, some interesting differences emerged for posttraumatic stress outcomes. Specifically, Hispanics had significantly lower Wave 3 posttraumatic stress scores than all other races/ethnicities while Blacks and Whites had higher Wave 4 posttraumatic stress scores. Morrow and Sorell (1989) suggest that “factors associated with minority culture or families, especially Hispanics, affect characteristics of incest and interpretations of the experience differently than is the case for whites” (p. 684). Similarly, Fontes’ (1995; 2008) work addresses the varying cultural and systemic factors experienced across different racial/ethnic groups that can heavily influence feelings of shame relative to the sexual abuse. To date we have a limited understanding of racial/ethnic differences relative to sexual abuse in boys. As such, more research is needed to distinguish the effects of race and ethnicity – and the racial, ethnic cultural and religious meanings ascribed – on the range of mental and physical health outcomes for sexually abused boys.

Developmental outcomes were similar for sexually abused boys across abuse characteristics, with several notable exceptions for externalizing problems and posttraumatic stress. Boys with intrafamilial perpetrators had higher posttraumatic stress scores at Waves 4 and 5. Interestingly, at Wave 4 boys with reports of digital/oral penetration had lower posttraumatic stress scores. At Waves 3 and 4, boys with reports of non-contact abuse had lower externalizing problems than those with reports of more severe abuse (i.e., fondling/masturbation, digital/oral penetration, vaginal/anal intercourse). At Wave 5, however, these differences disappeared. In sum, the variation (or lack thereof) in the range of outcomes at three different time points paints an intriguing and complex picture about the experience of sexual abuse in boys. These results provide additional rationale for subsequent multivariate analyses teasing apart the role of

sociodemographic characteristics, abuse-related characteristics on these outcomes and the influence of family and peer context.

## **VI.II. The Moderating Role of Family and Peer Context: Multivariate Analyses**

### **VI.IIa. The Moderating Role of Family and Peer Context on Internalizing Problems**

Overall, the findings partially support Hypothesis 2.1.1; however the results are complex and nuanced. Cumulative family risk moderated the relationship between severity and increased internalizing problems at Wave 3. Boys with reports of fondling/molestation (nearly 43% of the boys in this sample) had lower scores than boys with reports of non-contact sexual abuse, digital/oral penetration and vaginal/anal intercourse. As anticipated, the magnitude of the role of cumulative family risk was particularly strong for boys experiencing vaginal/anal intercourse – if they were living in home environments characterized by higher cumulative family risk they had elevated internalizing problems; conversely, lower cumulative family risk appeared to protect or buffer against internalizing problems. This is in concordance with a considerable body of research on the primacy of family context as a risk or protective mechanism in the link between sexual abuse and later behavioral problems (Flouri et al., 2009). Even though boys in this sample were living in family contexts characterized by a high degree of risk (with 42.4% reporting 10 or more risk factors), as with the bivariate results discussed in the previous section, remaining with a parental caregiver was consistently associated with lower internalizing problems across all models in Wave 3 and 4.

There are several potential explanations for this finding. Firstly, children in out-of-home placements have higher rates of behavioral and emotional problems (Leve, Fisher & DeGarmo, 2007; Oswald, Heil & Goldbeck, 2009). Much of this can be attributed to the reason for placement itself; notably their more severe and persistent maltreatment histories. However it can

also be a consequence of the discovery and disclosure process itself (Alaggia, 2004; 2005; 2010; Bonanno et al., 2002; McCrae, 2009; Nagel, Putnam, Noll & Trickett, 1997) as well as the trauma of being separated from parents, siblings and other family members (Kearney, Wechsler, Kaur & Lemos-Miller, 2010; McCrae, 2009). Subsequent trauma exposure and victimization while in out-of-home care can also confer considerable additional risk; with at least one study finding that children in foster care are exposed to ongoing domestic violence, community violence at rates similar to the general population (Litrownik, Newton, Mitchell & Richardson, 2003). Stein, Jaycox, Kataoka, Rhodes and Vestal (2001) found that approximately half of the children in their sample reported having been exposed to assaultive, criminal, or weapon-related violence while in foster care. Despite the fact that exposure to community violence is a significant public health threat for children and adolescents, particularly males, it is rarely considered or accounted for by researchers or practitioners in the child maltreatment field (Guterman & Cameron, 1999). A second explanation focuses on the body of work examining the parent-child relationship factors such as maternal acceptance/belief (of the abuse) and parent-child attachment. Both factors are critical protective factors for sexually abused children (Alink, Cicchetti, Kim & Rogosch, 2009; Toth & Cicchetti, 1996). While not measured in NSCAW, it's possible that parent-child relationship factors such as these counteract and buffer against the negative consequences one might typically expect to find with children experiencing high levels of cumulative family risk and poly-victimization (Finklehor et. al., 2007).

Surprisingly, cumulative family risk and peer rejection did not moderate Wave 4 internalizing disorders; this indicates that the effects of abuse characteristics on internalizing problems did not vary across levels of cumulative family risk and peer rejection. However poverty emerged as a significant predictor in both models. Interestingly, boys living below the

poverty line had significantly lower internalizing scores than those living above the poverty line. While at first glance these findings might be surprising, prior research suggests that while poverty is a risk factor in cases of physical abuse and neglect, it may be less true in cases of sexual abuse (Putnam, 2003). Also of note, in Wave 4 boys with reports of vaginal/anal intercourse reported significantly higher internalizing problems scores than those with less severe sexual abuse types. In addition, boys with parent/stepparent perpetrators reported higher internalizing problems than those who were sexually abused by non-relatives. These findings replicate prior research finding penetrative types of sexual abuse and sexual abuse by intrafamilial perpetrators confers greater risk. However it's unclear why this finding didn't emerge in other waves. At Wave 5 cumulative family risk did moderate the strength of the relationship between two of the abuse characteristics (co-occurring abuse and severity) and internalizing problems. Co-occurring abuse was positively associated with internalizing problems among boys with high levels of cumulative family risk but negatively associated with internalizing problems among boys with lower levels of cumulative family risk. At higher levels of cumulative family risk, boys with reports of vaginal/anal intercourse had amplified internalizing problems while boys with less severe sexual abuse (i.e., non-contact sexual abuse, fondling/masturbation and digital/oral penetration) had lower internalizing problems.

