AN ANALYSIS OF SALIENT RELATIONSHIPS BETWEEN BACKGROUND RISK FACTORS AND PRESENTING SYMPTOMS AMONG CLINICALLY REFERRED PRESCHOOL-AGE CHILDREN

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Submitted to the Graduate Faculty of

the School of Education in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy

University of Pittsburgh

2005

UNIVERSITY OF PITTSBURGH

SCHOOL OF EDUCATION

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DEDICATION

This dissertation is dedicated to **Vaughan Stagg** (1946-2004)
and to my father **Ralph P. Brooks, Jr**.

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The purpose of this study was to analyze the medical records of 167 children who attended an urban early intervention/partial hospitalization program in order to accomplish the following objectives: describe risk factor pervasiveness in the backgrounds of children attending the program; describe the prevalence and severity of externalizing behavior problems (non-compliance, aggression, tantrums) among the children; identify salient relationships between background risk factors and externalizing behavior problems; and test the cumulative risk premise which suggests that a significant, positive relationship exists between the number of risk factors a child is exposed to and the severity of his/her symptoms.

Data was gathered from two items in the children's medical charts: 1) initial psychiatric evaluations, within which the presence or absence of the background risk factors of interest in this study are noted; and 2) monthly treatment plan progress notes, in which progress regarding presenting symptoms are noted.

An analysis of medical record data painted a compelling picture regarding the pervasiveness of risk factors in the children's backgrounds, as nearly 80% of the children within the study were found to be exposed to three or more risk factors (not including poverty). An analysis of the data revealed a significantly high prevalence of children being referred for treatment due to clinically significant behavior problems, as

approximately 80% of the children presented with clinically significant levels of non-compliance and/or aggression. Although clinically significant aggression and non-compliance frequently co-occurred with several background risk factors, no significant, positive correlations were discovered between background risk factors and externalizing behavior problems (when the entire sample was included within the analysis). In addition, a correlational analysis revealed no significant, positive correlations between the number of background risk factors and the severity of certain externalizing behavior problems.

The absence of significant, positive correlations may reflect the need for researchers to attend to contextual details (i.e., severity of exposure, timing of exposure, individual traits) when investigating the effects of exposure to risk factors on children's development. In addition, it is likely that the correlations were partially weakened by the fact that the participants within this study represented a restricted sample (poor, clinically referred preschool-age children).

TABLE OF CONTENTS

List of Tables

1. INTRODUCTION

Several years ago, immediately after receiving a Masters' degree in School Counseling, I was offered the opportunity to work as a mental health clinician at an urban early intervention/partial hospitalization program. Although I had no clinical experience working with preschool aged children, armed with little more than my newly minted M.Ed degree, I was nonetheless confident in my ability to understand and effectively treat the children's problems. As it turned out, I was mistaken to believe that I was adequately prepared to work with these children. As early as my first day on the job, I encountered a young boy who presented with a number of significant and severe maladaptive behaviors. This encounter, as well as my observations of other children in the program, quickly alerted me to my naïvete regarding the level of clinically significant maladaptive behaviors of toddler- and preschool-age children. Specifically, I had never known that children so young were capable of exhibiting such high, intense levels of non-compliant, aggressive, and tantrumming behaviors. I possessed an inadequate understanding of the possible causes for these behaviors, and was, therefore ineffective in responding to these behaviors. Apart from providing me with a painful dose of humility, I soon realized the practical limitations of my ability to effectively respond to the task at hand. This "trial by fire" prompted me to learn (and quickly) as much as I could about the etiologies and treatments related to maladaptive behaviors in early childhood. Despite the initial lesson of humility, I did end up working within the program for close to three years.

As a direct result of my experiences working in the program, two of my ongoing professional objectives became to remain steadfast in my commitment to better understand the influences on young children's development and maintenance of maladaptive behaviors, and to help others (*e.g.,* teachers, parents, students) learn more about the causes of, and effective treatments for, young children's behavior problems. The general objective of this study is to analyze medical record data that had been gathered over twelve years from an urban early intervention/partial hospitalization program in order to see what could be revealed about the pervasiveness of background risk factors and the severity of externalizing behavior problems (non-compliance, aggression, tantrums) among clinically referred preschool-age children. A more specific objective of this study was to investigate the links between specific background risk factors and certain externalizing behavior problems.

1.1. Background of the Problem

The steady growth within the field of developmental psychopathology seems to reflect the importance of better understanding the different causes and trajectories of maladaptive developmental patterns among both adults and children (Cummings, Davies, & Campbell, 2000). Lewis (2000) defines developmental psychopathology as "the study and prediction of maladaptive behaviors and processes across time" (p. 3). The principal objective related to the study of maladjustment is to establish effective preventive and treatment interventions within different stages of the developmental process (Costello & Angold, 2000). However, prior to achieving this objective, it is essential that the pathways leading to maladjustment be clearly understood (Sameroff, Gutman, & Peck, 2003; Wicks-Nelson & Israel, 2003). It has been determined that the study of the pathways, processes and the manifestations of maladjustment across the life span requires that acute attention be placed on the individual's experiences and functioning within each developmental stage (Cummings et al., 2000). Although maladjustment within all developmental stages has received a great deal of interest among researchers and clinicians, the study of maladjustment among young children seems to be of particular importance within the fields of mental health and education (Keenan & Wakschlag, 2002).

In a conference on children's mental health in the year 2000, the Surgeon General asserted the need to identify the early indicators of mental illness, to support research in developmental psychopathology, and to more efficiently identify the mental health needs of young children (Satcher, 2000).

In addition to the ways in which clinically significant problems among young children can serve to disrupt family functioning, place a strain on the parent-child relationship, and impair peer relationships (Wicks-Nelson & Israel, 2003), there is mounting evidence that disturbances in early childhood may very well signify a precursor to more severe problems in adolescence and/or adulthood (Cummings et al., 2000). Hence, additional clinical significance has been attached to maladjustment within early developmental stages. Because the link between early developmental disturbances and later mental illness continues to gain strong empirical support, there exists a pressing need to better understand the nature (*i.e.,* etiology, pathways) of young children's problems in order to develop more effective means of identifying, assessing, treating, and eventually preventing early maladjustment (Mrazek & Haggerty, 1994).

Thus far, research endeavors related to the study of psychopathology among young children have attempted to investigate various issues including the prevalence, etiology, correlates, trajectory, and effective treatments for different manifestations of mental illness (Cummings et al., 2000). Clinically, the problems for which young children are referred to professionals for help include various disruptions in behavioral, psychological, social, emotional, and cognitive functioning (Mash & Barkley, 1998). Considering the growing number of clinically significant childhood dysfunctions, gaining an extensive understanding of how dysfunctions develop, as well as understanding how to reliably assess, treat, and ultimately prevent childhood problems, constitute significant challenges for both researchers and clinicians (Mash & Dozois, 1996). A pertinent question prior to embarking on the long, arduous process of understanding the causes and pathways of maladjustment in early childhood may be "Where should we look first?"

Often, the initial stage in the development of a disorder is considered to be an individual's exposure to one or several risk factors (Costello & Angold, 2000). The term used for a variable believed to elevate an individual's susceptibility to developing behavioral difficulties or other developmental impairments is known as a "risk factor" (Wicks-Nelson & Israel, 2003). Risk factors believed to elevate children's susceptibility to developmental problems have received the attention of clinicians and researchers. Such factors include constitutional factors (*e.g.,* genetic loading for mental illness, nutrition, prenatal exposure to illicit drugs and alcohol), familial factors (*e.g.,* exposure to family violence, exposure to parental drug use, incarceration of parent), ecological factors (*e.g.,* exposure to community violence, impoverishment), and other non-normative life stressors (*e.g.,* history of abuse and/or neglect, history of foster care)

(Coie et al., 1993).

Though the identification of influential risk factors is considered an integral part of understanding the possible causes and pathways of developmental problems, a thorough comprehension of causation and trajectory also requires an understanding of the underlying processes and mechanisms through which exposure to risk factors can lead to negative developmental outcomes (Wicks-Nelson & Israel, 2003). Hence, it has been suggested that research endeavors investigating risk factors should attempt to address the causal or mediating role of specific risk factors, as well as make efforts to describe the underlying processes through which a risk factor can influence the onset, intensity, or longevity of a disorder (Coie, Miller-Johnson, Bagwell, 2000).

With regard to understanding the processes underlying risk factor-developmental outcome links, it might be easiest to look at the effects that certain risk factors can have on specific human adaptational systems. Believed to be the result of biological and cultural evolution, human adaptational systems provide humans with powerful tools for adaptive functioning (Masten & Powell, 2003). It has been suggested that developmental difficulties are the result of impairments to human adaptational systems (Masten & Powell, 2003). Examples of human adaptational systems include "attachment (systems underlying close relationships), mastery motivation (pleasure from mastering developmental tasks; self-efficacy system), self-regulation (emotional and behavioral regulation, impulse control), and cognitive development and learning (neurobehavioral systems; information systems)" (Masten & Powell, 2003) (p. 14).

Similar to the variance found among young children's development within different developmental domains, there is variance in the development of children's adaptational systems. In addition, just as with other aspects of children's development, children's adaptational system development can influence, and be influenced in various ways by, environmental factors, including risk factors (Masten & Powell, 2003). Hence, it is not unusual for different children's adaptational systems (*e.g.,* attachment systems, self-regulatory systems), to affect or be affected by risk factor exposure in vastly different ways. Specifically, children's adaptational systems can potentially mediate, moderate, or even buffer the effects of risk exposure.

In the following section, a review of the literature concerning several pertinent risk factors and theories regarding the underlying processes between risk factors and presenting symptoms are presented and discussed.

1. LITERATURE REVIEW OF RISK FACTORS AND UNDERLYING PROCESSES

2.1. Theorized Underlying Processes between Risk Factors and Developmental Disruptions

2.1.1. Human Adaptational Systems

A review of risk research literature has revealed that the systems that seem to have received the most attention have been the attachment, self-regulatory (*e.g.,* emotional regulation, behavioral regulation) systems, and neurobehavioral systems. Therefore, these systems will be briefly described in this section.

2.1.1.1. Attachment Systems

It is popularly believed that certain parental characteristics (*e.g.,* mental illness, substance abuse), family dynamics (*e.g.,* domestic violence), and environmental factors (*e.g.,* poverty) can place a significant strain on the parent-child relationship (Greenberg, Speltz, & DeKlyen, 1993). In terms of children's attachment systems, it is believed that children's attachment patterns originate from caregiver-child transactions early in the child's life (Ainsworth, Blehar, Waters, & Wall, 1978) and that the nature of the parent-child relationship during infancy and toddlerhood is a significant influence in children's personality, behavioral, and socio-emotional development (Greenberg, Speltz, & DeKlyen, 1993). According to Bowlby(1969, 1982), early attachment experiences influence later development by effecting the views or "internal working model" that children develop about themselves and others. Secure attachments are associated with more favorable working models of the self and other, whereas insecure attachments are often related to less than positive views of self and others. It is believed that internal working models serve as the basis for future relationships (Griffin & Bartholomew, 1994) and subsequently effect children's interactions with others (Thompson, 1998).

Based on their internal working models, children develop perceptions of their self-worth and the availability of others, which are manifested in their behavioral and emotional responses to life situations. In cases where parents are consistently rejecting, unresponsive to the child's needs, and abusive, it is theorized that children are likely to develop internal working models of others as insensitive or unavailable, as well as foster models of the self as unworthy of love and attention (Belsky & Cassidy, 1984). Hence, children who have learned to see others as insensitive or unavailable and themselves as unworthy will exhibit maladaptive emotional and behavioral responses which will, in turn, elicit treatment from others that support their internal working model (Bowlby, 1982; Bretherton, 1985; Main, 1995).

Indeed, children with insecure attachments have been found to exhibit more disruptive behaviors, off-task behaviors, have poorer social skills, exhibit lower frustration tolerance, and express a narrower range of emotions than securely attached children (Bohlin, Hagekull, & Rydell, 2000; Cohn, 1990; Sroufe, 1996).

2.1.1.2. Self Regulatory Systems

Self-regulatory systems are believed to exist within several developmental domains including the emotional, behavioral, physiological, and cognitive domains (Cicchetti &

Rogosch, 1996; Porges, 1996). Regulation within these domains is often interdependent. (Calkins, Smith, Gill & Johnson, 1998; Porges, 1996). In general, behavioral and emotional regulation refers to processes through which humans are able to manage arousal and support adaptive social and nonsocial responses (Calkins, 1994; Thompson, 1998). It has long been suggested that deficiencies in emotional and behavioral regulation underlie the adjustment problems experienced by young children.

Emotion regulation systems consist of various critical skills and processes that are central to children's adaptive functioning (Hyson, 1994). Emotion regulation refers to the ability to: "inhibit inappropriate behavior related to strong positive or negative emotion; soothe oneself or calm oneself down when highly emotionally aroused; use emotional states to focus or regulate attention; coordinate feelings, thoughts, and actions in the service of important goals; use emotions to influence others' feelings and actions; and follow cultural standards for the display of emotions" (Dunn & Brown, 1991; Katz & Gottman, 1991 in Hyson, 1994) (p. 147).

Specifically, children's abilities to regulate emotions have been found to be critical in terms of their social, behavioral, and psychological functioning (Block & Block, 1980; Eisenberg et al., 1997; Hubbard & Coie, 1994). It has been suggested that by the age of three, emotional regulation patterns may be firmly established to the degree that they can significantly influence early personality development and social interaction skills, as well as contribute to problematic patterns of behavior including patterns of aggressive, defiant and other disruptive, externalizing behaviors (Calkins, 1994; Cicchetti, Ganiban, & Barnett, 1991; Cole, Michel, & O'Donnell, 1994; Stifter, Spinrad, & Braungart-Rieker, 1999). It is believed that externalizing behavior problems may emerge when emotion is under-controlled, whereas internalizing problems may occur when emotion is over-controlled (Garber & Dodge, 1991).

The quality of parents' own emotion regulation abilities influences their responses to their children and has been linked to identifiable patterns in their children's behavioral and socioemotional functioning (Eisenberg, Fabes, Carlo, & Karbon, 1997; Hooven, Gottman, & Katz, 1996). When parents are observed as having difficulty controlling anger and hostility, young children are more likely to experience problems associated with poor emotion regulation (Eisenberg et al., 1997). Hence, children who experience physical abuse or who are exposed to domestic violence are at particular risk for disruptions to their emotional regulation systems (Davies & Cummings, 1994; Dodge, Petit, & Bates, 1997). In addition, factors believed to impair parents' abilities to regulate emotion include the effects of mental illness, substance abuse, and the stresses of poverty (Dube et al., 2001; Lovejoy, Graczyk, O' Hare, & Neuman, 2000; Owens & Shaw, 2003).

In the context of young children's adaptive functioning, behavioral regulation refers to the child's ability to direct behaviors toward compliance with verbal requests, to adhere to situational demands, control impulsive responses, delay gratification, and monitor behavior (Kopp, 1982; Kuczynski & Kochanska, 1995). As it is, expectations to regulate behavior are often placed on children during toddlerhood. Objectives related to young children's behavioral regulation are typically impulse control, learning how to suspend desired activity in order to meet external demands, and compliance with adult requests (Kopp, 1982).

As is the case with emotional regulation, behavior regulation strategies are often learned from modeling the behaviors of caretakers. Hence, it is believed that various risk factors, including parental mental illness, substance abuse, and domestic violence, can affect the development of children's behavioral regulation through the influence that those factors can have on parenting behaviors (*e.g.,* impaired self-control, inconsistent monitoring of child behaviors) (Frick, 1994; Gottman & Katz, 1989). Children who learn behavior control strategies within the context of disruptive, chaotic, unresponsive, and generally aversive circumstances at home will undoubtedly be more susceptible to exhibiting similar problematic patterns of behavior within their relationships with peers and adults (Dishion et al., 1994).

2.1.1.3. Link between attachment and self-regulation systems

It is strongly believed that attachment plays a significant role in the development of children's self- regulation within both social and nonsocial contexts (Cassidy, 1994). A young child's efforts to maintain proximity to an attachment figure requires the utilization of emotional and/or behavioral regulation systems (Mikulincer, Florian, & Tolmacz, 1990). Through the child's experiences with parents, patterns/strategies of emotional and behavioral responses are established by the child according to his/her internal working model (Goldberg, Grusec, & Jenkins, 1999). These strategies are indicative of the child's understanding of the influence of his/her emotional and behavioral responses and how responses from others are appraised (Johnson & Whiffen, 1999).

If a caregiver is warm, available, and responsive then emotions and behaviors will be regulated with strategies that involve seeking comfort and support (Ainsworth, Blehar, Waters, & Wall, 1978). When a caregiver is often emotionally unavailable or rejecting, the child may develop strategies that signify a de-valuation of the importance of attachment. Such strategies often involve the child's inhibition or restriction of emotion. (Allen, Moore, & Kuperminc, 1997). When a caregiver is inconsistently responsive, the child may develop an ambivalent-insecure attachment characterized by the child becoming hyper-vigilant and using emotional regulation strategies intended to induce emotion (often fear or anger) in the caregiver. Insecure attachment styles are believed to interfere with a child's ability to regulate emotion and maintain exploration and self-confidence in novel situations (Magai, 1999). It has been suggested that problems related to attachment and self regulation established in early childhood often continue into adolescence (Huizinga, Loeber, & Thornberry, 1994).

2.1.1.4. Neurobehavioral Systems

In addition to the significant amount of attention that has been directed toward the effects that certain prenatal conditions (*e.g.,* drug exposure, maternal stress, nutrition) can have on neurodevelopment (Espy, Riese, & Francis, 1997), there is increasing interest in the effects that post-natal environmental conditions can have on children's neurodevelopment (Perry, 1997; Perry et al., 1995). In particular, there is a growing sentiment that repeated exposure to violence early in a child's life can disrupt neurological system development (Gorman-Smith & Tolan, 2003). Specifically, there is evidence that persistent, intense environmental input can result in the overstimulation of certain brain structures, which can potentially impair a child's ability to regulate arousal

(Perry, 1997; Weiss & Wagner, 1998). Therefore, young children who experience physical abuse or are exposed to domestic violence are at increased risk for such disruptions to their neurodevelopment (Perry, 1997).

One prenatal condition that can disrupt neurobehavioral functioning related to arousal regulation is prenatal exposure to cocaine (Mayes et al., 1996). It has been hypothesized that disruptions to arousal regulation can contribute to manifestation of a variety of problematic behaviors including inattentiveness, impulsivity, inappropriate response to stress, and hyperactivity (Karmel, Gardner, & Freedland, 1996; Mayes, 1999; Singer, 1999).

2.1.1.5. Additional Comments Regarding Adaptational Systems

In the context of risk research, an important goal is to identify the specific risk factors or sets of factors that can potentially impair these and other adaptational systems. As a result of achieving such a goal, preventive interventions should be geared toward protecting these adaptational systems, whereas treatments should aim toward strengthening these systems.

In order to maximize potential positive outcomes for children, it is optimal that the design and implementation of appropriate interventions and social policies which address the adverse effects of various risk factors should stem from a clear understanding of specific risk factor-adverse developmental outcome links, as well as the processes underlying those links.

2.2. Risk Factors

Due to the considerable number of risk factors that have, over the years, been hypothetically linked to deleterious outcomes, it was necessary to limit the number of risk factors addressed within this project. The process of deciding which risk factors to include within this study consisted of both extensive consultations with various child psychiatrists and mental health clinicians who work with young children and an exhaustive search of the risk research literature. For the most part, the risk factors included in this project have been recognized and endorsed as significant by mental health clinicians and empirically supported by the research literature. These risk factors include physical abuse, neglect, sexual abuse, exposure to domestic violence, parental mental illness (depression), parental abuse of drugs/alcohol, children's prenatal exposure to drugs/alcohol, parental incarceration, history of foster care, and having an adolescent as a parent. Putative risk factors included within the study, but not within the literature review, are absence of biological mother and absence of biological father. An exhaustive search of risk research literature revealed no reliable empirical data related to the effects of these two life events.

Reviews of each risk factor will include a review of research findings regarding the effects of the risk factor on different developmental domains, as well as theories regarding the underlying processes/mechanisms linking risk factors to developmental outcomes.

2.2.1. Child Maltreatment

"To grow into competent and productive adults, children must learn to regulate their emotions and their behavior, to form a coherent, positive sense of self, and to form and maintain relationships with other people" (Bolger & Patterson, 2003) (p. 156).

Recent estimates have suggested that 1 out of 43 children in the United States have experienced some form of maltreatment perpetrated by a parent or primary caregiver (United States Department of Health and Human Services, 1996). Maltreatment situations are typically organized into four major categories which are physical abuse, child neglect, sexual abuse, and emotional/psychological abuse (Azar & Wolfe, 1998; Kolko, 1996; Lutzker, 2000). Belsky (1993) suggests that caregivers who maltreat children often perpetrate more than one type of maltreatment. The developmental impact of the different types of child maltreatment has become more clearly understood as a result of extensive research (Azar & Wolfe, 1998). It has been estimated that as many as 60% to 70% of children clinically referred for behavior or conduct problems have a history of maltreatment (Kauffman, 1997; Mattison, Morales, & Bauer, 1992). In addition, childhood maltreatment has been linked to later occurrences of antisocial personality disorder, substance abuse, anxiety, and depression (Luntz & Widom, 1994; Malinosky-Rummell, & Hansen, 1993). It should be noted that although there has been much progress regarding research on the psychological impact of child maltreatment, this progress has not been accompanied by similar progress in treatment (Azar & Wolfe, 1998). Based on the high financial and human expenditures associated with child maltreatment, the development of efficient preventive and treatment measures is vital (Daro, 2000). In this section, three types of maltreatment (physical abuse, neglect, sexual abuse) will be covered.

According to clinicians at the early intervention/partial hospitalization program, psychological/emotional abuse is infrequently reported within the accounts of the children's developmental histories. Hence, psychological/emotional abuse (as an independent maltreatment type) will not be included within this literature review or within the study.

2.2.1.1. Physical Abuse

Physical abuse is characterized by aggressive behaviors exhibited by a caregiver, which can cause death, serious physical harm, or imminent risk of serious harm to children (Kolko, 1996; Lutzker, 2000). Physical abuse has been identified as the primary concern in approximately 25% of all reported child maltreatment cases (McCurdy & Daro, 1994; United States Department of Health and Human Services, 1996). Physical abuse during early childhood has been associated with various deleterious developmental outcomes (Skuse & Bentovin, 1994). In addition to frequently co-occurring with other types of maltreatment, physical abuse tends to co-occur with other environmental threats such as poverty, domestic violence, parental mental illness, and parental substance abuse (Cicchetti, Toth, & Maughan, 2000; Kolko, 1996; Lynch & Cicchetti, 1998).

With regard to the behavioral functioning of abused children, there is substantial evidence that physical abuse can be a contributing factor in the manifestation of various behavioral problems (Dodge, Petit, Bates, & Valente, 1996; Thompson & Wyatt, 1999). Relative to non-abused children, it has been found that children with a history of abuse exhibit higher levels of clinically deviant behaviors, non-compliant behaviors, aggression, poorer self control, and more frequent expressions of anger (Dodge et al., 1996; Egeland, 1991; Erickson, Egeland, & Pianta, 1989; Kolko, 1992). Socially, abused children have been found to be more aggressive (Howes & Eldredge, 1985) and disruptive (Bolger, Patterson, & Kupersmidt, 1998) than non-abused children. In addition, children with a history of physical abuse, as compared to non-abused children, tend to exhibit poorer social problem solving skills, limited empathic capacity (Kolko, 1996; Malinosky-Rummell & Hansen, 1993), and are more likely to be rejected by peers (Bolger et al., 1998; Dodge, Petit, & Bates, 1994). Emotionally, there is evidence of an association between physical abuse and depressive symptoms (Toth, Manley, & Cicchetti, 1992). Children with a history of physical abuse also appear to be more susceptible to lower levels of self-esteem according to both self-report measures (Allen & Tarnowski, 1989) and parent-report measures (Kaufman & Cicchetti, 1989). Cognitively, children with a history of abuse have been found to perform more poorly in school, on standardized tests, and tests of verbal ability, comprehension, and math ability than non-abused children (Eckenroad, Laird, & Doris, 1993; Kolko, 1996; Kurtz, Gaudin, Wodarski, & Howing, 1993). Clinically, physically abused children have been found to receive significantly higher rates of DSM-IV diagnoses such as ADHD, ODD, and posttraumatic stress disorder (PTSD) as compared to non-maltreated children (Famularo, Kinscherff, & Egeland, 1992).

The processes believed to underlie the link between physical abuse and various deleterious outcomes are related to disruptions in one or more of the following adaptional systems: attachment, self-regulation (emotional and behavioral regulation), and neurobehavioral systems.

In terms of how physical abuse can disrupt neurobehavioral systems, it has been shown that children who are persistently subjected to intense, adverse environmental input are quite susceptible to disturbances in their neurological development due to an over-stimulation within certain brain structures (Perry, 1997; Weiss & Wagner, 1998). Such disturbances within the brain can serve to impair a child's ability to respond appropriately to situational demands (Perry, 1997). For example, abnormalities within the hippocampus are believed to result in difficulties with memory integration and verbal skills (Bremner et al., 1997) and have the potential to result in delayed cognitive development and poor academic functioning (Margolin & Gordis, 2000).

A subsequent effect of disruptions to a child's neurobehavioral system can include altering the timing of normal emotional and behavioral trajectories, which can result in the manifestation of problematic behaviors (Boney-McCoy & Finkelhor, 1995). According to this theory, physical abuse may initially result in difficulties related to poor emotion regulation, which can eventually result in problematic behaviors if such difficulties disrupt progression through age-appropriate developmental tasks (Margolin & Gordis, 2000). An example of this process would be a physically abused child, whose impairments to emotion regulation systems results in the onset of regressive symptoms (*e.g.,* increased bedwetting, social withdrawal, separation anxiety), which can serve to adversely affect a child's socialization and school performance (Margolin & Gordis, 2000; Osofsy, 1995).

Social learning theory (Bandura, 1977) offers another possible explanation of how physical abuse can disrupt a child's emotional and behavioral regulation systems. Social learning theory suggests that through the observational learning process, a child exposed certain behaviors is susceptible to modeling the same behaviors (Bandura, 1986). In the context of experiencing physical abuse, children are provided maladaptive models of emotional and behavioral regulation. Hence, a physically abused child may become predisposed to accept emotional instability and aggression as the norm within social or interpersonal situations (Dodge, Petit, & Bates, 1997; Youngblade & Belsky, 1990).

Attachment theory (Ainsworth & Wittig, 1969; Bowlby, 1980) represents another school of thought regarding the process through which physical abuse may lead to adverse outcomes for children (Youngblade & Belsky, 1990). One of the relevant tenets of attachment theory is that children's attachment relationships with primary caregivers shape their internal working model of self/self concept and social relationships with others (Youngblade & Belsky, 1990). Since abusive parenting has been linked to insecure patterns of attachment among physically abused children (Egeland & Sroufe, 1981), it is believed that disturbances to children's sense of self and relationships with others can be attributed to a skewed internal working model typical for children with insecure attachments. Indeed, children with insecure attachments have been found to exhibit more disruptive behaviors, off-task behaviors, have poorer social skills, exhibit lower frustration tolerance, and express a narrower range of emotions than securely attached children (Bohlin, Hagekull, & Rydell, 2000; Sroufe, 1996).

2.2.1.2. Neglect

Child neglect occurs when children's physical or emotional well-being is compromised by a caregiver's failure to provide shelter, clothing, food, and protection (Lutzker, 2000). Physical neglect represents the predominant type of child maltreatment, as it has been stated to be the primary concern in 45% to 50% of all reports of child maltreatment (McCurdy & Daro, 1994; U.S. Department of Health and Human Services, 1996). Risk factors found to frequently co-occur with neglect include placement in foster care, poverty and parental pre- and postnatal substance abuse (Pelton, 1995; Polansky, Chalmers, Buttenwieser, & Williams, 1981).

There is strong empirical support for the contention that neglected children are susceptible to experiencing significant disruptions within various developmental domains (Azar & Wolfe, 1998). With regard to their social development, children who have a history of neglect are more socially withdrawn and avoidant (Crittenden, 1992; Hoffman-Plotkin & Twentyman, 1984) and tend to struggle more with social tasks or interpersonal situations than both physically abused and non-abused peers (Egeland, Sroufe, & Erickson, 1983). Behaviorally, it has been found that some neglected children have a tendency to exhibit overly passive behaviors, whereas other neglected children have been observed to display sudden angry outbursts and noncompliant behaviors (Erickson & Egeland, 1996). Emotionally, neglected children are often observed as having lower self-esteem, a diminished sense of self-efficacy, are less secure and emotionally stable, as well as displaying more general unhappiness as compared to non-neglected peers (Eckenrode, Laird, & Doris, 1993; Erickson, Egeland, & Pianta, 1989; Trickett &

McBride-Chang, 1995). Cognitively, neglected children have been found to be at an increased risk for exhibiting deficits on both intelligence and language ability assessments (Crouch & Milner, 1993), as well as being susceptible to poor academic performance (Eckenrode, Laird, & Doris, 1993).

In the study of child maltreatment, a majority of the theoretical work has focused on physical abuse, so theories related to the processes underlying neglect and deleterious outcome links is relatively limited (Wekerle & Wolfe, 1996). However, it has been suggested that parental neglect can serve to disrupt attachment and emotional regulation systems.

In terms of parent-child attachment, it has been found that neglected children are more likely to exhibit anxious and disorganized attachment patterns, which can account for impairments to their socio-emotional functioning (Trickett & McBride-Chang, 1995). It has been found that such difficulties in early attachment have been linked to impaired developmental abilities within the first two years of life, including disruptions to speech and language development (Egeland & Farber, 1984; Egeland & Sroufe, 1981).

With regard to children's emotion regulation systems, it is believed that neglectful parenting can serve to disrupt emotional regulation systems based on how children initially learn how to regulate emotion within the context of the caregiver-child relationship and a neglectful relationship provides no such context (Gaensbauer, Mrazek, & Harmon, 1980). There is evidence that neglected children more often present with a blunted affect (very little positive or negative affect) (Gaensbauer & Hiatt, 1984). Cicchetti and Toth (1995) indicate that disruptions to a child's ability to regulate emotion can have implications for his/her socio-emotional functioning.

2.2.1.3. Sexual Abuse

Sexual abuse of young children represents an issue of great concern within our society (Black, Dubowitz, & Harrington, 1994). Sexual abuse of a child occurs when a caregiver engages in sexual activity with a child (Berliner & Elliot, 1996). What is considered sexual abuse ranges from relatively minor events (*e.g.,* invitations for sexual contact or inappropriate sexual touching of a clothed child) to very serious events (*e.g.,* penetration, intercourse) (Wolfe, 1998). It has been estimated that 27% of females and 16% of males experience at least one incident of sexual abuse over the course of childhood or adolescence (Timnick, 1985 in Wolfe, 1998; Finkelhor, Hotaling, Lewis, & Smith, 1990). Sexual abuse has been identified as the primary concern for 10% to 20% of all reported child maltreatment cases (McCurdy & Daro, 1994; U.S. Department of Health and Human Services, 1996).

Although it has been found that 30% of sexually abused children display clinically significant problems within the first several months after reporting the abuse (Wolfe, Gentile, & Wolfe, 1989), it has been found that 20% to 50% of sexually abused children display no obvious symptoms upon assessment (Kendall-Tackett, Williams, Finkelhor, 1993). It should also be noted that children who experience sexual abuse frequently report a history of exposure to other risk factors including physical abuse, psychological abuse, neglect, and exposure to domestic violence (Wolfe, 1998).

It has been strongly asserted that sexual abuse can have numerous detrimental short-term and long-term effects on various aspects of child development. Behaviorally, there is evidence that sexually abused children more often display a range of behavior problems including hyperactivity, noncompliance, sexually acting out behaviors, and aggression than non-sexually abused children (Cohen & Mannarino, 1996; Deblinger et al.,1989; Glod & Teicher, 1996; Wolfe & Birt, 1995). Emotionally, children who experience sexual abuse have been found to report higher rates of depressive symptoms (*e.g.,* persistent sadness) anxiety, rage, and anger (Conte & Schuerman, 1987; Terr, 1991). Socially, sexually abused children have been discovered to be less socially competent (Trickett, McBride-Chang, & Putnam, 1994) and are more prone to interpersonal relationship problems and mistrust of others (Terr, 1991). Cognitively, sexual abuse has been linked to lower school achievement (Einbender & Friedrich, 1989) and lower verbal ability (Trickett, McBride-Chang, & Putnam, 1994). Clinically, it is believed that children who experience sexual abuse are more susceptible to the onset of a wide range of psychiatric disorders including depression, schizophrenia, eating disorders, and dissociation (Everill & Waller, 1995; Mullen, 1993; Ross, Anderson, & Clark, 1994). In addition, experiences of sexual abuse havd been strongly linked to Posttraumatic Stress Disorder (PTSD) symptoms (Wolfe, 1998).

Several underlying processes linking sexual abuse to adverse outcomes have been suggested including impairments to neurobehavioral, self-efficacy, and behavior regulation systems.

With regard to possible impairments to neurobehavioral systems, Wolfe (1998) proposes that sexual abuse represents a potentially traumatic occurrence in the lives of children, which can potentially serve to disrupt the brain development of young children. Perry and others (1995) state that infants and young children are particularly at risk for long-term shifts in neural processes following trauma. Perry and others (1995) allude to how during traumatic events, the sympathetic nervous system is excited by the influx of norepinephrine, which results in increased heart rate, blood pressure, respiration, and hyper vigilance. According to this pathway, the long term effects of repeated traumas can contribute to children being stuck in a constant state of arousal, typified by hyperactivity and emotional sensitivity (Wolfe, 1998). It has been suggested that physiological hyper- arousal can also serve to impair children's ability to regulate emotion (Friedrich, 1996).

In terms of impairing the self-efficacy system, Wolfe (1998) contends that sexually abused children often exhibit a self-deprecatory attribution style. In the case of sexual abuse, a self-deprecatory attribution style would be characterized by the abused child attributing the cause of the abuse to himself/herself. Children with a self-deprecatory attribution styles often blame themselves for the abuse. Self-deprecatory attribution styles are related to a skewed self-concept and depressive symptomatology (Seligman et al., 1994), both of which have been found to occur more frequently among sexually abused children (Wolfe, 1998).

As for how sexual abuse can affect a child's behavior regulation system, Tharinger (1990) suggested experiences of sexual abuse can predispose children to model the behaviors observed within the abuse. Hence, a sexually abused child may become predisposed to view certain sexual behaviors as a norm within social situations, which can explain the sexually acting out behaviors often witnessed among victims of sexual abuse.

2.2.2. Parental Substance Abuse

Addiction to alcohol and drugs represents a significant issue within the United States, as it has been estimated that approximately 10% of American adults are addicted to alcohol and/or other drugs (U.S. Department of Health and Human Services, 1993). Current estimates in the United States indicate that approximately 6 million children live with at least one substance-abusing parent (Mrazek & Haggerty, 1994).

Children of alcoholic parents have been found to be a vulnerable population due to how parental alcoholism can effect family functioning and how it frequently co-occurs with other risk factors (Johnson & Leff, 1999). For example, it has been found that children living within a home where at least one parent is abusing alcohol often experience other risk factors including prenatal exposure to alcohol, abuse, neglect, parental mental illness, parental abuse of illicit substances, and exposure to family violence (Dube et al., 2001; Sher et al., 1997; Steinhausen, 1999; US Department of Health and Human Services [HHS], 1997). In addition, it has been estimated parental alcohol abuse is a factor in 30% of child abuse cases and that alcohol inebriation has played a significant role among perpetrators within 60% of domestic violence cases (Collins & Messerschmidt, 1993; US Department of Health and Human Services [HHS], 1997). Recent estimates have suggested that between 11 and 17.5 million children and adolescents live with an alcoholic parent (Windle, 1997).

Although there is a strong sentiment that children of drug addicted parents represent a population at risk for various developmental problems including mental illness (van Baar, 1999), relatively little is known about the developmental trajectories of children of heroin addicts, cocaine abusers, or polydrug abusers (Johnson, Boney, & Brown, 1990; Johnson & Leff, 1999). The concentration of most of the research on drug-using parents has been on the effects of prenatal exposure rather than postnatal exposure (Schuler, Nair, & Black, 2002). Currently, the most common illegal drugs that drug-addicted parents use include cocaine, heroin, marijuana, and amphetamines (van Baar, 1999). A child's exposure to a parent's drug addiction is often accompanied by the presence of other potentially influential risk factors including a history of prenatal drug exposure, poverty, parental arrest and incarceration, parental mental illness, physical abuse, neglect, history of foster care, and exposure to domestic violence (Kandel et al., 1997; Nurco et al., 1995; van Baar, 1999; Wasserman & Leventhal, 1993).

Numerous studies have found links between parental alcoholism and a greater susceptibility to a variety of deleterious behavioral, emotional, and psychological outcomes (Steinhausen, 1999). Several studies have yielded findings linking parental alcoholism with a higher frequency of disruptive behaviors among children (Earls, Reich, Yound & Cloniger, 1988; Reich, Earls, Frankel, & Shayka, 1993). Socially, children of alcoholic parents have been found to be more susceptible to impairments in social skills (Steinhausen, Gobel, & Nestler, 1984). Emotionally, children of alcoholic parents have been found to exhibit higher levels of anxiety and depressive symptoms, low self-esteem, and low self-efficacy (Steinhausen, Gobel, & Nestler, 1984; von Knorring, 1991;West & Prinz, 1987). Clinically, it has been found that, compared to children of non-alcoholic parents, children of alcoholic parents parental are more frequently diagnosed with several mental health disorders including depressive disorders, anxiety disorders, ADHD, and ODD (Earls et al., 1988; Reich et al., 1993; Steinhausen, 1999; von Knorring, 1991;West & Prinz, 1987).

Although it is suspected that children of drug addicted parents are highly susceptible to experiencing problems within multiple developmental domains (van Baar, 1999), surprisingly few research studies have been able to provide empirical support for a strong, direct link between parental drug use and deleterious developmental outcomes. Studies have found that children of drug addicted parents display higher rates of mental illness, more cognitive delays, impulsivity, social delays, and irresponsibility than children of non-addicted parents (Bauman & Levine, 1986; Luthar, D'Avanzo, & Hines, 2003; Sowder & Burt, 1980). However, it should be noted that drug abuse frequent co-occurs with other risk factors including poverty, parental psychopathology, prenatal drug exposure, child maltreatment, history of foster care, and exposure to domestic violence, which can make it quite difficult to isolate the actual independent contributions of parental drug addiction toward specific developmental outcomes (Hans, Bernstein, & Henson, 1999; Kandel et al., 1997; Nurco et al., 1995; van Baar, 1999; Wasserman & Leventhal, 1993). Currently, what is known for certain is that the constellation of risk factors confronting children of drug-addicted parents have been reliably linked to adverse developmental outcomes (Luthar et al., 2003).

It has been suggested that the adverse effects that parental drug and/or alcohol abuse can have on family dynamics, including the parent-child relationship, can significantly challenge a child's adaptive functioning (Johnson & Leff, 1999; Luther & Cushing, 1999).

In terms of parental alcohol abuse, it has been found that family dynamics frequently found within alcoholic families include increased family conflict, decreased family cohesion, increased family stress, decreased family organization, and increased levels of verbal and physical aggression (Jacob & Seilhamer, 1987; Sher, 1991, 1992; West & Prinz, 1987). Since the home environment of children of alcoholics is often characterized by a lack of adequate parenting, poor home management, and impaired family communication skills (Patterson & Stouthamer-Loeber, 1984, it is believed that such children may be deprived of appropriate guidance through developmental tasks and may be susceptible to delays (Johnson & Leff, 1999). In addition, it has been suggested that the often hostile and disorganized nature of the home environment of alcoholics can contribute to problems related to emotional and behavioral regulation difficulties (Steinhausen, 1999). There is also evidence that children of alcoholics are more likely to be physical abused, sexual abused, and neglected (Naiditch & Learner, 1987).