Overall, the predictions for Hypothesis 3.1.1 and Hypothesis 3.2.1 are partially supported. As expected, peer rejection moderated the co-occurring abuse-internalizing problems relationship and the perpetrator-internalizing problems relationship; though not always in the expected directions. Similar to the findings across outcomes in Aim 2, the results for the perpetrator\*peer rejection interaction paint an intriguing picture. Specifically, increased peer rejection was associated with lower Wave 3 internalizing problems and higher Wave 5



internalizing problems for boys with parent/stepparent perpetrators compared to their counterparts with other relative and non-relative perpetrators. As expected, the most salient outcomes are for boys with parent/stepparent perpetrators. However the change in direction in the relationship was unexpected. Also contrary to expectations, the interactions of peer rejection with each of the severity categories were not significant at any of the three follow up time points, suggesting that the effects of sexual abuse severity on internalizing problems are similar regardless of whether sexually abused boys are accepted or rejected by their peers. Hypothesis 3.2.1 stated that the effect of abuse characteristics will be moderated by social skills, such that internalizing problems will be buffered by higher social skills. This hypotheses garnered partial support. The most consistent pattern of findings for the moderating role of social skills was in the severity-internalizing problems relationship. Specifically, better social skills buffered against Wave 3 internalizing problems for boys with reports of vaginal/anal intercourse but not for boys with reports of non-contact abuse. At Waves 4 and 5 an inverse relationship emerged. Specifically, better social skills buffered against internalizing problems for boys with reports of non-contact abuse while those with more severe sexual abuse had amplified internalizing problems scores.

In summary, the hypothesis for internalizing problems was partially supported. The results of the moderation analysis indicate that high cumulative family risk and peer rejection confer greater risk for internalizing problems. The findings also suggest that cumulative family risk and peer context may play more central role at the most proximal and distal time points from the baseline. Two separate bodies of work lend some support to this inference. One line of research utilizes cumulative risk models (Appleyard, Egeland, van Dulmen & Sroufe 2005; Flouri, Tzavidis & Kallis, 2009; Kroneman, Loeber & Hipwell, 2004; Tarren-Sweeney, 2008;

Yates, Obradovic & Egeland, 2010). Several studies have found that early cumulative risk significantly predicted later internalizing problems (Appleyard et al., 2005; Flouri et al., 2009; Morales & Guerra, 2006; Rouse & Fantuzzo, 2009). This same research also supports the linear model of cumulative family risk (i.e., the more risks present the worse the outcome) used in this study. The second line of research utilizes developmental cascade models to elucidate the bidirectional and transactional patterns of internalizing and externalizing problems and the reciprocal influences with family, peer and school context (Bornstein et al., 2010; Burt et al., 2008; Kim et al., 2003; Masten et al., 2005; Moilanen et al., 2010; Rogosch, Oshri & Cicchetti, 2010; Van Lier & Koot, 2010; Yates et al., 2010). Some of the research in this area has found that externalizing problems are linked to subsequent internalizing problems (Burt et al., 2008; Moilanen et al., 2010; Van Lier & Koot, 2010). Other studies have found that externalizing problems in childhood are linked to academic problems in adolescence, which in turn lead to internalizing problems in young adulthood (Kim et al., 2003; Masten et al., 2005; Moilanen et al., 2010). Alternatively, internalizing problems have also been found to counteract externalizing problems (Masten et al., 2005). This emergent body of research investigating cascade models represents a considerable advancement in our ability to utilize more sophisticated and accurate methods to better understand the within and between group differences for children who experience sexual abuse. To date, no such studies have focused exclusively on sexually abused boys.

### **VI.IIb. The Moderating Role of Family & Peer Context on Externalizing Problems**

In this section the key findings for externalizing problems are discussed in terms of the study's hypotheses. Hypothesis 2.2 stated that the effect of abuse characteristics will be moderated by cumulative family risk, such that externalizing problems will be amplified with

increasing levels of cumulative family risk. This hypothesis garnered partial support. Following a similar pattern found for internalizing problems in the previous section, the moderating role of cumulative family risk in the relationship between severity and externalizing problems was significant at the most proximal time point (i.e., Wave 3) and the most distal time point (i.e., Wave 5) from the index report at the baseline. At high levels of cumulative family risk, boys with the most severe sexual abuse had amplified Wave 3 externalizing problems while low levels of cumulative family risk buffered against worse outcomes. Cumulative family risk also exacerbated the negative impact of co-occurring abuse, perpetrator relationship and severity on Wave 5 externalizing problems. These findings suggest that sexually abused boys are more vulnerable to externalizing problems if they also are living in a family context characterized by a high level of risk; a detrimental impact that becomes more pronounced over time. This reinforces prior literature linking externalizing problems to cumulative risk (Deater-Deckard, Dodge, Bates & Pettit, 1998; Moilanen et al., 2010; Morales & Guerra, 2006). Finally, sexually abused boys with better social skills reported lower externalizing problems consistently at the 1½, 3 and 5 year follow up waves. This inverse relationship between social skills and externalizing problems is congruent with prior research supporting the role of peer context factors such as social skills in reducing the negative impact of sexual abuse on behavioral outcomes.