. With regard to drug abusing parents, it has been found that drug abusing mothers are frequently unable to provide a consistent, stable, and nurturing environment for their children (Hawley, Halle, Drasin, & Thomas, 1995; Zuckerman, 1994) and tend to be less responsive, more rejecting, more neglectful, and have less physical contact with their children (Beckwith, Crawford, Moore, & Howard, 1995), all of which can adversely affect the children's attachment systems. In addition, drug addicted mothers have been found to experience more stress (Kelley, 1998), maintain poorer parenting attitudes (Ammerman et al., 1999; Williams-Peterson et al., 1994), and more often believe in using harsh discipline with their children (Haskett, Scott, & Fann, 1995). In general, it is believed that characteristics of the care giving environment often provided or not by drug addicted parents, such as the lack or absence of adult guidance, the emotionally labile and/or chaotic nature of the home environment, and the general lifestyle of drug addicts (engaging in illegal activity, contact with individuals with anti-social traits), can leave a child susceptible to experience disruptions to their emotional and behavioral regulation (Johnson & Leff, 1999; Luther & Cushing, 1999; van Baar, 1999).

2.2.3. Domestic Violence

Children's exposure to violence, either as victims or bystanders, has been deemed a public health problem of epidemic proportions (Koop & Lundberg, 1992; Margolin & Gordis, 2000). It has been estimated that over 10 million children in the United States witness physical aggression between parents each year (Strauss, 1992). Research has found that exposure to violence within the family is associated with numerous deleterious outcomes for young children (Huth-Bocks, Levendosky, & Semel, 2001). In addition, it has been suggested that preschool-age children may be exposed to greater amounts of domestic violence than older children and are more susceptible to the adverse effects of such exposure due to limitations in coping and cognitive abilities (Fantuzzo et al., 1997). Exposure to domestic violence frequently co-occurs with other risk factors including child neglect, physical abuse, sexual abuse, parental mental illness and substance abuse (English, Marshall, & Stewart, 2003; Hughes, 1988; Straus & Gelles, 1990).

In general, it has been found that preschool-age children exposed to domestic violence experience more behavior problems, cognitive delays, socio-emotional problems, physical problems, and psychological problems relative to children not exposed to domestic violence (Fantuzzo et al., 1991; Graham-Berman & Levendosky, 1998; Huth-Bocks et al.,2001). Behaviorally, it has been found that exposure to domestic violence is related to increased aggression (Graham-Berman & Levendosky, 1998), externalizing behaviors (Campbell & Lewandowski, 1997; Graham-Berman & Levendosky, 1998) and various conduct problems (McClosky, Figueredo, & Koss, 1995). Emotionally, exposure to domestic violence has been linked with several internalizing problems including elevated anxiety levels, somatic complaints, increase in fears, depressive symptoms, and lower self-esteem (Davies & Cummings, 1994; Campbell & Lewandowski, 1997; Margolin & Gordis, 2000; O'Keefe, 1994). Cognitively, children's exposure to persistent inter-parental aggression has been tied to poorer verbal abilities, impaired school performance, and poor problem solving skills (Campbell & Lewandowski, 1997). Socially, witnessing domestic violence has been related to problems within peer relationships (Margolin & Gordis, 2000). Research findings suggest that, relative to children not exposed to domestic violence, child witnesses of domestic violence exhibit more negative affect and aggressive behavior toward their peers (Graham-Berman & Levendosky, 1998) and tend to rate lower on teacher-rated measures of peer functioning (Dawud-Noursi, Lamb, & Sternberg, 1998). Clinically, witnessing inter-parental violence has been seen as a significant contributing factor in the development of phobias, separation anxiety, and posttraumatic stress disorder (PTSD) (Kilpatrick & Williams, 1997; Margolin, 1998; Margolin & Gordis, 2000).

The proposed processes through which exposure to family violence is linked to deleterious developmental outcomes include impairments to the following adaptive systems: neurobehavioral, attachment, emotional regulation, and behavioral regulation.

In terms of impairing a child's neurobehavioral system, it has been found that children who are persistently subjected to intense, adverse environmental input are quite susceptible to disturbances in their neurological development due to the over-stimulation within certain brain structures (Perry, 1997; Weiss & Wagner, 1998). It has been found such over-stimulation can serve to impair an individual's ability to respond appropriately to situational demands (Perry, 1997). It has also been suggested that frequent exposure can adversely affect a child's ability to regulate arousal (Cummings & Davies, 1994). Arousal responses to witnessing violence can include an elevated heart rate, escalated blood pressure, increased startle response, sleep disturbance, and a more sensitive skin conductance (Perry, 1997; Schaffer, 1998). There is mounting evidence that when arousal responses are persistently affected, abnormal psychological functioning can abound (DeBellis & Putnam, 1994).

With regard to disruptions to a child's ability to regulate his/her emotions and/or behavior, social learning theory (Bandura, 1986) would, in the context of observing inter-parental violence, that a child who observes his/her parents exhibit certain behaviors and conflict engagement strategies will be predisposed to display the same behaviors and conflict management strategies. Minuchin (1985) notes that parents are "models of adult interaction, demonstrating daily how adults express affect and handle conflict" (p. 298). It has been proposed that the modeling of hostile and aggressive behaviors can have particular implications regarding a child's socio-emotional functioning (Cummings & Davies, 1994). Parental conflicts represent a forum where children are exposed to models of social problem-solving skills, self-control, and management of one's emotions (Dadds et al., 1999).

In general, it has been suggested that the manifestation of emotional, social, psychological, and behavioral difficulties is attributable to the susceptibility of children exposed to hostility-laden conflicts to the of observed behaviors and modeling and the exhibition of poor social problem-solving skills, behavior regulation skills, and poor emotional regulation skills (Cole, Michel, & Teti, 1994; Cummings, 1987; Petit, Dodge, & Brown, 1988). Maladaptive problem-solving skills, as well as poor emotional and behavioral regulation in social situations have been found to cause disruptions to the development and maintenance of peer relationships (Collins & Laursen, 1992). In addition, Goodman , Barfoot, Frye, & Belli (1999) aver that children with inadequate social problem solving and self-control skills are susceptible to develop internalizing and externalizing behavioral problems. With regard to the internalization of behavioral problems, poor social problem solving has been linked to outcomes such as depression and anxiety in children and adolescents (Goodman, Gravitt, & Kaslow, 1995).

2.2.4. Parental Mental Illness

Since it has been reported to me by clinicians from the Early Intervention/Partial Hospitalization that maternal depression represents the predominant type of exposure to parental mental illness among the population of children who have attended the program, only maternal depression has been addressed within this subsection. However, children's exposure to other, less common types of parental mental illness will be included in the study. A review of the research literature has revealed that the environmental and genetic effects of exposure to other types of parental mental illness are quite similar to that of depression. In addition, the mechanisms underlying links between other types of mental illness and adverse developmental outcomes are believed to be quite similar as well.

Parental depression, which has been well investigated, has been deemed a risk factor capable of disrupting different aspects of children's development (Murray & Cooper, 1996). Differences in the developmental trajectories of children whose parent(s) are depression are visible from the first weeks of life (Seifer & Dickstein, 2000). Parental symptoms that children are often exposed to include sadness, expressions of guilt, irritability, indecisiveness, and inability to follow through with daily responsibilities (*e.g.*, work, responsive parenting) (Lead beater & Linares, 1992). It has been suggested that depression can serve to impair the ability of parents to adequately render guidance and support to their children as they attempt to work through important developmental tasks. (Beardslee et al., 1997). It has been estimated that between 8% and 12% of mothers with young children are depressed (O'Hara, 1986; Weissman, Leaf, & Bruce, 1987). Common co-occurring risk factors include other forms of mental illness (Blazer, Kessler, McGonagle, & Swartz, 1994), domestic violence (Whisman, 2000) and low SES (Teti, Gelfond, & Pompa, 1990).

In general, children of depressed parents have been found to be at greater risk for the development of mental illness (Downey & Coyne, 1990). Estimated prevalence rates of mental disorders among children of depressed parents have ranged from as low as 8% to as high as 74% (Lavoie & Hodgins, 1994). Maternal depression has been linked to a variety of internalizing and externalizing problems among children (Cummings & Davies, 1994; Zahn-Waxler, Iannotti, Cummings, & Denham, 1990). Emotionally, children of depressed parents more often have difficult temperaments (Weissman et al., 1986; Zuckerman & Beardslee, 1987) and tend to experience more guilt, irritability, and hypersensitivity (Field, 1992; Garrison & Earls, 1986; Zahn-Waxler et al., 1990) than children of parents without depression. Behaviorally, it has been found that children of depressed parents are two to five times more likely to experience significant behavior problems than children of non-depressed parents (Welsh-Allis & Ye, 1988; Weissman et al., 1984). With regard to their social development, children of depressed parents display more interpersonal difficulties (Rubin et al., 1991) and attachment problems (Teti, Gelfand, Messinger, & Isabella, 1995).

In additional to the genetic transmission of depression, the processes believed to underlie the maternal depression-developmental disturbances link are related to disruptions to child attachment systems and self-regulatory systems (Field, 1992; Leadbeater, Bishop, & Raver, 1996; Lovejoy, Graczyk, O' Hare, & Neuman, 2000).

The argument that the genetic transmission of depression is at the root of children's developmental disturbances has received much empirical support from family studies (Weissman et al., 1997), twin studies (Kendler et al., 1993), and adoption studies (Gatz et al., 1992). It should be noted that, although such studies have found strong evidence regarding the genetic vulnerability of depression, it is still contended that environmental factors play a significant role in the determination of the disease (Goldsmith, Gottesmon, & Lemery, 1997).

There is also a strong sentiment that maternal affect can interfere with the quality and consistency of mother-child interactions, which can have numerous repercussions regarding the child's attachment (Field, 1992; Hammen, 2003). Many depressed parents have been found to display patterns of uninvolvement and limited responsiveness to their children as compared to non-depressed parents (Downey & Coyne, 1990). It is suggested that adverse outcomes related to behavior and social functioning may be caused by impairments in the child's contingency responses which stem from inconsistent responsiveness or consistent non-responsiveness by the mother toward the child (Leadbeater et al., 1996). It has been asserted that children who experience inconsistent responsiveness or whose parents are non-responsive may withdraw from parent-child interactions due to learned helplessness (Field, 1992; Zeloski, O'Hara, & Willis, 1987). According to this process, children who learn that their behaviors do not elicit a consistent response from their mothers will often decrease attempts to garner attention from their mothers, as well as increasing ignoring behaviors in response to maternal requests (Leadbeater et al., 1996). The hypothesized behavioral outcomes of such a process include withdrawal, non-compliance and difficulties in peer relationships due to an impairment in understanding the rules of reciprocity within social interactions (Zahn-Waxler et al., 1990)

Lastly, it has been suggested that maternal depression can lead to developmental disturbances among children through the disruption of their self-regulatory systems (emotional and behavioral regulation, impulse control). It has been found that persistent depressed maternal moods can induce frequent states of distress in young children, which can potentially result in increasing levels of either oppositional child behaviors or withdrawal behaviors (Field, 1992; Field, Healy, Goldstein, & Guthertz, 1990; Snyder, Edwards, McGraw, Kilgors, & Holton, 1994). In general, it has been suggested that depressed parents are more deficient with respect to their parenting skills (Teti et al., 1995). Research studies have found that depressed parents exhibit higher frequencies of hostile and punitive behaviors as compared to non-depressed parents (Ghodsian, Zajicek, & Wolkind, 1984; Webster-Stratton & Hammond, 1988). It is also believed that parental depression is associated with the use of negative control as a parenting strategy, which has been associated with higher rates of child disruptive behaviors (Spieker, Larson, Lewis, Keller, & Gilchrist, 1999). Negative control is characterized by the use of physical (slaps, spanking) and/or verbal (yelling, insulting, and threatening) tactics to elicit desired behaviors from the child (Vissing, Straus, Gelles, & Harrop, 1991). Research findings suggest that parental use of such verbal and physical tactics is connected to the manifestation of diagnosable behavior disorders (Campbell, Pierce, Moore, Marakovitz, & Newby, 1996) and acting out behaviors (Michels, Pianta, & Reeve, 1993).

2.2.5. Foster Care

As of the year 2001, the Adoption and Foster Care Analysis and Reporting System (2001) estimated that nearly 600,000 children were in foster care within the United States. Although a child's placement in foster care can be a very salient experience in a child's life (Rosenfeld et al., 1997), it is with much discretion that foster care placement, in itself, be identified as a risk factor. There is little doubt that foster children represent a population at risk, as numerous research studies have yielded findings suggesting that children entering the state's legal custody experience higher rates of developmental disturbances (Chernoff, Combs-Orme, Risley-Curtiss, & Heisler, 1994; Kendall, Dale, & Plakitsis, 1995; Reams, 1999). However, based on how foster care placement is most often necessitated in situations of abuse and neglect, when parents are deceased, physically or mentally ill, abusing substances, or have abandoned their child, it is important to acknowledge the significance of the events that preceded foster care placement before making assumptions regarding the ill effects of foster care on a child's adjustment. Essentially, it is quite difficult to gauge the degree to which entering foster care, in itself, constitutes a significant risk factor. Nevertheless, it should be kept in mind that the developmental needs of children placed in foster care are vast and the range of responses that children can have toward foster care placement are varied.

Over the past twenty years, research has indicated that a substantial number of children in foster care present with clinically significant behavior problems and adaptive functioning deficits, and are in need of treatment from mental health professionals (Clausen et al., 1998). It has been estimated that 30% of children in foster care have severe emotional, behavioral, or physical health problems (Adoption and Foster Care Analysis and Reporting System, 2001). It has been found that children in foster care exhibit higher rates of externalizing problems related to impairments in emotional and behavioral regulation than do other children (Shealy, 1995). With regard to cognitive development, a disproportionate number of young foster children have often been found to exhibit delays in language and learning (Halfon, Mendonca, & Berkowitz, 1995), as well as scoring lower on measures of cognitive development (Klee, Kronstadt, & Zlotnick, 1997; Urquiza, Wirtz, Peterson, & Singer, 1994).

Understanding the processes underlying the link between a child's entry into foster care and deleterious developmental outcomes quite often will require an understanding of the life circumstances (*i.e.,* neglect, physical abuse, sexual abuse, parental drug use, etc,) that preceded the child's foster care placement.

With respect to possible processes underlying a direct link between foster care placement and child maladjustment, it has been suggested that some behavioral or emotional problems may be the result of a child's negative response to separation from his/her family (Clausen et al., 1998). Katz (1987) avers that a child's abrupt removal from his/her home and placement in a foster home can elicit feelings of shame, rejection, guilt, hostility, anger, disassociation, and abandonment in the child. Halfon and others (1995) suggest that separating 6- to 36- month olds from their primary caregivers can be particularly harmful for a child because children at this age are in the midst of an emotional scaffolding stage of personality development.

Although there a general consensus that foster care placement is not at the root of foster children's presenting problems, it has been suggested inefficiencies within the foster care system can serve to prolong or exacerbate any pre-existing problems (Rosenfeld et al., 1997). It is believed that the current foster care system is ill equipped to address many of the specific psychiatric, educational, and social needs of many children entering the system (Rosenfeld et al., 1997; Zeanah et al., 2001). As it is, the foster care system has limited financial resources, trained foster care workers, and too often lacks appropriate plans to address each child's specific needs (Rosenfeld et al., 1997; Zeanah et al., 2001). Hence, it is not unusual to find children with a history of multiple foster care placements exhibiting more problems than children with single foster care placements. It is certainly possible that multiple foster care placements can further disrupt a child's attachment and self-efficacy systems, while certain dynamics within untrained foster parent-foster child transactions can perpetuate a child's emotional and/or behavioral regulation difficulties.

2.2.6. In utero Exposure to Drugs and/or Alcohol

Over the past fifteen years, there has been a substantial increase in the number of research studies investigating the effects of prenatal exposure to illicit drugs on child development (Johnson, Nusbaum, Bejarano, & Rosen, 1999; Mayes, 1999; Singer, 1999). It has been found that each year over 50,000 babies are born with some degree of alcohol-related impairment (March of Dimes, 2000) and it has been estimated that around 5.5 % of women have exposed their fetus to an illicit drug during pregnancy, which means that each year over 221,000 babies in the United States are believed to have been exposed to an illicit substance in utero (National Institute on Drug Abuse, 1999).. Children exposed to illicit drugs in utero often experience exposure to other risk factors including poor maternal nutrition, poor prenatal and postnatal care (neglect), poverty, parental mental illness, and postnatal parental substance abuse (Bendersky et al., 1996; Chasnoff, 1989; Lester et al., 1996, Singer et al., 1995).

The most deleterious outcome stemming from prenatal exposure to alcohol is the occurrence of Fetal Alcohol Syndrome, a disorder characterized by a variety of physical deformities (abnormally flat face and nose, narrow head, delayed physical growth, heart defects), cognitive deficits, hyperactivity, and visual and auditory deficits (Niccols, 1994; Streissguth, 1997). The specific cognitive deficits that fetal alcohol syndrome have been consistently linked to include mental retardation, impairments to attention, memory, language, and problem solving (Connor et al., 2001; Schonfeld et al., 2001). It has been found that pregnant women who are either binge drinkers or heavy drinkers have a much higher risk of giving birth to a child with fetal alcohol syndrome (Steissguth, 1997).

In general, there is empirical support for the finding that increased alcohol consumption is linked to higher rates of deleterious developmental outcomes (Streissguth, 1997). For example, it has been found that pregnant women who drink heavily (five or six drinks per day) during pregnancy are more likely to have low-birth weight infants as well as being more likely to experience miscarriages (Andres & Jones, 1994). In addition, it has been found that greater alcohol consumption by women during pregnancy is associated with poorer motor coordination, impaired information processing and reasoning skills, and lower scores on intelligence and achievement tests during the preschool years (Aronson, Hagberg, & Gillberg, 1997; Hunt, Streissguth, Kerr, & Olson, 1995; Janzen, Nanson, & Block 1995; Streissguth et al., 1994).

It should be noted that adverse effects of prenatal alcohol exposure are not always limited to heavy alcohol consumption. Moderate consumption of alcohol (up to one or two drinks daily) by pregnant women has also been linked to fetal alcohol effects, which consist of significant, albeit less severe symptoms than fetal alcohol syndrome (Mattson, Riley, Delis, & Jones, 1998). Fetal alcohol effects have been found to include slightly retarded physical development and learning disabilities (Kerns, Don, Mateer, & Streissguth, 1997), irritability (Bingol et al., 1987), as well as attention and hyperactivity problems (Niccols, 1994).

In terms of prenatal exposure to illicit substances, much of the early research regarding the effects of prenatal exposure to drugs on child development discovered several severely adverse pregnancy outcomes of such exposure including spontaneous abortion, growth retardation, congenital malformations, and even pre- and postnatal death (Church et al., 1998; Mayes et al., 1996). In terms of their behavior, drug exposed children are also reported to be more non-compliant (Beckwith, Crawford, Moore, & Howard, 1995), less cooperative (Edmondson & Smith, 1994), and more aggressive (Field, 1995). Cognitively, children exposed to cocaine in utero have been more frequently experience disturbances in attention, information processing, interest in learning, visual recognition memory, verbal reasoning, and in receptive language development (Alessandri et al., 1993; Bender et al., 1995; Griffith, Azuna, & Chasnoff, 1994; Malakoff, Mayes, & Schottenfield, 1994; Mentis & Lundgren, 1995; Struthers & Hansen, 1992). Socially, a history of in utero drug exposure has been linked with greater incidence of intrusiveness and lower levels of sensitivity toward peers (Beckwith et al., 1995; Field, 1995). With regard to emotional development, prenatal drug exposure has been associated with irritability (Richardson, 1998), impaired emotional responsivity (Alessandri et al., 1993), and emotion regulation (Bennett et al., 2002).