This degree of variation provides additional rationale for examining the moderating role of social skills in Hypothesis 3.2.2. Social skills moderated the relationship between severity and externalizing problems at Wave 4. Boys with better social skills and co-occurring abuse had amplified Wave 3 externalizing problems scores. It's unclear why this finding emerged only at this time point. This finding seems to suggest that better social skills exacerbated behavioral problems for boys with co-occurring abuse. However caution should be used in drawing this

conclusion. While successful peer relationships and overall social competence are crucial risk or protective mechanisms in a child's adaptive functioning over time (Athonyamy & Zimmer-Gembeck, 2007; Blandon, Calkins, Grimm, Keane & O'Brien, 2010) it's possible that other indicators within this domain – or perhaps their interplay with other confounding factors – play a more salient role for sexually abused boys. In addition to social skills, the construct of social competence also encompasses “[emotion regulation], social cognition, positive communication and pro-social relationships with family members, peers and teachers” (Bornstein et al., 2010, p. 718). There is some evidence that emotion regulation is linked to both peer rejection and social competence (Blandon et al., 2010; Kim & Cicchetti, 2010; Kelly, Schwartz, Gorman & Nakamoto, 2008). Emotion regulation is the “processes used to manage and change if, when and how (e.g., intensely) one experiences emotions and emotion-related motivational and physiological states as well as how emotions are expressed” (Eisenberg, Spinard & Eggum, 2010, p. 497).

In sum, the results reveal that cumulative family risk is significant risk factor for sexually abused boys over time when it comes to externalizing outcomes while social skills mitigate poorer outcomes. Peer rejection seemed to have a more prominent role in influencing internalizing outcomes; however this did not extend into externalizing problems. This is not entirely surprising – while a clear link between social competence and internalizing problems has been established in prior literature, the association between social competence and externalizing problems are more equivocal (Burt et al., 2008). These findings are also consistent with growing body of research underscoring the complex longitudinal relations between internalizing and externalizing problems across development. As mentioned earlier, developmental cascade models may provide a helpful lens through which to understand how externalizing problems can

become more pronounced over time. For example, in studies employing a developmental cascade model with at-risk children, initial externalizing problems lead to academic problems and internalizing problems in later developmental periods (Burt et al., 2008; Moilanen et al., 2010). Conversely, Masten et al. (2005) found that that initial internalizing problems subsequently predicted lower externalizing problems in adolescence and early adulthood. The authors suggest that typically maladaptive behaviors can be a successful, adaptive, coping strategy; a conclusion supported by other leading experts in child trauma theory. For example, Richardson, Henry, Black-Pond and Sloane (2008) emphasize the importance of viewing behavioral problems as “self-protective responses”. Some of these typically maladaptive behaviors may be better understood from a complex trauma framework:

In some instances symptomatic or “acting out” behaviors may represent coping responses to trauma. These include *tension reduction behaviors*, such as self-injury, repetitive or otherwise problematic sexual behavior, bulimia, excessive risk-taking, compulsive stealing, and some instances of aggression (Briere, 1996, 2002). These activities may serve, in part, as a way for the [youth] to distract, soothe, avoid, or otherwise reduce ongoing or triggered trauma-related dysphoria. (Briere & Lanktree, 2008, p.8)

Utilizing a complex trauma framework, Developmental Trauma Disorder incorporates the symptom complexity seen in children exposed to chronic trauma (Cloitre, et al., 2009; van der Kolk, 2005); central to this is the dysregulation of affective, somatic, behavioral, cognitive, relational and self-attribution domains (Kearney et al., 2010). One of the proposed changes in the diagnostic criteria for the DSM-5 is an added emphasis on additional emotional states beyond fear, helpless and horror, such as self-blame (Sar, 2011).

Another relevant body of research addresses the underlying processes and pathways involved linking the effects of maltreatment on later psychopathology. For example, Rogosch, Oshri and Cicchetti (2010) found that initial internalizing problems lead to decreases in overall social competence which, in turn, predicted externalizing problems in later developmental periods. While this dissertation concentrates on the role of family and peer context, other factors play a central role in interrupting the pathway between sexual abuse and later behavioral problems. This includes emotion regulation (Alink et al., 2009; Bandon et al., 2010; Eisenberg et al., 2010; Kim & Cicchetti, 2010) as well as avoidant coping (Bal et al, 2003; Foster, Hagan & Brooks-Gunn, 2009; Simon, Feiring & McElroy, 2010), cognitive appraisals, and attribution styles (Feiring & Cleland, 2007; Kia-Keating et al., 2010; Simon et al., 2010). To date we have a limited understanding of how these factors play out differently for each gender and the potential influence of gender role socialization. Male victims of sexual abuse experience unique issues due prevailing cultural norms, myths, assumptions, and stigma/biases about victimization of males in general and sexual abuse of males in particular. In addition to gender roles, sexually abused males also contend with the interlocking influences of racial socialization (Stevenson, 1997) and racial appraisals (McGuffey, 2008). Racial appraisal refers to the process of “how and why trauma victims construct their interpretations of trauma when there is already an excess of stigma due to their racially marginalized positions in the social order” (McGuffey, 2008, p.219). Surprisingly little research has focused on racial and ethnic differences in outcomes for maltreated boys.