Several different mechanisms linking alcohol exposure to impeded fetal development and neurobehavioral outcomes have been suggested. One hypothesis is that alcohol can have toxic effects on the placenta, which can have an adverse influence on fetal nutrition (Fisher, 1988). Another hypothesis is that since it takes large quantities of oxygen to metabolize alcohol, a pregnant woman's consumption of alcohol may less the amount of available oxygen necessary for cell growth in the fetus (Michaelis, 1990; Schenker et al., 1990). A third hypothesis is that prenatal alcohol exposure can restrict fetal development during critical periods by impairing the process of protein synthesis (Kennedy, 1984). Evidence for disrupted development among children with prenatal exposure to alcohol can be seen in both the EEG's and MRI's of their brains, which have revealed structural damage, stunted brain growth, and abnormalities in brain functioning, including altered neurotransmitter levels (Guerri, 1998; Roebuck, Mattson, & Riley, 1999).

It should also be noted that when attempting to link prenatal alcohol exposure to post-natal development, dynamics within the child's care-giving environment need to be taken into consideration as well, as mothers who expose their fetus to hazardous levels of alcohol are more likely to be alcoholics than mothers who have not exposed their fetus to dangerous levels of alcoholics (Connor, Sigman, & Kasari, 1993). Hence, children prenatally exposed to alcohol may also face the hazards linked with growing up in a home with an alcoholic parent.. Clearly, the nature of the home environment can either serve to further exacerbate or ameliorate a child's pre-existing condition.

With regard to underlying mechanisms linking in utero drug exposure to developmental disturbances, it has been suggested that the problematic behaviors exhibited by children prenatally exposed to cocaine may signify disruptions in neuropsychological and neurobehavioral functioning (Espy, Riese, & Francis, 1997). The specific aspects of neurological functioning suspected of being associated with prenatal exposure to cocaine include the functions of arousal and attention regulation (Mayes et al., 1996). It is suggested that prenatal cocaine exposure serves to disrupt arousal and attention regulation, which can influence aspects of children's cognitive, emotional, and social development (Espy et al., 1997). Mayes and Bornstein (1997) assert that arousal and attention regulation are fundamental to human learning and are a necessary component within cognitive, emotional, and social functions. In addition, it is hypothesized that disruptions to arousal and attention regulation can contribute to manifestation of problematic behaviors (*i.e.,* inattentiveness, impulsivity, inappropriate response to stress, and hyperactivity) (Karmel, Gardner, & Freedland, 1996; Mayes, 1999; Singer, 1999).

Because cocaine is a substance that can easily cross the placenta, readily exposing a fetus to its effects (Chiriboga, 1998), several hypotheses have been established regarding how cocaine specifically effects brain development of prenatally exposed children (Heffelinger, Craft, & Shyken, 1997). One hypothesis suggests that cocaine disrupts the development of monoaminergic systems in the brain, which appear to regulate arousal, attention, and emotional regulation (Mayes & Bornstein, 1995; Singer, 1999). Mayes (1999) offers another hypothesis stating that it is possible for impairments in arousal and attention regulation to be the result of impaired fetal brain development due to a cocaine-related decrease in oxygen and blood flow. Yet another hypothesis states that prenatal cocaine exposure may interfere with the maturation of catecholamine systems in the brain, which are related to attention regulation processes (Heffelinger et al., 1997). Although the precise neurological mechanism through which cocaine effects the brain development of the fetus remains an unresolved issue, numerous research studies are currently in the process of further investigating the issue (Heffelinger, Craft, White, & Shyken, 2002).

In addition to the direct effects that cocaine exposure has been found to have on the developing fetus, there is growing support that the neurobehavioral effects of prenatal cocaine exposure may leave a child more susceptible to adverse effects of exposure to other postnatal risk factors, including continued parental drug use, poverty, and maternal depression (Bendersky et al., 1996; Chasnoff, 1998; Singer, 1999; van Baar, 1999).

2.2.7. Parental Incarceration

Children who are separated from a parent due to incarceration are presented with unique challenges to their development. It has been estimated that approximately 200,000 children have an incarcerated mother and more than 1.6 million children currently have an imprisoned father (Barry, Ginchild, & Lee, 1995; Gillard & Beck, 1998). Parental incarceration has been found to commonly co-occur with other risk factors including parental mental illness, parental drug abuse, and higher rates of child abuse and neglect (Gabel, 1992; Gabel & Shindledecker, 1993)

Currently, there is a dearth of information pertaining to the developmental trajectories of children with incarcerated parents. Much of the existing data consists of surveys from parents and teachers and very few study incorporate direct examinations and/or observations of the children (Johnston, 1995).

It is suspected that children of incarcerated parents constitute an over represented population within the mental health system (Gabel & Shindledecker, 1993). According to one estimate (Baunach, 1985), 70% of young children with incarcerated mothers had clinically significant emotional or psychological problems. Internalizing problems found among children of incarcerated parents included excessive fear, anxiety, depression, withdrawal, loneliness, and guilt (Bloom & Steinhart, 1993; Seymour, 1998). Externalizing problems such as elevated anger, aggression, and hostility toward caregivers and siblings, and anti-social behaviors have also been found to occur frequently among children of incarcerated parents (Fishman, 1983; Gaudin, 1984; Johnston, 1995; Kampfner, 1995; Marshall & Binkiewicz, 1992; Sack et al., 1976). In general, it has been suggested that parental incarceration is risk factor with implications for a child's socio-emotional, psychological and behavioral development (Gabel, 1992).

Although there are no popularly documented hypothesis regarding the processes underlying the parental incarceration-adverse developmental outcome link, it is certainly possible that parental incarceration can potentially disrupt a child's attachment system, as young children (ages 2 - 6 years) have been found to experience a variety of adverse outcomes that are consistent with the research on the effects of insecure attachments (Johnston, 1995).

2.2.8. Adolescent Mothers

Although many adolescent mothers are capable of being sensitive and reliable caregivers to their children, when compared to adult mothers, adolescent mothers have been found to experience higher levels of stress anxiety and frustration, have less awareness of their children's emotional, cognitive, and social needs, have more negative attitudes toward parenting, have less interaction with their infants, and are more likely to experience financial struggles (Borkowski et al., 2002; Coley & Chase-Lansdale, 1998; Jorgensen, 1993). Hence, it has been suggested that having an adolescent parent can be considered a risk factor for many children (Jaffee et al., 2001).

There is some evidence that a links exists between adolescent mothers and higher rates of development disturbances among their young children as compared to children with older mothers (Luster & Mittelstaedt, 1993). Firstly, it has been found that infants born to teen-age parents are more likely to experience low-birth weight and other medical problems (Luster & Mittelstaedt, 1993). Cognitively, children born to adolescent mothers tend to repeat grade levels more frequently and score lower on measures of cognitive competence, IQ tests, and achievement tests than peers not born to adolescent mothers (Brooks-Gunn & Furstenberg, 1986; Furstenberg, Brooks-Gunn, & Morgan, 1987; Spieker et al., 1997). Behaviorally, there is some evidence that preschool -age children of adolescent mothers display higher frequencies of problematic behaviors than peers (Spieker et al., 1997; Wadsworth, Taylor, Osborn, & Butler, 1984).

It has been suggested that disruptions to the mother-child dyad, and subsequently the child's attachment system, represent the primary process underlying the link between adolescent parenting and deleterious developmental outcomes (Borkowski et al., 2002; Leadbeater, Bishop, & Raver, 1996, Luster & Mittelstaedt, 1993). It has been found that, as compared to older mothers, adolescent mothers tend to provide less supportive home environments, are less emotionally and verbally responsive, are more restrictive and punitive, and are less involved with their young children. (Garcia Coll, Hoffman, & Oh, 1987; King & Fullard, 1982; Luster & Rhoades, 1989; Schilmoeller & Baranowski, 1985). In addition, there is evidence that children of adolescent parents may be at greater risk for maltreatment than other children (Kinard & Klerman, 1980; Luster & Mittelstaedt, 1993).

Considering the substantial amount of information provided with the literature review, two tables, which summarize prior research findings related to risk factor correlates and links between risk factors and developmental outcomes, have been provided.

Table 1

Prior Research Findings: Risk Factor Correlates

Risk Factor	Found to Frequently Co-Occur with
Physical Abuse	Domestic Violence Parental Mental Illness Parental Substance Abuse History of Foster Care
Neglect	History of Foster Care Parental Substance Abuse Parental Mental Illness
Sexual Abuse	History of Foster Care Physical Abuse Neglect Domestic Violence
Parental Drug/Alcohol Abuse	Prenatal Drug Exposure Physical Abuse Neglect History of Foster Care Parental Incarceration Domestic Violence
Domestic Violence	Neglect Physical Abuse Sexual Abuse Parental Substance Abuse Parental Mental Illness
Parental Mental Illness	Domestic Violence
History of Foster Care	Prenatal Drug Exposure Physical Abuse Sexual Abuse Neglect Parental Mental Illness Parental Substance Abuse
In utero Substance Abuse	Parental Mental Illness Parental Substance Abuse Neglect
Parental Incarceration	Parental Mental Illness Parental Substance Abuse Physical Abuse Neglect
Adolescent Parent	Not found in literature
Absence of Biological Father/Mother	Not found in literature

Table 2

Prior Research Findings Linking Risk Factors to Developmental Outcomes

Risk Factor	Behavior Problems	Social Problems	Emotional Problems	Cognitive Problems	Clinical Issues
Physical Abuse	↑ aggression toward peers ↑ non-compliant behaviors ↓ self-control	↑ peer rejection ↓ problem solving skills ↓ expressions of empathy	↑ depressive symptoms ↓ self-esteem	↓ academic performance ↓ tests of verbal & math ability	↑ ADHD ↑ ODD ↑ PTSD
Neglect	↑ overly passive behaviors ↑ sudden outbursts of anger and non-compliance	↑ social withdrawal & social avoidance	↑ general unhappiness ↓ self-esteem ↓ self-efficacy	↑ deficits on intelligence & language ability tests ↓ academic performance	None reported
Sexual Abuse	↑ hyperactivity ↑ non-compliance ↑sexually acting out behaviors ↑ aggression	↑ interpersonal relationship problems ↓ social competence	↑ depressive symptoms ↑ anxiety ↑ rage ↑ anger	↓ academic performance ↓ tests of verbal ability	↑ Depression ↑Schizophrenia ↑ PTSD ↑ Eating Disorders
Parental Substance Abuse	↑ disruptive behaviors	↓ social skills	↑ depressive symptoms ↑ anxiety ↓ self-esteem ↓ self-efficacy	↓ academic performance	↑ Depressive & Anxiety disorders ↑ ADHD ↑ ODD
Exposure to Domestic Violence	↑ aggression toward peers ↑ conduct problems	↑ problems with peer relationships	↑ anxiety ↑ somatic complaints ↓ self-esteem	↓ verbal abilities ↓ academic performance ↓ problem solving skills	↑ Separation anxiety ↑ Phobias ↑ PTSD
Parental Mental Illness	↑ disruptive behaviors	↑ interpersonal relationship problems	↑ difficult temperaments ↑ guilt ↑ irritability	None reported	↑ Depressive disorders
Prenatal Exposure to Drugs & Alcohol	↑ deficits in behavior regulation ↑ non-compliance	↑ social skill deficits	↑ deficits in emotion regulation ↑ irritability	↑ deficits in attention & information processing ↓ language development	None reported
History of Foster Care	↑ deficits in behavior regulation	None reported	↑ deficits in emotion regulation	↑ delays in language and learning	None reported
Parental Incarceration	↑ aggression ↑ anti-social behaviors	↑ social withdrawal	↑ fear ↑ anxiety ↑ loneliness ↑ guilt	None reported	↑ Depression
Adolescent as a Parent	↑ disruptive behaviors	None reported	None reported	↓ IQ test scores ↓ achievement test scores	None reported

3. STATEMENT OF THE PROBLEM

3.1. Rationale

Understanding the pathways leading to maladjustment is a necessary precursor of any successful intervention (Sameroff, Gutman, & Peck, 2003). Surprisingly, however, despite the importance that has been placed on understanding the processes through which young children develop clinically significant problems, an exhaustive review of the research literature search has revealed a dearth of information related to pathways leading to maladjustment among clinically referred preschool-age children. Hence, it is not surprising that studies investigating the effectiveness of specific treatments for childhood disorders have been limited and frequently lack any type of outcome information (Lonigan & Elbert, 1998). This is particularly the case for center-based programs. Although the concept of early intervention programs have received much attention as one of the most favorable ways to support and promote children's well being (Reynolds & Ou, 2003), including children who have been placed at developmental risk by hazardous life circumstances (Guralnick, 1997), there is limited information regarding the effectiveness of specific treatments within early intervention programs.

In terms of understanding the pathways leading to maladjustment among young children, although much has been learned about the general nature of the links between certain risk factors and particular outcomes, it should not be assumed that individual or multiple risk factor exposure impact children at different developmental stages in the same way or to the same degree. If, in fact, the pathways toward abnormal development are the result of transactions between the individual and environmental characteristics, it is essential that the individual's developmental stage be considered a critical component of these transactions. For example, a preschool-age child's immaturity or normative developmental limitations (*i.e.,* cognitive processing, emotional processing, self-control) can leave a young child more vulnerable to the effects of certain environmental risk factors (*e.g.,* domestic violence, neglect) than older children. While there is little doubt that exposure to particular risk factors can independently and jointly contribute to deleterious outcomes, the degree to which risk factors may predict specific externalizing (e.g.., aggression, non-compliance, tantrums) or internalizing (*e.g.,* social withdrawal, flat affect) problems across different developmental stages is less clear, including among preschool-age children.

Essentially, very little is known about the relative influence of specific environmental risk factors on the development of specific behavior problems (*e.g.,* aggression, non-compliance) among preschool-age children, as an extensive search of risk research literature revealed minimal information regarding the relative contributions of sets of risk factors toward specific problems among young children. Should we be left to assume that the influence of risk factors is equal and that all risk factor sets are similar for all developmental problems? Considering that interventions for children are generally founded on theories related to the causal mechanisms believed to impair normal development (Cowan & Cowan, 2002), there would seem to be a definite need to identify the sets of environmental factors that have the most significant influence on young children's development. The lack of information pertaining to the relationships between background risk factors and preschool-age children's developmental difficulties led to my recognition that there was a need to conduct this study.

3.2. Purpose of the Study

The purpose of this study was to utilize over twelve years worth of clinical data gathered in an urban early intervention/partial hospitalization program in order to investigate the pervasiveness of risk factors in the children's backgrounds and to identify strong links between background clusters of risk factors and specific externalizing behavior problems (non-compliance, aggression, tantrums) among clinically referred preschool-age children. Although the general aims of the study included offering an illustration of the life circumstances confronting the children attending the early intervention/partial hospitalization program and describing the severity of externalizing behavior problems (non-compliance, aggression, tantrums) among those children, the specific objectives of this study were to: 1) identify salient relationships between risk factors and non-compliance, aggression, and tantrums; and 2) test the cumulative risk premise (Rutter, 1979), which suggests a positive relationship exists between the number of risk factors a child is exposed to and the severity of his/her symptoms.

The emergence of cumulative risk models is a byproduct of the discovery that young children with developmental disturbances often experience exposure to multiple risk factors (Sameroff, Gutman, & Peck, 2003). A review of the research literature has revealed that the cumulative risk premise has not been examined in this manner among clinically referred preschool-age children.

A major motivation for this study was to uncover whether or not specific risk factors or risk factor sets significantly contribute to the development of clinically significant levels of non-compliance, aggression, and tantrums. This motivation stems from the sentiment that by identifying significant predictors of problematic externalizing behaviors, such information can be utilized for the purpose of early-intervention program enhancement, specifically in the form of staff training, intervention design and evaluation, and the development of future risk and resiliency research studies. Negligible results would support the notion that identifying the possible causes of clinically significant levels of aggression, non-compliance, and tantrums will require investigations that extend beyond the identification of exposure to specific risk factors.

The risk factors included within this study included physical abuse, neglect, sexual abuse, maternal depression, prenatal exposure to drugs and/or alcohol, parental alcoholism, parental substance abuse, parental incarceration, foster care placement, absence of biological mother, absence of biological father, and having an adolescent parent. The externalizing behavior problems of interest were aggression, non-compliance, and tantrums.

3.3. Importance of the Study

As previously stated, very little is known about the relative influence of specific environmental risk factors on the development of specific behavior problems (*e.g.,* aggression, non-compliance, social skill delays) among preschool-age children. Since the preschool years represent a developmental period in which many children begin to assert their independence by testing limits, it is not atypical that behavioral responses to parent and teacher enforced rules and limits will include some aggression and noncompliance. However, it should be noted that the children involved in this study who have been referred for treatment due to non-compliance and/or aggression have been reported to exhibit clinically significant levels of those behaviors.

It was important to conduct this study in order to uncover whether or not a review of medical records would reveal any significant links between certain risk factors and clinically significant behavior problems. Being able to establish patterns leading to clinically significant non-compliance, aggression, and tantrums can be useful in terms of prioritizing staff training foci, developing and implementing interventions, and designing future research endeavors that will evaluate the effectiveness of implemented interventions.

3.4. Scope of the Study

Data used in this study were gathered from within children's medical records at an urban early intervention/partial hospitalization program. Hence, the results of this study are primarily intended to be extended to the population of preschool-age children clinically referred for treatment at urban early intervention/partial hospitalization programs.

Based on the powerful direct and indirect influences that settings and financial stability (or lack thereof) can have on aspects of children's development, it is important that the population of children attending this particular early intervention/partial hospitalization program should be distinguished from a population of more affluent children attending early intervention programs located within a suburban or rural setting.

It is quite possible that many young children exposed to the unfavorable life circumstances are either not presented the opportunity to be clinically referred for treatment or are not brought in (by a caretaker) to receive treatment or are thriving despite exposure to unfavorable life circumstances. Hence, it is taken into consideration that the preschool-age children receiving treatment within this early intervention program may not represent the larger population of children at risk due to exposure to potentially harmful life circumstances.

3.5. Research Hypotheses

With regard to the first specific objective (to identify salient relationships between risk factors and non-compliance, aggression, and tantrums), the research hypothesis was null hypotheses, that none of the risk factors are significantly related to non-compliance, aggression, and tantrums among the participant children.

The research hypothesis for the second specific objective (to test the cumulative risk premise, which proposes a positive relationship exists between the number of risk factors a child is exposed to and the severity of his/her symptoms) was also a null hypothesis, which suggests that there is no relationship between the number of background risk factors and the severity of non-compliance or aggression.

There are no hypotheses regarding the general aims of the study, which are to offer an illustration of the life circumstances confronting the children attending the program to and describing the severity of their non-compliance, aggression, tantrums.

4. RESEARCH METHODS

4.1. Participants

Data gathered consisted of information found within the medical charts of 167 children who attended an urban early intervention/partial hospitalization program over the past 12 years. All of the children attending the program are preschool-age children with an Axis I diagnosis. The age range of the children was between 35 and 67 months with the mean age being 44 months. Children in the program were most often referred by mental health professionals, medical professionals, social service agencies, or parents due to observed developmental disturbances. Once referred, children are assessed by the program psychiatrist to determine psychiatric diagnosis. The program provides specialized developmental programming for preschool aged children with an Axis I psychiatric diagnosis and targets clinically significant disruptions and/or delays to each child's social, cognitive, language, emotional, self-care skill, and behavioral development. Child services in the program include: 1) an individualized treatment program designed to address a child's social-emotional development, language development, self-care/adaptive behavior and cognitive development; 2) systematic re-evaluation to monitor the child's developmental needs. Interventions are specific to each child's needs, which are targeted by a multidisciplinary diagnostic and treatment team. The program is staffed by representatives from the disciplines of psychiatry, psychology, special educational and social work. Other allied disciplines such as speech/language therapy, occupational and physical therapy are available as needed.