### **VI.IIc. The Moderating Role of Family & Peer Context on Posttraumatic Stress**

Hypothesis 2.3 stated that the effect of abuse characteristics will be moderated by cumulative family risk, such that posttraumatic stress scores will be amplified with increasing levels of cumulative family risk. This hypothesis garnered partial support. Some interesting

patterns emerged for several of the socio-demographic characteristics. For example, living with a permanent caregiver was associated with increased posttraumatic stress symptomology. This finding is unexpected given the evidence that children placed in out-of-home care typically have extremely high rates of PTSD. In addition, boys of color reported significantly lower posttraumatic stress scores at Wave 3 and Wave 4. At Wave 5, however, sexually abused boys who identified as Black and Other Race/Ethnicity reported significantly higher posttraumatic stress scores. It's important to note that a majority of the sexually abused boys in the other races/ethnicities category identified as American Indian/Alaska Native (AI/AN). Despite being the smallest ethnic group in the United States, AI/ANs have among the highest rates of violence and trauma exposure (Manson, Beals, Klein, Croy & AI-SUPERPPF Team, 2005; Pavkov, Travis, Fox, King & Cross, 2010; Robin, Chester, Rasmussen, Jaranson & Goldman, 1997; Stevens, Ruggiero, Kilpatrick, Resnick & Saunders, 2005). This may account for some of the unexpected findings. Adding another piece to the puzzle, while poverty was not a significant predictor of Waves 3 and 4 posttraumatic stress scores, at Wave 5 boys living below the poverty line had significantly lower posttraumatic stress scores. Whether this is an artifact of the research remains to be seen and should be investigated in the future. However several factors that could explain these results will be discussed.

It's possible that cumulative risk models, discussed in more detail previously, are more relevant for boys who are poorer, Black and Other Race/Ethnicity. Prior research suggests that males in these groups have higher rates of exposure to violence, trauma and stressful life events. Foster et al. (2009) note that violence exposure in one context elevates the risk for exposure in others. This includes indirect victimization as well as perpetrating violence. A recent study by Duke, Pettingell, McMorris & Borowsky (2010) found that for males, past sexual abuse was a

particularly powerful risk factor for adolescent violence perpetration directed at self and others. Specifically, childhood sexual abuse was associated with a 26- to 45- fold increase in dating violence; a 6-fold increase in weapon carrying; a 2- to 4.5-fold increase in bully and fighting; an 11- to 15-fold increase in suicide attempts; and a 5.5- to 6.5-fold increase in self-harm and suicidal ideation. The within group differences in Wave 5 posttraumatic stress scores may be explained by additional trauma/violence exposure in the child's family, school and neighborhood (as a witness, victim or perpetrator) in the five years following the index report at Wave 1. Nevertheless, many children emerge relatively resilient despite experiencing chronic and high levels of violence and victimization. One explanation for lower than expected psychopathology and symptomatology is an adaptation process that occurs via desensitization or emotional numbing; however research in this early is preliminary and the findings to date are equivocal (Foster et al., 2009).

Consistent with predictions for Hypothesis 2.3, cumulative family risk moderated the relationship between a series of abuse characteristics and posttraumatic stress symptoms, though not always in the expected direction. Cumulative family risk moderated the relationship between: 1) severity and Wave 3 and 4 posttraumatic stress; 1) perpetrator relationship and Wave 4 and 5 posttraumatic stress; and 3) co-occurring abuse and Wave 5 posttraumatic stress. In family contexts characterized by high levels of risk, boys with parent or stepparent perpetrators had lower Wave 4 posttraumatic stress scores while those with other relative perpetrators had elevated Wave 5 posttraumatic stress scores. These findings may reflect an existing body of research suggesting that the association between perpetrator relationship and subsequent psychopathology is complex; it's possible that emotional closeness to the perpetrator, rather than the victim-perpetrator relationship itself, may be the most important factor (Ackard, 2001;



Ackerman et al., 1998; Martin, 1998; Naar-King et al., 2002). For boys with high levels of cumulative family risk, less severe sexual abuse was associated with elevated Wave 3 posttraumatic stress scores while vaginal/anal intercourse was associated with lower posttraumatic stress symptomatology. At Wave 5, however, the inverse was true—posttraumatic stress scores declined for boys with less severe reports of sexual abuse and were amplified for boys with reports of vaginal/anal intercourse.

Contrary to expectations, peer context did not play a moderating role in the relationship between abuse characteristics and Wave 3-5 posttraumatic stress outcomes. Specifically, changes in posttraumatic stress were stable across social skills and peer rejection. While there is a significant amount of evidence that peer rejection is linked to behavioral problems, much less research has focused on its influence on PTSD, particularly for children who have been maltreated. In their study focusing on the cascading effects of peer rejection and behavior problems during school years, Van Lier and Koot (2010) mention the possibility that peer rejection may not have as strong an influence in late childhood and early adolescence. It's possible this may also be true for PTSD. In contrast, a wider body of research has established a link between cumulative trauma/victimization and PTSD (Cloitre et al., 2009; Finkelhor et al., 2007; Kearney et al., 2010). While the bulk of this discussion centers around PTSD, it's important to note that children with sub-threshold PTSD (i.e., posttraumatic stress symptomatology) can have just as much impairment in functioning as children meeting the full diagnostic criteria for PTSD (Carrion et al., 2002; Richardson et al., 2008). There is growing support for modifying the DSM criteria for PTSD so that it is more developmentally informed and sensitive, particularly in reference to for pre-school and school-age children (Zeanah, 2010) and children exposed to chronic trauma (van der Kolk, 2005). Complicating matters,

posttraumatic stress symptomatology frequently overlaps with behavioral problems as well as a host of other psychiatric disorders (Linning & Kearney, 2004). Maltreated children can present with symptoms that do not fit neatly into one diagnostic category. Consequently, children frequently receive no diagnosis, an inaccurate diagnosis, and/or an inadequate diagnosis from mental health professionals (van der Kolk et al., 2009). Given this evidence, the findings discussed above are surprising. However two bodies of work that may provide some hints: one area of research focuses on coping strategies sexually abused boys may employ (Bal et al., 2003; Bernard-Bonnan et al., 2008; Hebert et al., 2006; Kia-Keating et al., 2010; Merwin, Rosenthal & Coffey, 2009; Simon, Feiring & McElroy, 2010) while the second area focuses on the phenomenon of “sleeper effects” (Briere, 1992). Generally speaking, active coping strategies are associated with better outcomes while avoidant coping strategies are considered maladaptive. Avoidant coping is more common with sexually abused youth (Bal et al., 2003); and in particular for sexually abused boys (Simon et al., 2010). It is also a significant predictor of PTSD (Bal et al., 2003; Bernard-Bonnan et al., 2008; Hebert et al., 2006; Kia-Keating et al., 2010; Merwin et al., 2009; Simon et al., 2010; Steel et al., 2004). Relatedly, some sexually abused children who initially present as asymptomatic develop symptoms of PTSD months or years later; researchers utilize the term “sleeper effects” to refer to this phenomenon (Briere, 2002; Hornor, 2010; Noll, 2008; Putnam, 2003). Developmental milestones, such as puberty, can trigger the emergence or reemergence of PTSD. (Hornor, 2010; Noll, 2008). At Wave 5, a majority of boys in this sample were likely entering or already entered puberty (with a mean age of 12.6 years). It’s possible that this could partially explain the results for Wave 5 posttraumatic stress.

#### **VI.IId. The Moderating Role of Family & Peer Context on Academic Achievement**

Consistent with predictions for Hypotheses 2.4, cumulative family risk moderated the relationship between a series of abuse characteristics and academic achievement, though not

always in the expected direction. Contrary to expectations, co-occurring abuse and more severe sexual abuse were associated with better academic achievement in the context of higher cumulative family risk. In family contexts characterized by high degree of risk, less severe sexual abuse (non-contact and fondling/masturbation) was associated with the lower Wave 3 and 3 academic achievement scores. Finally, the interaction between perpetrator relationship and cumulative family risk was significant. While cumulative family risk appeared to increase risk for academic problems at Wave 4, the reverse was true at Wave 5. As expected, mean academic achievement scores associated with having a parent/stepparent perpetrator were lower for boys with higher levels of cumulative family risk; however at Wave 5 cumulative family risk protected against the negative effects of having a parent/stepparent perpetrator.

Consistent with predictions for Hypotheses, 3.1.4 and 3.2.4, peer context moderated the relationship between abuse characteristics and academic achievement in the expected directions. At Wave 3, co-occurring abuse was associated with poorer academic outcomes among boys with higher levels of peer rejection while social skills buffered against worse academic outcomes. At Waves 4 and 5, having an intrafamilial perpetrator was associated with poorer academic achievement outcomes for boys with higher levels of peer rejection, while better social skills had a buffered the detrimental effect on academic achievement outcomes. At waves 4 and 5, mean academic achievement scores associated with severity of the sexual abuse were amplified for boys with better social skills, indicating that social skills acted as a protective factor. In sum, these results provide some evidence that peer context has an influential role in academic outcomes for sexually abused boys.

Previous research indicates that peer rejection, social skills and other aspects of the peer context are associated with academic achievement (Blandon et al., 2010; Cook, Blaustein,

Spinazzola & van der Kolk, 2007; Leve et al. 2007; Morales & Guerra, 2006; Rogosch et al., 2010). To date, however, sexual abuse research has focuses more on the role of family context and cumulative risk. Given the considerable body of research establishing the association between cumulative risk and academic outcomes (Morales & Guerra, 2006; Rouse & Fantuzzo, 2009; Sameroff, Seifer, Barocas, Zax & Greenspan, 1987; Yates et al., 2010), the results for Hypothesis are unexpected. In the context of cumulative risk and trauma exposure in the home environment, focusing on school may mitigate the deleterious outcomes typically expected. In some cases academic achievement may be a protective mechanism in the relationship between abuse characteristic and psychopathology rather than an outcome. It's also possible that sexually abused boys could have a positive and supportive relationship with their parental caregiver(s) in a family environment characterized by a high degree of risk. This is in accordance with two main principles of the risk and resilience framework. Namely, that the ability to manifest resilience changes over time depending on the child's developmental stage and context and that children can show competence and resilience in one domain and not in others. Understanding the impact of sexual abuse in the academic domain is still an underdeveloped area of research. However, several recent studies illustrate the complex and multifaceted relationship between sexual abuse and academic achievement. Cook et al., (2003) delineate how academic functioning is heavily influenced by a child's capacity to identify, express and adjust their emotional experience. As discussed previously, several longitudinal studies have found bidirectional relationships between internalizing and externalizing problems and academic achievement (Masten et al., 2005; Moilanen et al., 2010; Kim et al., 2003). Finally, given the overwhelming evidence that race/ethnicity differences and poverty impact academic achievement the lack of significant findings for these variables in this study is notable and perhaps indicative of this added

complexity. In child maltreatment research race/ethnicity is frequently confounded with poverty as well as other factors. To date, the role of race/ethnicity and poverty on academic achievement with sexually abused boys is poorly understood. In part this is because concentrating on these larger socio-cultural factors and clarifying their relationship with child sexual abuse can be a thorny issue for researchers (Freisthler, Merritt & LaScala, 2006).