Although the program is open to children from all socio-economic backgrounds, most of the children who have entered the program are from poverty-stricken backgrounds. Children's levels of poverty (*i.e.,* income) were not available for use within this study, as family income was, most often, not included within children's medical charts. Nevertheless, it would be remiss to not acknowledge poverty as a significant dynamic when attempting to understand the contexts of the childrens' lives. In terms of risk factor exposure, higher frequencies of parental depression, community violence, parental substance abuse, parental incarceration, foster placement, child maltreatment, and domestic violence have been found to occur among the poor (Eamon, 2000; Huston, 1999; Huston et al*.,* 1997).

With regard to maladaptive behaviors, children living in poverty, relative to children living in families with greater financial resources, are at significant risk of developing behavioral problems (Eamon, 2001; Huston, 1999). Behaviorally, poor children are more likely to display aggression, hyperactivity, noncompliance (Bolger, Patterson, Thompson, & Kupersmidt, 1995; Duncan, Brooks-Gunn, & Klebanov, 1994; Liaw & Brooks-Gunn, 1994), disruptive behaviors (Patterson, Kupersmidt, & Vaden, 1990), and anti-social behavior (Luster & McAdoo, 1994; Mcleod, Kruttschnitt, & Dornfield, 1994) than non-poor peers. In addition to being from poverty-stricken backgrounds, many of the children come from neighborhoods in which community violence is a problem. Children's exposure to community violence can compromise a child's ability to regulate emotion and behavior and has been linked to more frequent displays of aggression (Farrell & Bruce, 1997; Gorman-Smith & Tolan, 1998). Although there is likely variability in the experiences of the children living in poverty, it should be kept in mind that poverty, regardless of its severity, always represents a challenge to children and families.

Among the 167 medical charts used within the study, 109 (64.7%) belonged to males and 59 (35.3%) belonged to females. In terms of the racial distributions, 133 (79.6%) of the children were African-American, 22 (13.2%) were Caucasian, and 12 (7.2%) were Bi-racial.

With regard to Axis I diagnoses, 63 (37.7%) of the children had an Adjustment Disorder, 35 (21%) had a Disruptive Behavior Disorder (Not otherwise specified), 23 (13.8%) had ADHD alone, 17 (10.2%) had Oppositional Defiant Disorder (ODD) alone, 17 (10.2%) had both ADHD and ODD, 8 (4.8%) had an Anxiety Disorder, and 4 (2.4%) children had an Attachment Disorder.

4.2. Instrumentation

Data was gathered from two items in the children's medical charts: 1) initial psychiatric evaluations, within which the presence or absence of the background risk factors of interest in this study are noted; and 2) monthly treatment plan progress notes, in which a child's progress regarding presenting symptoms are noted. The psychiatric evaluations in the charts were conducted by the various program psychiatrists over the past ten years. It should be noted that, although several different psychiatrists conducted evaluations for the program over the years, the general structure of the evaluations remained unchanged and always included notations of the presence or absence of significant background risk factors, including all of the risk factors investigated within this study. Treatment plans, which contain children's presenting symptoms, are formulated by a team of clinicians consisting of the clinical director of the program (a psychologist), program developmental specialists, program psychiatrist, program social workers. Presenting symptoms, based on information that has been gathered from interviews with parents/caregivers, as well as input from the program psychiatrist, observations of the child in a classroom setting, referral sources (*i.e.,* PCP, other mental health professional), and interviews with other adults who have had contact with the child in either a professional or informal context are used to formulate a comprehensive treatment plan.

On a monthly basis, the clinical director of the program, program developmental specialists, program psychiatrist, and program social workers have a meeting for the purpose of consulting with one another in order to assess children's progress within the program. The monthly treatment plan progress notes, which consist of reports regarding the child's functioning over the past month by the child's developmental specialist/teacher, are completed. The child's developmental specialist specifies any progress or regression he/she has experienced over the prior month regarding presenting symptoms, as well as reporting on the presence of any new symptoms. For presenting symptoms related to attention deficits, mood, social skills, and self-care skills, developmental specialist reports are primarily descriptive in nature. In terms of reporting on progress related to externalizing behavior problems, such as aggression, non-compliance, and tantrums, developmental specialists are able to offer daily, weekly, and monthly frequency counts.

With regard to operationalizing the behaviors of interest within this study, the program has offered the following descriptions. Within the program, an act of aggression is described by the center as either a willful or impulsive behavior toward another person (adult or child) that is physically aggressive in nature. A behavior is considered non-compliant if the child does not complied with an adult request within two verbal prompts. Lastly, a tantrum is described as disruptive, externalizing behaviors that last over one minute, characterized by the child's inability to gain control of his/her emotions and/or behaviors.

So as to avoid significant treatment effects, the monthly treatment plan progress notes utilized within this study were the notes from the child's first month of attending the program. In cases where the notes from the first month were not available, progress notes from the child's second month attending the program were used. Although, the honest brokers ensured that the progress notes accessed for this study were either from the first or second month treatment meetings, the precise dates of the notes were not available because the program requested that there be a HIPAA complete (*i.e.,* "Safe Harbor") de-identification of medical record information, which prohibits recording all elements of dates related to an individual including dates of treatment team meetings. Hence, it is not known how many one- or two-month treatment plan progress notes were used.

4.3. Research Procedures

Prior to initiating the study, all past and current medical charts were reviewed by the program's staff members in order to determine what charts contained information pertinent to this study. Only charts containing psychological evaluations and monthly treatment plan notes deemed to be both complete and thorough were used. Because the data was collected from medical records, HIPPAA regulations required that an honest broker be used to de-identify the data. Following IRB approval for this project and prior to the recording of data, all identifiable information (*e.g.,* names, addresses, phone numbers) was removed from the psychiatric evaluations and the monthly treatment plan notes. Once identifiable information had been removed, all data from psychiatric evaluations and monthly treatment plan progress notes were recorded.

Risk factors recorded included: physical abuse, neglect, sexual abuse, parental mental illness, parental drug and/or alcohol abuse, exposure to domestic violence, history of foster care, parental incarceration, prenatal exposure to drugs and/or alcohol, absence of biological mother, absence of biological father, and having an adolescent parent. It should be noted that risk factors "absence of biological mother" and "absence of biological father" refer to life circumstances in which a biological mother or father were completely uninvolved in the child's life at the time of the psychological evaluation. It is also important to note that risk factors were only recorded if the child had been exposed. Lastly, it must be noted that risk factor "having an adolescent parent" was recorded if the child spent at least the first two years of his/her life under the care of an adolescent parent.

Records from monthly treatment plan progress notes included the presence or absence of non-compliance, aggression, and tantrums as presenting issues/symptoms, and one-month frequency counts of non-compliance and aggression. (Frequency counts for tantrums were not often recorded within monthly treatment plan progress notes and, as a result, were not recorded within this study). The frequency counts were either in the form of average number behaviors (non-compliance or aggression) per day or the total number of behaviors over the span of the month. Average daily totals were used within the statistical analyses. In the case where a child's frequency count was in the form of a summated total, the total was divided by the number of days the child attended the program over that month in order to achieve an average daily frequency count for the child. Children attended the program for approximately 6 hours per day, 2 hours of which consisted of naptime.

Also included within the descriptions of the children's aggression and non-compliance in the program are notations of behavior severity. In order to determine the different severity levels of the behaviors, I consulted with six teachers from the program in order to discuss a seven-point scale, along which the severity of non-compliance and aggression can be categorized. As a result of a series of consultations, the teachers were in full agreement regarding the seven-point scale for non-compliance and aggression that can be seen in Table 3.

Table 3

Non-Compliance and Aggression Severity Scales

	Non-Compliance	Aggression
Severity Level	Frequency	Frequency
Not present	Not identified as issue for child	Not identified as issue for child
Very Mild	Less than 1 non-compliance/week	Less than 1 aggressive behavior/week
Mild	More than 1 non-compliance/week, less than l/day	More than 1 aggressive behavior/week, less than 1/day
Moderate	1-2 non-compliant behaviors/day	1-2 aggressive behaviors/day
Moderately Severe	3-5 non-compliant behaviors/day	3-4 aggressive behaviors/day
Severe	6-9 non-compliant behaviors/day	5-6 aggressive behaviors/day
Extreme	10 + non-compliant behaviors/day	7 + aggressive behaviors/day

5. RESULTS

A general aim of the study was to offer a description of the life circumstances of urban preschool-aged children in treatment and to discuss the severity of externalizing behavior problems (non-compliance, aggression, tantrums) experienced by the children attending the early intervention/partial hospitalization program. With regard to the presence of risk factors in the children's backgrounds, analysis of the data paints a compelling picture regarding the challenging life circumstances confronting these children. In order to effectively illustrate the pervasiveness of risk factors in the backgrounds of the children, several analyses, intended to provide pertinent descriptive information, were conducted. Descriptive risk factor information presented within this section includes frequencies of specific risk factors, correlations and frequencies of co-occurrence between risk factor, and cumulative risk factor frequencies.

In terms of the severity of externalizing behavior problems (non-compliance, aggression, tantrums) in these clinically referred preschool-age children, a general analysis of the data revealed a significantly high prevalence of children being referred for treatment due to clinically significant levels of non-compliant, aggressive, and tantrumming behaviors. Information pertaining to externalizing behavior problems that is presented within this section includes the frequencies of non-compliance, aggression, and tantrums; frequency of the behaviors across gender and severity levels, correlations between the behaviors across gender, and frequencies of the behaviors across risk factors.

With regard to the first specific objective of study, which was to identify salient relationships between background risk factors and externalizing behavior problems, the initial plan was to run a correlation analysis, which would be followed by a regression analysis. The dual purpose of the correlation analysis was to identify strong positive relationships between background risk factors and presenting symptoms, as well as serve as justification for conducting a multiple regression analysis between background risk factors and externalizing behavior problems. Since no significant correlations were discovered, a regression analysis was not necessary.

As for the second specific objective, which was to test the cumulative risk premise, which proposes a positive relationship between the number of risk factors to which a child is exposed and the severity of symptoms, a correlation analysis was run between the number of background risk factors and the severity of non-compliance and aggression.

5.1. Risk Factor Frequency

Based on a review of the literature related to common risk factors among children living in poverty, it was expected that relatively high frequencies of parental mental illness, parental substance abuse, in utero exposure to drugs/alcohol, foster placement, domestic violence, parental incarceration, and child maltreatment would be found.

As can be seen in Table 4, the most common risk factor was the absence of biological father, which was reported for 73.1 % of the children included within the study. Other risk factors that were present among over twenty five percent of the children in the study included parental mental illness (67.1%), parental drug/alcohol abuse (56.9%), in utero substance exposure (45.5%), foster placement (41.3%), domestic violence (38.9%), parental incarceration (30.5%), and neglect (26.3%). Overall, the findings do support existing literature related to common risk factors among children living in poverty

The least common risk factors reported were having an adolescent parent (7.8%)

and sexual abuse (6%). Due to the low frequency of the risk factors “having an adolescent mother” and “sexual abuse,” results related to these risk factors were not included within this section.

Table 4

Risk Factor Frequencies

Risk Factor	Frequency	Percent
Absence of Biological Father	122	73.1
Parental Mental Illness	112	67.1
Parental Drug/Alcohol Abuse	95	56.9
In utero Drug Exposure	76	45.5
History of Foster Care	68	41.3
Exposure to Domestic Violence	65	38.9
Parental Incarceration	51	30.5
Neglect	44	26.3
Physical Abuse	35	21
Absence of Biological Mother	28	16.8
Having an Adolescent Mother	13	7.8
Sexual Abuse	10	6

Considering how frequently many of the risk factors were found to be present in the children’s lives, the findings support the need for there to be ongoing investigations regarding the effects of risk factor exposure on children’s development. In addition, due to the unusually high prevalence of the risk factor “absence of biological father” found in this study and the fact that there is a lack of empirical information pertaining to its direct and indirect effects on young children's functioning, it would be prudent for the effects of this risk to be adequately investigated.

5.2. Cumulative Risk Factor Frequency

Because most of the children attending the program come from impoverished backgrounds and prior research findings have linked poverty with higher rates of risk factor exposure, it was expected that many children in the program would have been exposed to multiple risk factors. As can be seen in Table 5, most (79.5%) of the children within the study were exposed to three or more risk factors.

Table 5

Cumulative Risk Factor Frequencies

Number of Risk Factors	Frequency	Percent	Cumulative Percent
0	3	1.8	1.8
1	11	6.6	8.4
2	22	13.2	21.6
3	30	18.0	39.5
4	30	18.0	57.5
5	24	14.4	71.9
6	18	10.8	82.6
7	10	6.0	88.6
8	15	9.0	97.6
9	3	1.8	99.4
10	1	.6	100.0

Note: Poverty was treated as a constant in this study and was not included in the cumulative risk factor frequency counts

These findings support the notion that many children living in poverty are vulnerable to exposure to multiple risk factors. In terms of research, the results reflect the need for researchers to ensure that there is efficient control for the influence of co-occurring risk factors when investigating the independent and joint effects of exposure to a risk factor on children's development.

5.3. Correlations and Frequencies of Co-Occurrence among Risk Factors

5.3.1. Absence of Biological Father

Since an exhaustive literature review yielded no empirical data regarding the risk factors that would be significantly correlated with the risk factor "absence of biological father," no particular results were expected.

As can be seen in Table 6, the risk factor correlating significantly with the risk factor "absence of biological father" at $p<.01$ was history of foster care ($r = .263$). Correlations significant at $p<.05$ included absence of biological mother ($r = .164$) and parental incarceration ($r = .168$).

Since the relationships between the absence of one's biological father and the presence of other risk factors have not been sufficiently investigated in prior research studies, these findings can contribute to the presently minute base of knowledge related to absence of biological father as a risk factor correlate, as well as supporting the need to further explore the nature of these links.

In terms of the risk factor having the highest rate of co-occurrence with "absence of biological father," Table 6 shows that approximately 90% of the children who experienced the risk factor “absence of biological mother” also experienced the absence of their biological father. Other risk factors found to have relatively high rates of co-occurrence included history of foster care (87%) and parental incarceration (84.3%), whereas the risk factors with the two lowest rates of co-occurrence were exposure to domestic violence (67.7%) and parental drug/alcohol abuse (71.6%).

Due to the high frequencies of co-occurrence with other risk factors, it is important that researchers investigating the independent and joint contributions of the risk factor “absence of biological father” toward developmental outcomes ensure that there is adequate control for the influence of co-occurring risk factors.

Table 6

Correlations and Frequencies of Co-Occurrence between Absence of Biological Father and other Risk Factors

	Present	Not Present	Percentage	Correlation (Sig.)
Absence of Biological Mother	25	3	89.3	.164* (.034)
Foster Care	60	9	87	.263** (.001)
Parental Incarceration	43	8	84.3	.168* (.030)
Neglect	36	8	81.8	.118 (.128)
Parental Mental Illness	84	28	75	.063 (.422)
In utero Exposure to Drugs/Alcohol	57	19	75	. 040 (.607)
Physical Abuse	26	9	74.3	.014 (.855)
Parental Drug/Alcohol Abuse	68	27	71.6	-.038 (.624)
Exposure to Domestic Violence	44	21	67.7	-.096 (.215)

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

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

5.3.2. Parental Mental Illness

Based on a review of the research literature, it was expected that the presence of parental mental illness would be significantly and positively correlated with the presence of the following risk factors: domestic violence, parental incarceration, neglect, and history of foster care.

As can be seen in Table 7, exposure to domestic violence (r =.167) was positively and significantly correlated with the risk factor "parental mental illness" at $p<.05$. This statistically significant, positive correlation does support prior findings linking parental mental illness with domestic violence. However, no statistically significant correlations were not found to exist between parental mental illness and the following risk factors: parental incarceration (r = .105), neglect (r = -.101), and history of foster care (r = -.137).

These discrepant findings (between prior studies and the current study) draw attention to some of the challenges confronting researchers attempting to identify the nature of relationships between parental mental illness and the presence of other risk factors. One possible explanation for the discrepant findings is that variability in the treatment, frequency, severity, and persistence of mental illness symptoms were not accounted for in this study. It is certainly possible that correlations between parental mental illness and the other risk factors might have varied based on whether or not a parent has received/is receiving treatment for their mental illness; whether the severity of the parent's mental illness is mild, moderate, or acute; and whether symptoms are brief, intermittent, or chronic. Addressing these challenges is critical if there is to be a clearer understanding of the degree to which parental mental illness is correlated with the presence of other risk factors.

In terms of the risk factor having the highest rate of co-occurrence with the risk factor "parental mental illness," Table 7 shows that approximately 77% of the children who were reportedly exposed to domestic violence also experienced having a parent with mental illness. Other risk factors that were found to have somewhat high rates of co-occurrence included parental incarceration (74.5%), absence of biological father (68.9%), and parental drug/alcohol abuse (61.8%).

The high frequencies of co-occurrence with other risk factors draw attention to the importance of researchers investigating the independent and joint influences of parental mental illness on child outcomes ensuring there is efficient control for the influence of other present risk factors.

Table 7

Correlations and Frequencies of Co-Occurrence between Parental Mental Illness and other Risk Factors

Risk Factor	Present	Not Present	Percentage	Correlation (Sig.)
Exposure to Domestic Violence	50	15	76.9	.167* (.031)
Parental Incarceration	38	13	74.5	.105 (.177)
Absence of Biological Father	84	38	68.9	.063 (.422)
Parental Drug/Alcohol Abuse	60	35	63.2	-.096 (.219)
In utero Exposure to Drugs/Alcohol	47	29	61.8	-.102 (.191)
History of Foster Care	41	28	59.4	-.137 (.079)
Neglect	26	18	59.1	-.101 (.192)
Physical Abuse	20	15	57.1	-.109 (.162)
Absence of Biological Mother	14	14	50	-.163* (.035)

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

5.3.3. Parental Drug/Alcohol Abuse

Based on prior research findings, it was expected that the presence of parental drug/alcohol abuse would be significantly and positively correlated with the presence of the following risk factors: in utero exposure to drugs/alcohol, history of foster care, neglect, physical abuse, domestic violence, and parental incarceration.

Table 8 shows risk factors found to correlate significantly and positively with the risk factor "parental drug/alcohol abuse" at $p<.01$ included in utero exposure to drugs/alcohol ($r =. 674$), history of foster care ($r =.338$), neglect ($r =.329$), and absence of biological mother ($r = .294$). The significant, positive correlations found in the study support prior findings linking parental drug/alcohol abuse with in utero exposure to drugs/alcohol, history of foster care, and neglect.

However, no significant, positive correlations were found between parental drug/alcohol abuse and the risk factors "physical abuse" ($r = .121$) and "parental incarceration" ($r = .131$). These non-significant correlations may reflect the need for researchers to investigate whether the presence or absence of other risk factors is influenced by the type of drug used, if the parent is receiving treatment for their substance abuse, as well as frequency, severity and persistence of the drug/alcohol abuse. It is possible that correlations with other risk factors may vary depending on what type of substance is being abused (*e.g.,* alcohol, cocaine, heroin); whether or not the parent is receiving treatment for their substance abuse; and whether the severity of the abuse is mild, moderate, or acute.

As previously noted, significant, positive correlations were found between parental drug/alcohol abuse and the risk factors “absence of biological father” and “absence of biological mother.” Because the relationship between the parental drug/alcohol abuse and these risk factors have not been sufficiently investigated in prior research studies, the significant, positive correlations found in this study support the need to further investigate the nature of these (statistically) significant relationships.