## CHAPTER VII: CONCLUSION

The principle aim of this dissertation was to more fully understand some of the mechanisms that lead to positive and negative developmental outcomes in a nationally-representative, longitudinal sample of sexually abused boys. This chapter begins by discussing larger implications of the findings and offering both multi-systemic and multi-sectoral recommendations for practice, policy and research. It concludes with a review of the main limitations of the current study and offers recommendations for future research.

### VII.I. Implications for Social Work Research and Practice

**Ontogenetic Level Recommendations.** The newly proposed criteria for PTSD in the DSM-5 includes a new category to encompass the dysregulation of emotional states (e.g., fear, anger, guilt and shame as well as dissociation and numbing) that many victims of traumatic events experience (Lanius, Frewen, Vermetten & Yehuda, 2010). While cognitive appraisal, self esteem and self worth, spirituality and/or religion, coping strategies (i.e., active and avoidant), and attribution style (i.e., locus of control and self-blame) all have been shown to contribute to resilient outcomes in sexually abused children (Bal et al., 2003; Chaffin, Wherry & Dykman, 1997; Feiring et al., 2002; Hebert et al., 2006; McGee et al., 1997; Quas et al., 2003; Runyon & Kenny, 2002; Tremblay et al., 1999) surprisingly little research to date has focused how these factors play out for boys. In addition, there is mounting evidence that biological development (i.e., puberty and pubertal timing) and neurobiological development (i.e., brain maturation) can be altered or influenced by stressors such as child maltreatment (Richardson et al. 2008; Toth & Cicchetti, 2006; Twardosz & Lutzker, 2010); this, in turn, can influence behavioral problems, PTSD and academic achievement (Watts-English, Fortson, Gibler, Hooper & De Bellis, 2006). Unfortunately, variables measuring these ontogenetic factors were not available in the NSCAW

dataset. As such, additional research should focus on disentangling the contribution of these processes in promoting resilient outcomes.

**Practice Level Recommendations.** Qualitative studies of adult male sexual abuse victims suggest that in addition to the long term emotional and behavioral problems also common in females, males experience additional unique issues related to fears of becoming or being seen as a potential perpetrator, hypermasculinity or attempts to reassert masculinity, fear of being perceived as a homosexual and confusion about sexual identity (Alaggia & Millington, 2008; Dhaliwal et al, 1996; Romano & De Luca, 2001; Teram et al, 2006). Beyond these mental health and psychosocial consequences of sexual abuse, there is also a well established association between sexual abuse victimization and adverse physical health outcomes in adulthood (Irish et al., 2010; Maniglio, 2009). For example, high risk sexual behaviors are particularly salient for male victims of sexual abuse (Senn, Carey & Venable, 2008) and may represent tension-reduction behaviors delineated in the complex trauma framework. However beyond the limited focus on specialized populations (e.g., studies of men who have sex with men) not much is known with regard to gender differences or racial/ethnic differences. Future research should address the intersection of physical and mental health outcomes for sexually abused boys as well as the underlying processes and mechanisms that may contribute to subsequent physical health risk.

Practice interventions need to be developmentally informed and incorporate processes affecting adjustment at individual, community, and family levels for each developmental time period. This includes focusing on both risk and protective factors relevant to child maltreatment and incorporating them into components of preventions and interventions. For example, interventions targeted at enhancing self-esteem, peer friendships, and positive and nurturing

relationships can occur after a child has been exposed to severe and chronic abuse. Alternatively, when a family identifies as high risk, or a child initially discloses maltreatment, interventions can focus on reducing the likelihood that this child will experience subsequent maltreatment and enhance the attachment relationships with the child's parents. More specifically, multidimensional treatment approaches might include individual counseling focused on strengthening ego resilience, ego control, and self esteem; group counseling focused on enhancing the parent and child's external social support networks; and family counseling that focuses on decreasing negative family characteristics, interactions, and home environment and increases family cohesion, involvement, and warmth.

The findings from this study point to several other areas worthy of attention relative to sexual abuse dimensions. The bulk of research on non-offending parents of sexually abused children focuses on the mother. Very few studies have focused on the role of non-offending fathers and father-figures. This neglect is particularly concerning given that nearly 80% of the boys in this sample were sexually abused by someone other than a father or step-father. Much of our perceptions and our knowledge base about the experience and impact of sexual abuse is based on research and practice experience with female populations. The findings from the current study point to the need to better ascertain the extent to which this applies for males. For example, penetrative sexual abuse and sexual abuse by a parent or relative is almost always regarded as "more severe" in its impact on developmental outcomes in the wider literature. Is penetrative sexual abuse actually more severe for males? What role does betrayal of trust play for boys? Is relationship to the perpetrator the most critical factor or is emotional closeness more important? Are there differences across racial/ethnic groups? As research in this field advances it is important that we also take step back to better answer these kinds of questions.