Table 8

Correlations and Frequencies of Co-Occurrence between Parental Drug/Alcohol Abuse and other Risk Factors

Risk Factor	Present	Not Present	Percentage	Correlation (Sig.)
In utero Exposure to Drugs/Alcohol	71	5	93.4	.674** (.000)
Absence of Biological Mother	25	3	89.3	.294** (.000)
Neglect	37	7	84.1	.329** (.000)
History of Foster Care	53	16	76.8	.338** (.000)
Physical Abuse	24	11	68.6	.121 (.118)
Parental Incarceration	34	17	66.7	.131 (.092)
Exposure to Domestic Violence	38	27	58.5	.025 (.745)
Absence of Biological Father	68	54	55.7	-.038 (.624)
Parental Mental Illness	60	52	53.6	-.096 (.219)

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

Regarding the risk factor found to have the highest rate of co-occurrence with the risk factor “parental drug/alcohol abuse,” Table 8 indicates that nearly 94% of the children who were reportedly exposed to drugs and/or alcohol in utero also experienced having a parent who abused drugs and/or alcohol in their early years of life. Other risk factors found to have relatively high rates of co-occurrence included absence of biological mother (89.3%), neglect (84.1%), and history of foster care (76.8%). The risk factor with the lowest rate of co-occurrence was parental mental illness, as approximately 54% of children having a parent with mental illness also had a drug abusing parent.

Based on how each risk factor, when present, was found to co-occur with the risk factor "parental drug/alcohol abuse" over 50% of the time, it is important that researchers investigating the contributions of parental drug/alcohol abuse toward developmental outcomes effectively control for the influence of co-occurring risk factors.

5.3.4. In Utero Exposure to Drugs/Alcohol

Based on a review of the research literature, it was expected that in utero exposure to drugs/alcohol would be positively and significantly correlated with the presence of the following risk factors: parental mental illness, history of foster care, neglect, and parental drug/alcohol abuse.

In Table 9, risk factors shown to correlate positively and significantly with the risk factor "in utero exposure to drugs/alcohol" included parental drug/alcohol abuse ($r = .674$), absence of biological mother ($r = .427$), and neglect ($r = .409$). These significant, positive correlations support prior research findings linking in utero exposure to drugs/alcohol with the presence of parental drug/alcohol abuse, history of foster care, and neglect.

However, there was no significant correlation ($r = -.102$) found between in utero exposure to drugs/alcohol and parental mental illness. It is indeed possible this and other correlations were susceptible to influence by factors such as the dose, frequency, duration of use, and gestational timing of the exposure, which were not controlled for in this study.

In addition, as noted before, variability in the treatment, frequency, severity, and persistence of mental illness symptoms were also not accounted for in this study. Essentially, it is important for future research studies investigating risk factor correlates with in utero substance abuse to account for variability in dose, frequency, duration of use, and gestational timing of in utero exposure, as well as making efforts to control for variability within other risk factors.

As previously noted, a significant, positive correlation was found between in utero exposure to drugs/alcohol and the risk factor "absence of biological mother." This is a noteworthy finding, as there was no information regarding this link found in a review of risk factor literature. As a result of this finding, it may be worthwhile endeavor for future risk research studies to investigate this link.

Table 9

Correlations and Frequencies of Co-Occurrence between In utero Exposure to Drugs/Alcohol and other Risk Factors

Risk Factor	Present	Not Present	Percentage	Correlation (Sig.)
Absence of Biological Mother	26	2	92.9	.427** (.000)
Neglect	35	9	79.5	.409** (.000)
Parental Drug/Alcohol Abuse	71	24	74.7	.674** (.000)
History of Foster Care	50	19	72.5	.454** (.000)
Parental Incarceration	27	24	52.9	.099 (.203)
Physical Abuse	18	17	51.4	.061 (.432)
Absence of Biological Father	57	65	46.7	.040 (.607)
Parental Mental Illness	47	65	42	-.102 (.191)
Exposure to Domestic Violence	25	40	38.5	-.113 (.146)

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

Regarding the risk factor having the highest rate of co-occurrence with the risk factor "in utero exposure to drugs/alcohol," nearly 93% of the children who the absence of their biological mother were also exposed to drugs and/or alcohol in utero. As seen in Table 9, other risk factors found to have relatively high rates of co-occurrence included neglect (79.5%) and parental drug/alcohol abuse (74.7). The risk factor with the lowest rate of co-occurrence was exposure to domestic violence, as approximately 38.5% of children exposed to domestic violence were also exposed to drugs/alcohol in utero.

Once again, based the high rates of co-occurrence with other risk factors, controlling for the influence of other risk factors constitutes an important task for researchers investigating independent and joint contributions of in utero exposure to drugs/alcohol toward developmental outcomes.

5.3.4. History of Foster Care

Based on prior research findings, it was expected that the presence of a history of foster care would be significantly correlated with the presence of the following risk factors: in utero exposure to drugs/alcohol, parental drug/alcohol abuse, neglect, physical abuse, parental mental illness, and parental incarceration.

Table 10 shows risk factors found to correlate positively and significantly with the risk factor "history of foster care" include neglect ($r = .630$), absence of biological mother ($r = .502$), in utero exposure to drugs/alcohol (.$r = .454$), parental drug/alcohol abuse ($r = .338$), physical abuse ($r = .315$), parental incarceration ($r = .289$), and absence of biological father ($r = .263$). However, no significant correlation ($r = -.137$) was found between history of foster care and parental mental illness. Thus, with the exception of the non-statistically significant correlation between history of foster care and parental mental illness, the correlations found in the study support prior research findings.

One possible reason for the non-significant correlation between history of foster care and parental mental illness might be due to the fact that there was no control for the treatment, frequency, severity and persistence of parental mental illness symptoms. For example, it is certainly possible that a child's placement in foster care would be more strongly correlated if a parent has not received treatment for their mental illness, as well as if the severity of the parent's mental illness is acute and chronic.

The significant, positive correlations found between history of foster care and the risk factors "absence of biological mother" and "absence of biological father" lends support to idea that the nature of these relationships should be subject to further investigation, as there is currently a dearth of information related to these links.

As can be seen in Table 10, nearly 97% of the children reported to have had a history of foster care were also found to have experienced the absence of their biological mother. Other risk factors found to have somewhat high rates of co-occurrence included neglect (93.2%), physical abuse (71.4%), and in utero exposure to drugs/alcohol (65.8%). The risk factor with the lowest rate of co-occurrence was exposure to domestic violence, as approximately 34% of children exposed to domestic violence also had a history of foster care placement

Considering that a history of foster care often co-occurs with other risk factors, researchers investigating the effects of foster care placement on child development will need to be resolute in controlling for the influence of co-occurring risk factors.

Table 10

Correlations and Frequencies of Co-Occurrence between History of Foster Care and other Risk Factors

Risk Factor	Present	Not Present	Percentage	Correlation (Sig.)
Absence of Biological Mother	27	1	96.4	.502** (.000)
Neglect	41	3	93.2	.630** (.000)
Physical Abuse	25	10	71.4	.315** (.000)
In utero Exposure to Drugs/Alcohol	50	26	65.8	.454 ** (.000)
Parental Incarceration	32	19	62.7	.289 ** (.000)
Parental Drug/Alcohol Abuse	53	42	55.8	.338 ** (.000)
Absence of Biological Father	60	62	49.2	.263** (.001)
Parental Mental Illness	41	71	36.6	-.137 (.079)
Exposure to Domestic Violence	22	43	33.8	-.121 (.119)

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

5.3.6. Exposure to Domestic Violence

Based on prior research findings, it was expected that the presence of domestic violence would be significantly and positively correlated with the presence of the following risk factors: parental drug/alcohol abuse, neglect, physical abuse, and parental mental illness.

As can be seen in Table 11, risk factors correlating significantly and positively with the risk factor "exposure to domestic violence" included physical abuse ($r = .223$) and parental mental illness ($r = .167$). These significant, positive correlations found in the study support prior research findings linking exposure to domestic violence with physical abuse and parental mental illness. However, no significant, positive correlations were found between exposure to domestic violence and the risk factors "parental drug/alcohol abuse" ($r = .025$) and "neglect" ($r = -.115$).

The results draw attention to some of the challenges related to investigating the relationship between domestic violence and the presence other risk factors. It is possible that the correlations between exposure to domestic violence and the other risk factors might have been different if there had been control for variability in type and severity of the domestic violence. Hence, it is advisable that future research studies investigating risk factor correlates of exposure to domestic violence control for differences in the type (*i.e.,* verbal, physical, sexual) and severity (*i.e.,* frequency, duration, level of hostility) of the domestic violence, as well as controlling for variability among the other investigated risk factors.

In Table 11, it can be seen that 60% of children who reportedly experienced physical abuse also experienced an exposure to domestic violence. Other risk factors found to have somewhat relatively high rates of co-occurrence included neglect parental mental illness (44.6%), parental incarceration (43.1%), and parental drug/alcohol abuse (40%), whereas the risk factors with the lowest percentage rates of co-occurrence with exposure to domestic violence included absence of biological mother (28.6%), neglect (28.5%), and history of foster care (31.9%).

Because exposure to domestic violence has been found to frequently co-occur with other risk factors, researchers investigating the effects of domestic violence on children's functioning will need to ensure that there is effective control for the influence of co-occurring risk factors.

Table 11

Correlations and Frequencies of Co-Occurrence between Exposure to Domestic Violence and other Risk Factors

Risk Factor	Present	Not Present	Percentage	Correlation (Sig.)
Physical Abuse	21	14	60	.223** (.004)
Parental Mental Illness	50	62	44.6	.167* (.031)
Parental Incarceration	22	29	43.1	.057 (.462)
Parental Drug/Alcohol Abuse	38	57	40	.025 (.745)
Absence of Biological Father	44	78	36.1	-.096 (.215)
In utero Exposure to Drugs/Alcohol	25	51	32.9	-.113 (.146)
History of Foster Care	22	47	31.9	-.121 (.119)
Neglect	13	31	29.5	-.115 (.139)
Absence of Biological Mother	8	20	28.6	-.095 (.221)

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

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

5.3.7. Parental Incarceration

Based on a review of existing research literature, it was expected that parental incarceration would be significantly and positively correlated with the presence of the following risk factors: parental drug/alcohol abuse, neglect, physical abuse, and parental mental illness.

Table 12 shows that risk factors correlating significantly and positively with the risk factor "parental incarceration" at $p<.01$ were the absence of biological mother ($r = .224$) and history of foster care ($r = .289$). Significant, positive correlations at $p<.05$ included neglect ($r = .144$) and absence of biological father ($r = .168$). The significant correlations linking parental incarceration with neglect and history of foster care support prior research findings. However, no statistically significant correlations were found between parental incarceration and the following risk factors: parental drug/alcohol abuse ($r = .131$), physical abuse ($r = .016$), and parental mental illness ($r = .105$).

It is possible that correlations between parental incarceration and the other risk factors were weakened by the fact that some of the information related to parental histories was not provided by the parents themselves (due to their incarceration). Hence, it is possible that evaluations may have had information missing related to parental histories (*e.g.,* history of mental illness, drug abuse). Thus, it is advisable that future research studies investigating risk factor correlates with parental incarceration ensure that data consists of accounts of the incarcerated parents themselves.

It is also possible that the non-significant correlations between parental incarceration and risk factors "parental mental illness" and "parental drug/alcohol abuse" were due to the fact that there was no control for the treatment, frequency, severity and persistence of parental mental illness symptoms or drug/alcohol abuse.

In Table 12, it can be seen that nearly 78% of the children who reportedly experienced physical abuse also experienced having a parent who was incarcerated. Other risk factors that, when present, were found to co-occur over 50% of the time with the risk factor "parental incarceration," included history of foster care (53.6%) and absence of biological mother (53.6%), whereas risk factors with the lowest rates of co-occurrence included exposure to domestic violence (33.8%) and parental mental illness (33.9%).

Considering that parental incarceration frequently co-occurs with several risk factors, it is critical that researchers investigating the effects of parental incarceration on children's development effectively control for the influence of other present risk factors.

Table 12

Correlations and Frequencies of Co-Occurrence between Parental Incarceration and other Risk Factors

Risk Factor	Present	Not Present	Percentage	Correlation (Sig.)
Physical Abuse	27	8	77.1	-.086 (.270)
History of Foster Care	37	32	53.6	.289 ** (.000)
Absence of Biological Mother	15	13	53.6	.224 ** (.004)
Neglect	20	24	45.5	.194 * (.012)
Parental Drug/Alcohol Abuse	34	61	35.8	.131 (.092)
In utero Exposure to Drugs/Alcohol	27	49	35.5	.099 (.203)
Absence of Biological Father	43	79	35.2	.168 * (.030)
Parental Mental Illness	38	74	33.9	.105 (.177)
Exposure to Domestic Violence	22	43	33.8	.057 (.462)

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

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

5.3.8. Neglect

Based on prior research findings, it was expected that neglect would be significantly and positively correlated with the presence of the following risk factors: in utero exposure to drugs/alcohol, parental drug/alcohol abuse, and history of foster care.

In Table 13, risk factors shown to correlate significantly with the risk factor “neglect” at $p<.01$ included history of foster care ($r = .630$), absence of biological mother ($r = .459$), in utero exposure to drugs/alcohol ($r =.409$), and parental drug/alcohol abuse ($r = .329$), whereas parental incarceration ($r = .194$) was significant at $p<.05$. These significant, positive correlations support prior research findings linking neglect with in utero exposure to drugs/alcohol, parental drug/alcohol abuse, and history of foster care.

Although it is not surprising that a significant, positive correlation was found between neglect and the risk factor “absence of biological mother,” since this link has not been adequately address within prior studies, it may be useful to conduct more in-depth investigations of the experiences of neglected children whose mothers are absent from their lives.

Table 13

Correlations and Frequencies of Co-Occurrence between Neglect and other Risk Factors

Risk Factor	Present	Not Present	Percentage	Correlation (Sig.)
Absence of Biological Mother	20	8	71.4	.459** (.000)
History of Foster Care	41	28	59.4	.630** (.000)
In utero Exposure to Drugs/Alcohol	35	41	46.1	.409** (.000)
Parental Incarceration	20	31	39.2	.194* (.000)
Parental Drug/Alcohol Abuse	37	58	38.9	.329** (.000)
Physical Abuse	13	22	37.1	.126 (.104)
Absence of Biological Father	36	86	29.5	.118 (.128)
Parental Mental Illness	26	86	23.2	-.101 (.192)
Exposure to Domestic Violence	13	52	20	-.115 (.139)

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

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

Risk factors found to have the highest rates of co-occurrence with the risk factor “neglect,” included absence of biological mother (72%) and history of foster care (60%). Risk factors with the lowest rates of co-occurrence with neglect included parental mental illness (23.2%) and exposure to domestic violence (20%).

Again, based on the findings related to rates of co-occurrence among risk factors, it is important for future research studies investigating the effects of neglect on children's functioning to ensure that there is adequate control for the influence of co-occurring risk factors.

5.3.9. Physical Abuse

Based on prior research findings, it was expected that physical abuse would be significantly and positively correlated with the presence of the following risk factors: exposure to domestic violence, parental mental illness, parental drug/alcohol abuse, and history of foster care.

Risk factors shown to correlate significantly and positively with the risk factor "physical abuse" at $p<.01$ included history of foster care ($r = .315$), absence of biological mother ($r = .241$), and exposure to domestic violence ($r =. 223$). These significant, positive correlations support prior research findings linking physical abuse with the risk factors "exposure to domestic violence" and "history of foster care".

However, no significant, positive correlations were found between physical abuse and parental mental illness ($r = -.109$), and parental drug/alcohol abuse ($r = .121$). It should be noted that the correlations between physical abuse and the risk factors "parental drug/alcohol abuse" and "parental mental illness" may have been subject to influence by variability in the frequency, severity, and persistence of the physical abuse, as well as by variability in the treatment, frequency, severity and persistence of parental substance abuse and mental illness symptoms. Once again, it is important for researchers investigating risk factor correlates to account for the variability within each of the investigated risk factors.

In addition, the significant, positive correlation found between physical abuse and the risk factor "absence of biological mother," supports the idea of conducting more in-depth investigations of the experiences of physically abused children whose mothers are not involved in their lives, as this combination of risk factors has not been adequately addressed within prior research studies.

Table 14

Correlations and Frequencies of Co-Occurrence between Physical Abuse and other Risk Factors

Risk Factor	Present	Not Present	Percentage	Correlation (Sig.)
Absence of Biological Mother	12	16	42.9	.241** (.000)
History of Foster Care	25	44	36.2	.315** (.000)
Exposure to Domestic Violence	21	44	32.3	.223** (.004)
Neglect	13	31	29.5	.126 (.104)
Parental Drug/Alcohol Abuse	24	71	25.3	.121 (.118)
In utero Exposure to Drugs/Alcohol	18	58	23.7	.061 (.432)
Absence of Biological Father	26	96	21.3	.014 (.855)
Parental Mental Illness	20	92	17.9	-.109 (.162)
Parental Incarceration	8	43	15.7	-.086 (.270)

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

In terms of the risk factors with the highest rates of co-occurrence with the risk factor "physical abuse," it was found that approximately 43% of the children who experienced the absence of their biological mother, 36% of children with a history of foster care and 32% of children exposed to domestic violence also experienced physical abuse.

Although each risk factor, when present, co-occurred with the risk factor "physical abuse" less than 50% of the time, the frequencies of co-occurrence are substantial enough for researchers to be advised to ensure the efficient control for the influence of co-occurring risk factors when investigating the effects of physical abuse on children's development.

5.3.10. Absence of Biological Mother

Since an exhaustive literature review yielded no empirical data regarding risk factor correlates with the risk factor "absence of biological mother," no particular results were expected.

As seen in Table 15, risk factors shown to correlate significantly with the risk factor "absence of biological mother" at the .01 level included history of foster care (r = .502), neglect (r =.459), in utero exposure to drugs/alcohol (r = .427), parental drug/alcohol abuse (r = .294), physical abuse (r = .241), and parental incarceration (r = .224), whereas absence of biological father (r =.164) was found to be significant at the .05 level.

Table 15 reveals that each risk factor, when present, co-occurred with the risk factor "absence of biological mother" less than 50% of the time. With regard to the risk factor having the highest rate of co-occurrence with the risk factor "absence of biological mother," it was found that nearly 46% of the children who reportedly experienced neglect also experienced the absence of their biological mother. Risk factors with the two lowest rates of co-occurrence were parental mental illness and exposure to domestic violence.

These findings can potentially contribute to the current dearth of information related to the links between the risk factor "absence of biological mother" and other risk factors.

In addition, the significant correlations and noteworthy frequencies of co-occurrence with other risk factors may also reflect the need to further explore the nature of these links.

Table 15

Correlations and Frequencies of Co-Occurrence between Absence of Biological Mother and other Risk Factors

Risk Factor	Present	Not Present	Percentage	Correlation (Sig.)
Neglect	20	24	45.5	.459** (.000)
History of Foster Care	27	42	39.1	.502** (.000)
Physical Abuse	12	23	34.3	.241* (.002)
In utero Exposure to Drugs/Alcohol	26	50	34.2	.427** (.000)
Parental Incarceration	15	36	29.4	.224* (.004)
Parental Drug Abuse	25	70	26.3	.294** (.000)
Absence of Biological Father	25	97	20.5	.164* (.034)
Parental Mental Illness	14	98	12.5	-.163* (.035)
Exposure to Domestic Violence	8	57	12.3	-.095 (.221)

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

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

5.4. Behavior Problems

5.4.1. Non-Compliance

5.4.1.1 Frequency of Non-Compliance

As can be seen in Table 16, of the 167 children included within the study, 134 (80.2%) children had non-compliance listed as a presenting symptom. In terms of gender, 83.3 % of the males and 74.6% of the females in the study listed non-compliance as a presenting symptom.

Considering the high frequency of clinically significant non-compliance found among the children (both males and females), is would seem important for there to be ongoing investigations focusing on the putative causes of clinically significant non-compliance among young children, as clinically significant non-compliance in early childhood is often a precursor to more severe conduct problems in adolescence and/or adulthood.

Table 16

Frequency of Non-Compliance

Gender	Present	Not Present	Total
Male	90 (83.3%)	18 (16.7%)	108
Female	44 (74.6%)	15 (25.4%)	59
Total	134 (80.2%)	33 (19.8%)	167

5.4.1.2. Severity of Non-Compliance

With regard to the severity level of non-compliance, it can be seen within Table 17 that forty-six (34.3% of those presenting with non-compliance) children fell into the moderately severe category (averaging 3-5 non-compliant behaviors per day). Of the children who had listed non-compliance as a presenting symptom, 72 (53.7%) averaged three or more non-compliant behaviors per day.

Table 17

Severity of Non-Compliance

	Entire Sample		Males		Females	
Severity	Frequency	Percent of Sample	Frequency	Percent of Males	Frequency	Percent of Females
Not Present	33	19.8	18	16.7	15	25.4
Very Mild	12	7.2	7	6.5	5	8.5
Mild	18	10.8	9	8.3	9	15.3
Moderate	32	19.2	23	21.3	9	15.3
Moderately Severe	46	27.5	31	28.7	15	25.4
Severe	11	6.6	9	8.3	2	3.4
Extreme	15	9.0	11	10.2	4	6.8

Notes: Not present: Not identified as issue for child
Very Mild: Less than 1 non-compliance/week
Mild: More than 1 non-compliance/week, less than l/day
Moderate: 1-2 non-compliant behaviors/day
Moderately Severe: 3-5 non-compliant behaviors/day
Severe: 6-9 non-compliant behaviors/day
Extreme: 10+ non-compliant behaviors/day

These results draw attention to the fact there is clear variability in non-compliance severity levels. Such variability may require researchers to investigate the causes of non-compliance across severity levels and may also require early intervention programs to utilize different treatments based on the child's level of non-compliance and to share information regarding treatment effectiveness across severity levels.

5.4.2. Aggression

5.4.2.1. Frequency of Aggression

In Table 18, it can be seen that, of the 167 children included within the study, 132 (79%) had listed aggression as a presenting symptom. In terms of gender differences, 83.3 % of the males and 71.2% of the females in the study had listed aggression as a presenting symptom.

Because of the high frequency of clinically significant aggression found among the children (both male and female) and the well established research findings linking clinically significant aggression with more severe conduct problems in adolescence and adulthood, it is important to conduct ongoing investigations aimed at discovering the putative causes of clinically significant aggression in early childhood.

Table 18

Frequency of Aggression

Gender	Present	Not Present	Total
Male	90 (83.3%)	18 (16.7%)	108
Female	42 (71.2%)	117 (28.8%)	59
Total	132 (79%)	35 (21%)	167

5.4.2.2. Severity of Aggression

With regard to the severity level of aggression that most of the children fell into, Table 19 shows that 50 (37.8% of those presenting with aggression) children fell into the mild category (averaging more than one aggressive behavior per week, but less than one per day). However, of the children who had listed aggression as a presenting symptom, only 60 (45.4%) averaged one or more aggressive behaviors per day. According to the teachers, the averages end up being lower than expected because many of the children are often inconsistent (*i.e.,* on some days their aggression will be severe, but will not be present at all on other days) with their displays of aggression. Hence, averages of daily frequencies of aggression are not likely the best barometer of the severity of aggression.

Table 19

Severity of Aggression

	Entire Sample		Males		Females	
Severity	Frequency	Percent of Sample	Frequency	Percent of Males	Frequency	Percent of Females
Not Present	35	21	18	16.7	17	28.8
Very Mild	22	13.2	14	13	8	13.6
Mild	50	29.9	33	30.6	17	28.8
Moderate	35	21	26	24.1	9	15.3
Moderately Severe	16	9.6	11	10.2	5	8.5
Severe	7	4.2	5	4.6	2	3.4
Extreme	2	1.2	1	.9	1	1.7

Notes: Not present: Not identified as issue for child
Very Mild: Less than 1 aggressive behavior/week
Mild: More than 1 aggressive behavior/week,less than l/day
Moderate: 1-2 aggressive behaviors/day
Moderately Severe: 3-4 aggressive behaviors/day
Severe: 5-6 aggressive behaviors/day
Extreme: 7+ aggressive behaviors/day

The results draw attention to the fact that there is considerable variability in severity levels of children's aggression, which supports the need for researchers to investigate the putative causes of clinically significant aggression across severity levels. Such an investigation may require early intervention programs to utilize different treatments based on child's level of aggression and to share information regarding treatment effectiveness across severity levels.

5.4.3. Tantrums

As can be seen in Table 20, of the 167 children included within the study, ninety (53.9%) of the children had tantrums reported as being a presenting symptom. With regard to the frequency of tantrums across gender, Table 20 reveals that 50% of the males and 39% of the females included within the study had tantrums listed as a presenting symptom.

Table 20

Frequency of Tantrums

Gender	Present	Not Present	Total
Male	54 (50%)	54 (50%)	108
Female	23 (39%)	36 (61%)	59
Total	77 (46.1%)	90 (53.9%)	167

Although the presence of tantrums among toddlers can be considered developmentally appropriate, such tantrums can signify a developmental problem when they occur among children of preschool age and older. However, in this study there was no significant correlation (r = .088) between age and tantrums among the participants. Hence, there is no reason to believe that the presence of tantrums among the children in this study represents developmentally appropriate behavior.

Even though the frequency of young children presenting with clinically significant tantrums was found to be significantly lower than the frequency of non-compliance or aggression, there were enough children presenting with clinically significant tantrums to support the need for ongoing investigations focusing on the putative causes of clinically significant tantrums among young children.

5.4.4. Correlations between Behaviors

As can be seen in Table 21, the correlations between aggression and non-compliance were statistically significant at $p < .01$ among both males and females, whereas the correlations between non-compliance and tantrums, and between aggression and tantrums were not statistically significant among males or females.

Table 21

Correlations between Behaviors

	Entire Sample		Males		Females	
Behavior	Non-Compliance	Aggression	Non-Compliance	Aggression	Non-Compliance	Aggression
Aggression	.497** (.000)		.403**(.000)		.636** (.000)	
Tantrums	.025 (.749)	-.028 (.721)	-.015 (.879)	-.074 (.444)	.065 (.626)	.024 (.855)

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

The significant correlations between non-compliance and aggression support the need for researchers to conduct ongoing investigations of the causes of co-occurring aggression and non-compliance among young children in order to better understand the nature of the relationship between clinically significant non-compliance and aggression.

As for the lack of significant correlations between tantrums and the other behaviors, that may be attributable to the fact that tantrums may be a manifestation of deficits in a child’s capacity to regulate emotion. The data indicate that this emotional deficit is not related to the more anti-social directed behaviors of aggression and non-compliance.

5.5. Frequency of Behaviors across Risk Factors

5.5.1. Non-Compliance

Based on a review of research literature, it was expected that non-compliance would be found to frequently occur when the following risk factors were present: physical abuse, neglect, and in utero exposure to drugs/alcohol.

As can be seen in Table 22, with the entire sample of children included, it was found that, although clinically significant non-compliance was frequently present when the children experienced the risk factors “physical abuse,” “neglect,” or “in utero exposure to drugs/alcohol,” non-compliance occurred most frequently when the following risk factors were present: parental incarceration (84.3%), absence of biological father (82.8%), parental mental illness (82.1%), and absence of biological mother (82.1%).

However, it should be noted that, among males, non-compliance was present most frequently when the child had experienced in utero exposure to drugs/alcohol (89.1%) or neglect (89.3%). Accordingly, in addition to reconfirming prior findings, the results point to several additional risk factors that should be investigated further in regard to their link to clinically significant non-compliance.

The frequent presence of clinically significant non-compliance across risk factors supports the need for future studies to clarify the nature of the relationships between specific risk factor sets and clinically significant non-compliance.

Table 22

Frequency of Non-Compliance Across Risk Factors

	Entire Sample		Males		Females	
Risk Factor	Present	%	Present	%	Present	%
Parental Incarceration	43	84.3	28	87.5	15	78.9
Absence of Biological Father	101	82.8	66	84.6	35	79.5
Parental Mental Illness	92	82.1	60	84.5	32	78
Absence of Biological Mother	23	82.1	16	88.9	7	70
History of Foster Care	56	81.2	38	88.4	18	69.2
In utero Exposure to Drugs/Alcohol	61	80.3	41	89.1	20	66.7
Exposure to Domestic Violence	52	80	34	82.9	18	75
Physical Abuse	28	80	17	85	11	73.2
Parental Drug/Alcohol Abuse	75	78.9	50	86.2	25	67.6
Neglect	34	77.3	25	89.3	9	56.3

5.5.2. Aggression

Based on prior research findings, it was expected that aggression would frequently occur when the following risk factors were present: exposure to domestic violence, physical abuse, and parental incarceration.

As can be seen in Table 23, with the entire sample of children included, approximately 85% of the children who were exposed to domestic violence exhibited clinically significant aggression. Aggression was also frequently present among children who had experienced the following risk factors: physical abuse (82.9%), absence of biological father (82.8%), a history of foster care (81.2%), and parental incarceration (80.4%).

The frequent presence of clinically significant aggression across the risk factors found in this study supports the concept that future risk research studies should continue to investigate the nature of the relationships between these risk factors and clinically significant aggression.

Table 23

Frequency of Aggression Across Risk Factors

	Entire Sample		Males		Females	
Risk Factor	Present	%	Present	%	Present	%
Exposure to Domestic Violence	55	84.6	37	90.2	18	75
Physical Abuse	29	82.9	17	85	12	80
Absence of Biological Father	101	82.8	68	87.2	33	75
History of Foster Care	56	81.2	36	83.7	20	76.9
Parental Incarceration	41	80.4	24	75	17	89.5
Neglect	35	79.5	24	85.7	11	68.8
Absence of Biological Mother	22	78.6	14	77.8	8	80
Parental Mental Illness	87	77.7	58	81.7	29	70.7
Parental Drug/Alcohol Abuse	71	74.7	46	79.3	25	67.6
In utero Exposure to Drugs/Alcohol	54	71.1	35	76.1	19	63.3

5.5.3. **Tantrums**

Since an exhaustive literature review yielded no empirical data regarding the risk factors most closely linked with clinically significant tantrums, no specific results were predicted in advance. As can be seen in Table 24, the frequencies with which tantrums were present across the different risk factors were significantly lower than non-compliance and aggression. Nevertheless, it should be noted that tantrums were most frequently a presenting problem when the risk factors "exposure to domestic violence" (46.2%) and "in utero exposure to drugs/alcohol" (46.1%) were present.

Table 24

Frequency of Tantrums Across Risk Factors

	Entire Sample		Males		Females	
Risk Factor	Present	%	Present	%	Present	%
Exposure to Domestic Violence	30	46.2	43	55.1	11	45.8
In utero Exposure to Drugs/Alcohol	35	46.1	26	56.5	9	30
Absence of Biological Father	59	43	43	55.1	16	36.4
Parental Drug/Alcohol Abuse	40	42.1	29	50	11	29.7
Parental Mental Illness	47	42	29	40.8	18	43.9
Neglect	18	40.9	15	53.6	3	18.8
History of Foster Care	28	40.6	24	55.8	4	15.4
Absence of Biological Mother	11	39.3	9	50	2	20
Physical Abuse	13	37.1	9	45	4	26.7
Parental Incarceration	18	35.3	13	40.6	5	26.3

Considering the lack of empirical data regarding the presence of clinically significant tantrums across different risk factors, there does appear to be a need for future studies to augment the findings of this study and add to the base of knowledge regarding the relationships between specific risk factors and clinically significant tantrums.

5.6. Correlations between Risk Factors and Behavior Problems

As stated before, one of the main objectives of this study was to identify salient relationships between background risk factors and children's behavior problems (*i.e.,* non-compliance, aggression, tantrums). Prior research studies found aggression to be significantly, positively correlated with the following risk factors: exposure to domestic violence, physical abuse, parental incarceration, while prior studies found non-compliance to be significantly, positively correlated with physical abuse, neglect, and in utero exposure to drugs/alcohol. It should be noted that the correlations calculated were between the presence/absence of individual risk factors and the average daily frequencies of non-compliance and aggression. As for the relationships between risk factors and tantrums, the correlations calculated were between the presence/absence of individual risk factors and the presence/absence of clinically significant tantrums.

5.6.1. Entire Sample

As can be seen in Table 25, no significant correlations were found between risk factors and the behavior problems when the entire sample was included in the analysis.

Table 25

Correlations between Risk Factors and Behavior Problems for Entire Sample (N=167)

Risk Factor	Non- Compliance	Aggression	Tantrums
Foster Care	-.007 (.931)	-.069 (.374)	-.093 (.232)
In utero Exposure to Drugs/Alcohol	-.015 (.852)	-.102 (.190)	-.001 (.990)
Parental Incarceration	-.019 (.808)	-.088 (.256)	-.144 (.064)
Parental Mental Illness	.077 (.320)	.052 (.502)	-.119 (.127)
Absence of Biological Mother	-.024 (.757)	-.019 (.810)	-.061 (.339)
Absence of Biological Father	.077 (.322)	.041 (.599)	.074 (.339)
Exposure to Domestic Violence	.025 (.752)	.093 (.230)	.001 (.992)
Parental Substance Abuse	-.107 (.168)	-.106 (.171)	-.092 (.236)
Neglect	-.023 (.766)	.022 (.782)	-.062 (.423)
Physical Abuse	-.012 (.881)	.006 (.935)	-.093 (.236)

5.6.2. Males

Among males, the only significant, positive correlation between the risk factors and the behaviors of interest was the relationship between exposure to domestic violence and aggression, which had a Pearson correlation coefficient of .227 and was significant at $p < .05$. This finding does support prior findings linking a child's exposure to domestic violence and aggression.

Interestingly a significant, negative correlation revealed within the analysis was between parental mental illness and tantrums, which had a correlation coefficient of -.254 and was significant as $p < .01$. One possible explanation for the negative correlation is that parents with severe mental illness are susceptible to responding to their children's needs in an inconsistent or harsh manner, which can result in children inhibiting or repressing behavior.

Table 26

Correlations between Risk Factors and Behavior Problems for Males (N=108)

Risk Factor	Non-Compliance	Aggression	Tantrums
Foster Care	-.014 (.886)	-.031 (.750)	.095(.330)
In utero Exposure to Drugs/Alcohol	.103 (.289)	.053 (.586)	.112 (.247)
Parental Incarceration	-.079 (.418)	-.112 (.250)	-.122 (.210)
Parental Mental Illness	.088 (.367)	.093 (.339)	-.254** (.008)
Absence of Biological Mother	-.033 (.733)	.000 (1.00)	.000 (1.00)
Absence of Biological Father	-.009 (.925)	-.018 (.850)	.165 (.087)
Exposure to Domestic Violence	.055 (.569)	.227* (.018)	-.057 (.556)
Parental Substance Abuse	.003 (.973)	-.006 (.955)	.000 (1.00)
Neglect	.077 (.430)	.145 (.135)	.042 (.664)
Physical Abuse	.073 (.455)	.092 (.343)	-.048 (.624)

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

5.6.3. Females

Among females, no significant, positive correlations were found between the risk factors and the behaviors of interest.

Interestingly, significant negative correlations revealed within the analysis existed between foster care and tantrums (r = -.429, p<.01), between in utero exposure to drugs/alcohol and aggression (r = -.310, p<.05), and between parental drug abuse and non-compliance (r = -.290, p<.05). It is possible that the negative correlation between foster care and tantrums is the result of children inhibiting or repressing their behavior as a response to inconsistent or harsh parenting (which may have led to their placement in foster care). An explanation for the negative correlations between in utero exposure to drugs/alcohol and tantrums and parental drug abuse and non-compliance may be related to how parental drug abuse has been linked to inconsistent and/or harsh parenting, which can leave children susceptible to inhibiting or repressing their behavior.

Table 27

Correlations between Risk Factors and Behavior Problems for Females (N=59)

Risk Factor	Non-Compliance	Aggression	Tantrums
Foster Care	.020 (.882)	-.119 (.371)	-.429** (.001)
In utero Exposure to Drugs/Alcohol	-.202 (.125)	-.310* (.017)	-.187 (.155)
Parental Incarceration	.097 (.467)	-.055 (.680)	-.179 (.175)
Parental Mental Illness	.072 (.586)	. .000 (.999)	.152 (.250)
Absence of Biological Mother	-.007 (.960)	-.045 (.736)	-.176 (.183)
Absence of Biological Father	.250 (.056)	.131 (.321)	-.092 (.488)
Exposure to Domestic Violence	-.022 (.870)	-.087 (.512)	.116 (.380)
Parental Substance Abuse	-.290* (.168)	-.245 (.061)	-.246 (.060)
Neglect	-.200 (.129)	-.147 (.267)	-.253 (.053)
Physical Abuse	-.125 (.346)	-.091 (.491)	-.147 (.265)

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

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

It is likely that the correlations were partially weakened by the fact that the participants within this study represented a restricted sample (poor, clinically referred preschool-age children). As a result, the backgrounds of children presenting with externalizing behavior problems were not significantly different from the backgrounds of children presenting with other developmental problems. Studies using samples with greater background variability likely may result in stronger positive correlations.

It is possible that the lack of significant, positive correlations can also likely be attributed to the fact that risk factors were dichotomous variables (they were either present or absent), thus creating restrictions within each variable. By accounting for factors such as variation in the severity and timing of risk exposure, future research studies could avoid treating risk factors as dichotomous variables and thus would not be subjected to such range restrictions.

Overall, these results support the notion that understanding the relationship between background risk factors and young children's externalizing behavior problems will require much more than a confirmation of which risk factors he/she has been exposed to. Essentially, the lack of significant, positive correlations found in the study may reflect the need to attend to contextual details regarding children's risk factor exposure. In many cases, children's responses to risk factor exposure can be influenced by individual traits (*e.g.,* temperament, cognitive functioning) and specific circumstances surrounding their exposure, and thus, it may be prudent for future risk research studies to supplement statistical findings (regarding relationships between risk factors and developmental outcomes) with rich contextual descriptions of children's experiences with regard to their exposure to risk factors.

5.7. Correlations between Number of Risk Factors and Behaviors

As previously noted, the second specific objective of the study was to test the cumulative risk premise, which suggests that a significant, positive relationship exists between the number of risk factors a child is exposed to and the severity of his/her symptoms (as measured by daily frequencies).

As can be seen in Table 28, the correlations between the number of risk factors and both non-compliance and aggression are not significant among the entire sample, males, and females.

Table 28

Correlations between Number of Risk Factors and Behavior Severity/Frequency

	Non-Compliance	Aggression
	Entire Sample (n = 167)	
Number of Risk Factors	.011 (.891)	-.035 (.655)
	Males (n = 108)	
Number of Risk Factors	.049 (.613)	.098 (.312)
	Females (n = 59)	
Number of Risk Factors	-.015 (.911)	-.196 (.136)

The results signify a non-statistically significant relationship between the number of risk factors a child is exposed to and the severity of his/her non-compliance and aggression. It would seem that in order to identify the nature of the relationship between cumulative risk and the severity of maladaptive behaviors, researchers will need to gather data beyond the number of risk factors in a child's life. Because children's exposure to risk factors is distinct and often unequal, it may be advisable for future research studies to control for variability regarding the severity and the timing of exposure to different risk factors, as well as taking into account the influence that individual traits (*e.g.*, temperament, cognitive functioning) when investigating the cumulative effects of risk factor exposure on children's functioning.

6. DISCUSSION

6.1. Discussion of Findings

Understanding the factors contributing to a young child's maladjustment is a necessary precursor of any successful intervention. Surprisingly, despite the importance that has been placed on understanding the processes through which young children develop clinically significant behavior problems, an exhaustive research literature search has revealed a relative dearth of information related to factors that may contribute to young children's development of clinically significant maladaptive behaviors.

Hence, general aims of the study included offering descriptions of some of the life circumstances (*i.e.,* risk factors) confronting children attending the early intervention/partial hospitalization program, as well as describing the prevalence and severity of externalizing behavior problems (non-compliance, aggression, tantrums) among those children.