**Exo- Level Recommendations.** Findings from the current study can also be implemented at the policy and programming level. A public health approach provides a helpful organizing framework. Speaking specifically to the prevention of violence, Krug, Mercy, Dahlberg and Zwi (2002) explain that:

public health can benefit efforts in this area with its focus on prevention, scientific approach, potential to coordinate multidisciplinary and multisectoral efforts, and role in assuring the availability of services for victims. Public health complements existing approaches to violence, which are mainly reactive, by focusing on changing the behavioural, social, and environmental factors that give rise to violence. (p.1083)

O'Donnell, Scott and Stanley (2008) note that child maltreatment is difficult to prevent, as there are risk indicators at individual, family and societal levels to address. It is also difficult to intervene or treat child maltreatment as different sectors have distinct roles and responsibilities for responding to maltreatment. Given this complexity, there is a need for a comprehensive, collaborative, and multisectoral approach for identification, prevention and intervention.” (p. 39).

The creation and growth of Child Advocacy Centers (CACs) in the past decade represents innovative collaborative, multidisciplinary approach to the identification, prevention and intervention of sexual abuse. At CACs all the “key players” a sexually abused child might interact with following a disclosure sexual abuse (e.g., medical professionals, law enforcement, mental health services, victim advocacy services, child protective services and prosecutors) are all housed under one roof and work together. This model represents a promising first step towards building “healing communities” (Brende & Goldsmith, 1991; Chandler, 1993; Perry & Salavitz, 2006) for children and families affected by sexual abuse.

**Macro- Level Recommendations.** Sexually abused boys frequently face very real and entrenched problems—including poverty, domestic violence, community violence and racial discrimination—that place them at higher risk for maladaptive outcomes across multiple domains of functioning. Because high levels of risk may be more potent than protection, it is important that interventions address both risk and protective factors. Programs targeting socio-cultural context can influence more proximal factors related to the prevention and amelioration of maladaptive outcomes in sexually abused boys. Specific macro-level recommendations to target the larger socio-cultural context include: 1) the need to provide training, support and supervision for clinicians and other professionals regarding the unique impact of sexual abuse in males; 2) confronting homophobia and challenging gender role stereotypes and prescriptions of what it means to be a male; 3) address myths about male victimization and sexual abuse victimization; 4) encouraging expert consultation and interdisciplinary collaboration about sexual abuse when needed; and 5) increasing education, outreach and awareness in the public about sexual abuse victimization in males.

## **VII.II. Study Limitations and Recommendations for Future Research**

**Limitations.** As with any study, particularly those that utilize secondary data, limitations are important to consider when interpreting findings and drawing conclusions. The main limitations of this study, discussed below, revolve around: 1) sample; 2) generalizeability; 3) missing data; and 4) measurement issues. While the NSCAW data set oversampled for sexual abused children, the sample size of sexually abused males was relatively small. This may have limited the statistical power needed to detect more significant associations. The overall study sample size was relatively small, there was still sufficient power. The use of a larger sample size may have detected an even greater number of significant interactions, particularly for the

marginally significant findings. It may also have allowed a more thorough analysis of racial/ethnic differences and age differences; most notably, for sexually abused boys under five years of age.

Second, while the NSCAW dataset is nationally representative of children who come into contact with child welfare services, it is not representative of all children in the United States who have been sexually abused. Many children who have been sexually abused are not reported to child welfare services. Frequently this is because they have not disclosed the sexual abuse (Alaggia, 2004; 2005; 2010). Because males are less likely than their female counterparts to disclose, it's important to note that this sample is only representative of boys who have disclosed sexual abuse. Furthermore, the process of disclosure itself can vary (i.e., whether the child self-disclosed the abuse or if it was discovered by someone else) and have a significant impact in and of itself on a child's functioning. Unfortunately, NSCAW doesn't account for the circumstances surrounding the disclosure.

Third, as is frequently the case with longitudinal research, missing data can be a problem. Approximately 50% of the original sample are lost in this analysis because of missing data or attrition. A significant percentage of this is due to data that is missing by design (i.e., children too young to complete specific standardized measures). In terms of the moderating variables, sexually abused boys in the final sample with missing data for peer rejection were more likely to be Hispanic and report non-contact sexual abuse by other relatives (vs. vaginal/anal intercourse by non-relatives). Sexually abused boys with missing data for social skills were more like to be younger in age and more likely to be living with their parental caregivers; none of the abuse characteristics were significant.

Fourth, several measurement limitations exist for this study. The CBCL is completed by the child's caregiver, and as a result may reflect reporter bias. Also, CBCL doesn't fully cover the range of behavioral problems. Self-report measures for posttraumatic stress were only obtained for children over 7 years of age. Many of the measures designed to assess trauma in children do not take into account the age-specific developmental differences in the classification of PTSD. Very few PTSD measures target preschool or very young children. While there is a second version of the TSCC designed for children under 7 years old (e.g., Trauma Symptom Checklist for Young Children) it was not available at the time NSCAW was being designed and is a parent report measure rather than a self-report. The cumulative family risk score was created from child welfare worker report at baseline only. Detailed parental self-report of depression, substance use and domestic violence were also collected but dichotomized.

Finally, despite the significant number of measures available in the NSCAW dataset, some variables of interest to this study were not included. Perpetrator gender, emotional closeness to the perpetrator, maternal belief in the child, self-esteem, self-definition of abuse, attribution style, coping skills and emotional regulation could not be accounted for. Despite these limitations, NSCAW is unique and unprecedented in that it is the first nationally representative, longitudinal, multi-informant sample of children and families coming into contact with child welfare services. As such, this study represents one of the first in depth examinations of the scope and impact of sexual abuse in males in a national probability sample of maltreated children.

**Future Research.** Key findings indicated that cumulative family risk confers greater risk for internalizing problems, externalizing problems, posttraumatic stress and academic achievement; though not always in the expected directions. Social skills buffered the effect of a

range of abuse characteristics on internalizing problems, externalizing problems and academic achievement but not posttraumatic stress. Peer rejection had a more prominent role in influencing internalizing outcomes and academic achievement; however this did not extend to externalizing problems, posttraumatic stress. Family and peer context moderators seemed to play a more central role at the most proximal and distal time points from the baseline report of maltreatment. The results highlight the need to pay closer attention to within group differences for sexually abused boys across socio-demographic (i.e., age, race/ethnicity, SES) and abuse characteristics. Great strides have been made in advancing research approaches that not only reflect the reality of sexually abused boys' experiences, but also tackle the challenges and complexities endemic to high quality research in the child maltreatment field. Nevertheless, there remains a great deal of work to be done in enhancing our understanding of the range of behavioral, emotional, and social consequences associated with being sexually abused that persist, re-emerge and evolve throughout a child's developmental life course. Based on the findings from this study, the next steps involve: 1) incorporating more sophisticated missing data analysis approaches to account for missing data (e.g., multiple imputation); and 2) examining the role of family and peer context using person-centered, longitudinal approaches (such as trajectory models and developmental cascade models) to see if the results can be replicated.

Given the multiple potential explanations for some of the unexpected findings across each developmental outcome in the present study, future research should focus on disentangling the underlying mechanisms that contribute to adaptive and maladaptive outcomes for sexually abused boys. This includes examining the role of: 1) ontogenetic factors such as self-definition of the abuse, cognitive appraisals, emotion regulation, and coping strategies; 2) biological/neurobiological influences such as puberty; 2) subsequent trauma exposure in multiple contexts; 3)

additional aspects related to the sexual abuse experience that this study was unable to examine (i.e., gender of the perpetrator, use of force, timing of the abuse); 4) parent-child relationship factors (i.e., closeness, support, attachment); 5) the influence of gender role socialization; and 6) disaggregating family and peer context variables for more in depth examination. While it's important to continue to utilize nationally representative samples to better understand sexual abuse in males, it's also important to incorporate and qualitative approaches and focus in on specialized populations with higher rates of sexual abuse victimization (e.g., psychiatric populations, homeless youth and incarcerated youth). Once we understand what factors promote or inhibit resilience in sexually abused boys, we can begin to focus multi-systemic preventions/interventions to lower overall risk, strengthen protective mechanisms, and build on the child's intrinsic strengths.

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Appendix A  
Cumulative Family Risk Measure

**Subscale 1. Cooperation**

Q39\*: At the time of the investigation, was there a reasonable level of PPCG cooperation?

Q51\*: At the time of the investigation, was there PPCG involvement in non-CPS services?

**Subscale 2. Secondary Caregiver**

Q14: At the time of the investigation, was there active alcohol abuse by the secondary caregiver?

Q16: At the time of the investigation, was there active drug abuse by the secondary caregiver?

Q31: At the time of the investigation, did the secondary caregiver use excessive and/or inappropriate discipline?

Q37: Was there a history of abuse and neglect of the secondary caregiver?

**Subscale 3. Violence**

Q27: Was there a history of domestic violence against the PPCG?

Q35: Was there a history of abuse and neglect of the caregiver?

Q49: At the time of the investigation, was there active domestic violence?

**Subscale 4. Substance Use**

Q13: At the time of the investigation, was there active alcohol abuse by caregiver?

Q15: At the time of the investigation, was there active drug abuse by caregiver?

Q18: Does caregiver have a recent history of arrests or detention in jail or prison?

**Subscale 5. Health & Mental Health**

Q17: At the time of the investigation, did caregiver have any serious mental health or emotional problems?

Q19: At the time of the investigation, did caregiver have any intellectual or cognitive impairment?

Q21: At the time of the investigation, did caregiver have any physical impairments?

**Subscale 6. Parenting**

Q23: At the time of the investigation, did caregiver have poor parenting skills, such as failure to supervise or monitor children routinely or harsh discipline?

Q25: At the time of the investigation, did PPCG have unrealistic expectations of the child?

Q29: At the time of the investigation, did caregiver use excessive and/or inappropriate discipline?

Q33\*: Did caregiver recognize the problem and show a motivation to change?

**Subscale 7: Family**

Q41\*: At the time of the investigation, was there another supportive caregiver present in the home?

Q43: At the time of the investigation, was there high stress on the family?

Q45: At the time of the investigation, was there low social support?

Q47: At the time of the investigation, did the family have trouble paying for basic necessities such as food, shelter, clothing, electricity, or heat?

## Appendix B Power Analysis

Power	N	Alpha	Beta	Cnt	Ind. Variables Tested
					R2
0.74499	50	0.05000	0.25501	18	0.35
0.87607	60	0.05000	0.12393	18	0.35
0.94601	70	0.05000	0.05399	18	0.35
0.97857	80	0.05000	0.02143	18	0.35
0.99215	90	0.05000	0.00785	18	0.35
0.99732	100	0.05000	0.00268	18	0.35

### Summary Statements

A sample size of 50 achieves 74% power to detect an R-Squared of 0.35 attributed to 18 independent variable(s) using an F-Test with a significance level (alpha) of 0.05000.

A sample size of 60 achieves 88% power to detect an R-Squared of 0.35 attributed to 18 independent variable(s) using an F-Test with a significance level (alpha) of 0.05000.

A sample size of 70 achieves 95% power to detect an R-Squared of 0.35 attributed to 18 independent variable(s) using an F-Test with a significance level (alpha) of 0.05000.

A sample size of 80 achieves 98% power to detect an R-Squared of 0.35 attributed to 18 independent variable(s) using an F-Test with a significance level (alpha) of 0.05000.

### Chart Section