The specific objectives of the study were to: 1) identify salient relationships among background risk factors and the occurrence of non-compliant, aggressive, and tantrumming behaviors; and 2) test the cumulative risk premise which suggests that a significant, positive relationship exists between the number of risk factors a child is exposed to and the severity of symptoms. The risk factors of interest within this study included physical abuse, neglect, sexual abuse, parental mental illness, prenatal exposure to drugs and/or alcohol, parental alcoholism, parental substance abuse, parental incarceration, foster care placement, absence of biological mother, absence of biological father, and having an adolescent parent. However, due to the small number of children reported to have experienced the risk factors “sexual abuse” and “having an adolescent parent,” findings related to these risk factors were not included. The externalizing behavior problems of interest were aggression, non-compliance, and tantrums.

6.1.1. Risk Factor Frequency

With regard to the hazardous life circumstances facing the children in the study, the analysis of medical record data seemed to paint a compelling picture regarding the pervasiveness of risk factors in the children’s backgrounds. Based on a review of the literature related to common risk factors among children living in poverty, it was expected that relatively high frequencies of parental mental illness, parental substance abuse, in utero exposure to drugs/alcohol, foster placement, domestic violence, parental incarceration, and child maltreatment would be found.

Overall, the findings supported the existing literature related to common risk factors among children living in poverty, as the risk factors present among over twenty five percent of the children in the study included parental mental illness, parental drug/alcohol abuse, in utero substance exposure, foster placement, domestic violence, parental incarceration, and neglect.

Considering the frequency with which many of the risk factors were reported in the children’s backgrounds, there are definite implications for research, practice, and policy. In terms of implications for research, the results further support the need to advance the understanding of links between children’s exposure to risk factors exposure subsequent maladjustment through conducting ongoing investigations of the effects of common risk factors. Essentially, the adverse effects that risk factors can have on different aspects children’s development must be clearly understood and it will be up to future risk research studies to help expand the base of knowledge regarding the processes through which children’s exposure to different risk factors can result in maladaptive functioning.

Another implication for research is that, considering the unusually high prevalence of the risk factor “absence of biological father” (73.1%) found in this study and the fact that there is minimal empirical information pertaining to its direct and indirect effects on young children’s functioning, it is important that the effects of having an uninvolved biological father are more thoroughly researched.

As for implications for practice, the results draw attention to the need for early intervention programs to train staff working with at-risk children to understand how exposure to specific risk factors can serve to disrupt various aspects of children’s development and functioning.

With regard to social policy implications, the frequent presence of several risk factors found among the children supports the need for there to be easily accessible programs equipped to work with at-risk children and families and effectively respond to the effects of the risk exposure. It is important that families placed at significant risk by environmental factors have access to interdisciplinary prevention and intervention programs that are geared toward alleviating the effects of risk factor exposure.

6.1.2. Cumulative Risk Factor Frequency

As for cumulative risk factor frequencies, most of the children in the study (78.4%) were found to have been exposed to three or more risk factors. Because most of the children attending the program come from impoverished backgrounds and prior research findings have linked living in poverty with higher rates of risk factor exposure, this finding is not surprising.

Although the results were not surprising, the findings still have pertinent implications for research, practice, and policy. In terms of research implications, the findings support the notion that future risk research studies need to acknowledge that children living in poverty are more vulnerable to exposure to multiple risk factors, some of which have not previously been identified. This suggests the need for researchers to ensure that there is sufficient consideration of control for the influence of such co-occurring risk factors.

With regard to implications for practice, the results signify that early intervention professionals working with at-risk children in an urban setting should be prepared to respond to the developmental needs of children who have been placed at risk due to exposure to multiple hazardous life circumstances, and that early intervention professionals should be capable of identifying how the interaction of two or more risk factors can effect a child's development and/or functioning.

In terms of social policy, the results draw attention to the plight of children living in poverty who have been exposed to multiple environmental hazards and whose well-being is threatened their exposure multiple risk factors. Ideally, children and families exposed to multiple risk factors should have access to prevention and intervention programs equipped to address the deleterious outcomes resulting from their exposure.

6.1.3. Correlations and Frequencies of Co-Occurrence among Risk Factors

6.1.3.1. Absence of Biological Father

Since an exhaustive literature review yielded no empirical data regarding risk factor correlates for the risk factor "absence of biological father," no particular results were expected. Risk factors found to correlate significantly and positively with absence of biological father included history of foster care, absence of biological mother, and parental incarceration, whereas risk factors found to have the highest rates of co-occurrence included absence of biological mother (89.3%), history of foster care (87%), and parental incarceration (84.3%).

With regard to the implications of the findings, since the relationships between the absence of one's biological father and the presence of other risk factors have not been sufficiently investigated in prior research studies, the most important implication might be that the results can contribute to the base of knowledge related to absence of biological father as a risk factor.

As for implications for research, considering the high frequencies of co-occurrence with other risk factors, it is essential that researchers investigating the independent and joint contributions of the risk factor "absence of biological father" toward deleterious developmental outcomes ensure that there is adequate control for the influence of co-occurring risk factors.

With regard to implications for practice, it is important that early intervention professionals observe and report on the functioning of young children who are confronting multiple hazardous life circumstances without the support of their biological father in the hopes that there can be an advancement in the understanding of how the absence of a child's biological father can effect his/her functioning when the he/she has also been exposed to other risk factors.

In terms of implications for social policy, the results draw attention to the significant number of children confronting risk factors without the support of their biological father. Efforts to develop and implement preventive and treatment measures will be contingent on research endeavors and early intervention programs contributing to the base of knowledge regarding the ways in which the absence of a child's biological father combined with exposure to other environmental hazards can threaten his/her development.

6.1.3.2. Parental Mental Illness

Based on prior research findings, it was expected that the presence of parental mental illness would be significantly and positively correlated with the presence of the following risk factors: domestic violence, parental incarceration, neglect, and history of foster care. Interestingly, exposure to domestic violence was the only significant, positive correlation found in this study supporting prior findings. Although there were not as many significant correlations found as expected, parental mental illness did frequently co-occur with several risk factors including exposure to domestic violence (77%), parental incarceration (74.5%), absence of biological father (68.9%), and parental drug/alcohol abuse (61.8%).

As for the research implications of the findings, the discrepant findings (between prior studies and the current study) draw attention to some of the challenges confronting researchers attempting to identify the nature of relationships between parental mental illness and the presence of other risk factors. Although prior research studies found significant, positive correlations between parental mental illness and risk factors parental incarceration, neglect, and history of foster care, this study did not. A possible explanation for the discrepant findings is that variability in the treatment, frequency, severity, and persistence of mental illness symptoms were not accounted for in this study. It is certainly possible that the presence or absence of several risk factors including parental incarceration, neglect, and history of foster care can influence whether or not a parent has received/is receiving treatment for their mental illness. In addition, whether the severity of the parent's mental illness is mild, moderate, or acute; and whether symptoms are brief, intermittent, or chronic are also important pieces of information which help paint a richer contextual picture of the adversities facing the child. Addressing these challenges is critical if there is to be a clearer understanding of how and to what degree to which parental mental illness is related to the presence of other risk factors. Future research endeavors must effectively control for variability in the treatment, frequency, severity, and persistence of parental mental illness symptoms in order to increase our understanding of the correlates of parental mental illness.

Further, considering the high frequencies of co-occurrence with other risk factors, it is important that researchers investigating the independent and joint influences of parental mental illness on child outcomes also effectively control for the influence of other risk factors.

In terms of implications for practice, early intervention professionals need to understand and respond to the needs of young children whose development has been adversely influenced by the effects of parental mental illness, particularly when combined with other risk factors. It would also be beneficial for early intervention programs to help staff understand the interrelationship between parental mental illness and the presence of other risk factors (*e.g.,* domestic violence, physical abuse), as well as helping staff recognize how aversive family dynamics (including parent-child interactions) can serve to exacerbate parental mental illness symptoms, which can , in turn, be a factor in the further aggravation of children's problems. Ideally, early intervention programs should have interventions that allow for the direct treatment of or referral for treatment for families with mentally ill parents, as the child's well being is quite often contingent on the health of his/her home environment.

In terms of implications for social policy, the results draw attention to the issue of children who have a mentally ill parent and, at the same time, are exposed to other environmental hazards. Considering the link between parental mental illness and the presence other risk factors, there is a definite need for there to be easily accessible multi-pronged, multidisciplinary prevention and intervention programs that are equipped to address the needs of children and families adversely affected by parental mental illness when it is combined with exposure to other risk factors.

6.1.3.3. Parental Drug/Alcohol Abuse

Based on prior research findings, it was expected that the presence of parental drug/alcohol abuse would be significantly and positively correlated with the presence of the following risk factors: in utero exposure to drugs/alcohol, history of foster care, neglect, physical abuse, domestic violence, and parental incarceration.

Some prior research findings were supported by the results, as significant positive correlations were found between parental drug/alcohol abuse and in utero exposure to drugs/alcohol, history of foster care, and neglect. In addition, a positive, significant correlation was found between parental drug/alcohol abuse and the risk factor “absence of biological mother.” However, no statistically significant correlations were found between parental drug/alcohol abuse and the risk factors “physical abuse” and “parental incarceration.” Risk factors found to have relatively high rates of co-occurrence included in utero exposure to drugs and/or alcohol (94%), absence of biological mother (89.3%), neglect (84.1%), and history of foster care (76.8%).

As for the research implications of the findings, the discrepant findings (between prior studies and the current study) draw attention to some of the difficulties related to efforts to identify the precise nature of the relationship between parental drug/alcohol abuse and the presence of other risk factors. Although prior research studies found significant, positive correlations between parental drug abuse and risk factors physical abuse and parental incarceration, this study did not find such correlations. These non-statistically significant correlations may reflect the need for researchers to investigate whether the presence or absence of other risk factors is influenced by the type of drug used, if the parent is receiving treatment for their substance abuse, as well as frequency, severity and persistence of the drug/alcohol abuse. It is possible that the presence or absence of other risk factors can be significantly influenced by what type of substance is being abused (*e.g.,* alcohol, cocaine heroin), whether or not the parent is receiving treatment for their substance abuse, and whether the severity of the abuse is mild, moderate, or acute. Hence, it would be prudent for future research studies to account for differences in the substances parents are abusing, as well as for variability in the treatment, frequency, severity, and persistence of parental substance abuse.

Considering that the relationships between the parental drug/alcohol abuse and the risk factors “absence of biological father” and “absence of biological mother” have not been sufficiently investigated in prior studies, the significant, positive correlations found in this study reflect the need to further investigate the nature of these relationships.

Because these risk factors, when present, co-occurred with the risk factor “parental drug/alcohol abuse” over 50% of the time, controlling for the influence of other risk factors constitutes an important task for researchers investigating independent and joint contributions of parental drug/alcohol abuse toward children’s developmental outcomes. The most significant challenge confronting researchers investigating parental drug addiction-deleterious outcome links might be to unravel the degree to which parental drug abuse presents a direct risk to children’s development and the degree to which parental drug abuse mitigate or exacerbate the other risks frequently confronted by children of drug abusers. Given the collection of adversities that often confront children of drug-addicted parents, the accumulation of research-based knowledge of significant risk modifiers could be a key component in informing interventions.

With regard to implications for practice, early intervention professionals need to understand and respond to the needs of young children whose development has been adversely influenced by the effects of parental substance abuse when combined with other risk factors. It would also be beneficial for early intervention programs to help staff understand the interrelationship among parental drug abuse and the presence of other risk factors.

In terms of implications for social policy, the results draw further attention to the issue of children living with a substance abusing parent. Clearly, there is a need for easily accessible multi-pronged, multidisciplinary prevention and intervention programs that are equipped to address the needs of children and families confronting the challenges associated with parental substance abuse, especially when combined with other risk factors.

6.1.3.4. In utero Exposure to Drugs/Alcohol

Based on a review of the research literature, it was expected that the presence of a history of in utero exposure to drugs/alcohol would be significantly and positively correlated with the presence of the following risk factors: parental mental illness, history of foster care, neglect, and parental drug/alcohol abuse. Significant, positive correlations found in this study support prior research findings linking in utero exposure to drugs/alcohol with the following risk factors: parental drug/alcohol abuse, history of foster care, and neglect. In addition, a significant correlation was found between in utero exposure to drugs/alcohol and the risk factor “absence of biological mother.” However, there was no significant correlation found between in utero exposure to drugs/alcohol and parental mental illness. Risk factors found to have high rates of co-occurrence with in utero exposure to drugs/alcohol included absence of biological mother (93%), neglect (79.5%) and parental drug/alcohol abuse (74.7%).

With respect to the research implications of the findings, the results draw attention to some of the challenges related to investigating the relationship between in utero substance exposure and the presence of other risk factors. As noted before, although prior research studies found a significant, positive correlation between in utero substance abuse and parental illness, a significant correlation was not found in this study. Two possible reasons for this non-significant finding are: 1) that variability in dose, frequency, duration of use, and gestational timing of the exposure were not controlled in this study and 2) that the treatment, frequency, severity and persistence of mental illness symptoms were not accounted for. Hence, it important that future research studies account for variability in dose, frequency, duration of use, and gestational timing of in utero exposure, as well as making efforts to control for the presence of and variability within other risk factors.

In terms of implications for practice, early intervention staff working with children prenatally exposed to substances and their families need to understand the often unique developmental needs of drug exposed children, as well as how best to promote the maintenance of a healthy home environment. Because how drug use during pregnancy often co-occurs with other risk factors, it is also important that early intervention programs also address all co-occurring risk factors that can potentially compromise the mother-child dyad or cause detriment to the care-giving environment.

With regard to implications for social policy, it is of primary importance that pregnant women identified as using substances be referred for treatment to address their substance use and that, upon birth, their child be assessed in order to determine if aspects of his/her development have been compromised. In addition, there is a need for children and families to have access to programs geared toward: 1) decreasing co-occurring environmental risk factors, 2) enhancing parenting abilities, 3) promoting the parent-child relationship, and 4) addressing the specific developmental needs of exposed children.

6.1.3.5. History of Foster Care

Based on prior research findings, it was expected that the presence of a history of foster care would be significantly and positively correlated with the presence of the following risk factors: in utero exposure to drugs/alcohol, parental drug/alcohol abuse, neglect, physical abuse, parental mental illness, and parental incarceration. The results lend support to some of the prior research findings, as positive, significant correlations were found between history of foster care and the following risk factors: neglect, in utero exposure to drugs/alcohol, parental drug/alcohol abuse, physical abuse, and parental incarceration. In addition, positive correlations were found with the risk factors "absence of biological father" and "absence of biological mother." However, no significant correlation was found between history of foster care and parental mental illness. Risk factors found to have high rates of co-occurrence with history of foster care included absence of biological mother (97%), neglect (93.2%), physical abuse (71.4%), and in utero exposure to drugs/alcohol (65.8%).

Regarding research implications of the findings, although a history of foster care was found to be strongly linked to the presence of other risk factors, there may be times when foster care should not be considered a risk factor, as there may be times when foster care placement removes a child from exposure to deleterious life circumstance. Essentially, depending upon the situation, foster care placement can serve as either a risk or a protective factor. Thus, in addition to controlling for the influence of co-occurring risk factors, it may also be of benefit if future research endeavors were to include qualitative descriptions of varying foster care experiences. Qualitative descriptions should acknowledge factors that can influence how a child responds to foster care placement. These factors include the events preceding a child's placement in foster care; the quality of the biological parent-child relationship; the anticipated length of separation from biological parents; the number of foster placements; the familiarity with foster placement (*i.e.,* non-relative foster home or group home setting vs. kinship care); and the goodness of fit between child and foster parents.

Regarding implications for practice, it is essential that early intervention programs are prepared to understand the myriad of ways life circumstances (*e.g.,* neglect, physical abuse, sexual abuse, parental drug) that lead to a child's foster care placement, and, as well, the ways in which the placement itself, can affect a child. In addition, it is important that early intervention programs work with foster families on how to appropriately address the often unique developmental needs of the foster children. Specifically, early intervention programs should develop multimodal, individualized plans geared toward addressing the child's particular developmental needs and enhancing care-giving relationships.

In terms of implications for social policy, there is a need for preventive and treatment interventions to effectively address the vast and varied needs of children who have been placed in foster care. Not only is it advisable that when children enter the foster care system, a social worker or some other mental health professional carefully assess the child's functioning and developmental needs, but that these families are consistently followed, with on-going support available to both the child and family throughout the duration of the foster care placement as well. In addition, there is a need for social service case managers with moderately small caseloads to maintain focus on the children's specific developmental needs, as well as providing ongoing emotional support throughout the care-taking process.

6.1.3.6. Exposure to Domestic Violence

Based on prior research findings, it was expected that the presence of domestic violence would be significantly and positively correlated with the presence of the following risk factors: parental drug/alcohol abuse, neglect, physical abuse, and parental mental illness. Although the significant, positive correlations found between exposure to domestic violence and the risk factors "physical abuse" and "parental mental illness" do support prior findings, no significant correlations were found between exposure to domestic violence and the risk factors "parental drug/alcohol abuse" and "neglect." Risk factors found to have somewhat relatively high rates of co-occurrence included physical abuse (60%), parental mental illness (44.6%), parental incarceration (43.1%), and parental drug/alcohol abuse (40%).

Regarding research implications of the findings, these results draw attention to some of the challenges related to investigating the relationship between exposure to domestic violence and the presence of other risk factors. The discrepancy in findings (between prior studies and the current study) may reflect the need for future research studies to investigate whether and how the presence of co-occurring risk factors are influenced by the type (*i.e.,* verbal, physical, sexual) and severity (*i.e.,* frequency, duration, level of hostility) of the domestic violence may be associated with child outcomes. In addition, because exposure to domestic violence often co-occurs with other risk factors, future studies investigating the effects of domestic violence on child development should consider or control for the influence of co-occurring risk factors.

It is clear that early intervention programs must be equipped to respond to the needs of children experiencing social, emotional, or behavioral problems as a result of witnessing domestic violence, alone and combined with exposure to other risk factors. In addition, based on the frequency with which exposure to domestic often co-occurs with other risk factors, it is important that early intervention programs also address all co-occurring risk factors that can further compromise the care-giving environment. Interventions should not only involve treating the children directly, but should also involve equipping guardians and other caregivers to address the developmental and psychological needs of children exposed to domestic violence.

In terms of implications for social policy, there is a need for easily accessible programs specializing in treating children and families experiencing the adverse effects of domestic violence when combined with other risk factors. In addition, there is a need for preventive interventions programs geared toward working with parents on the development of conflict management, emotion regulation, and behavior regulation skills that not only involve efforts to prevent children's exposure to domestic violence in the first place, but should also have components that address co-occurring risk factors (*e.g.,* parental substance abuse, parental mental illness).

6.1.3.7. Parental Incarceration

Based on a review of research literature, it was expected that parental incarceration would be significantly and positively correlated with the presence of other risk factors including parental drug/alcohol abuse, neglect, physical abuse, and parental mental illness. The results partially supported prior research findings, as positive significant correlations were found between parental incarceration and the risk factors “neglect” and “history of foster care.” However, no significant correlations were found between parental incarceration and the following risk factors: parental drug/alcohol abuse, physical abuse, and parental mental illness. Risk factors with relatively high rates of co-occurrence with parental incarceration included physical abuse (78%), history of foster care (53.6%), and absence of biological mother (53.6%). It is possible that correlations between parental incarceration and the other risk factors were partially weakened by the fact that some parental histories were not provided by individuals with a thorough knowledge of those histories.

As for implications for practice, it is essential that early intervention programs take account of multiple ways in which the incarceration of a parent can affect a child. In addition, it is important that early intervention programs work with caregivers on how to appropriately address the often unique developmental needs of these children. Specifically, early intervention programs should include multimodal, individualized plans geared toward addressing the child’s particular developmental needs and enhancing care-giving relationships.

Because parental incarceration frequently co-occurs with several risk factors, it is critical that researchers investigating the effects of parental incarceration on children's development effectively control for the influence of other present risk factors. In addition, it should be noted that there may be times when parental incarceration should not be considered a risk factor, as there may be times when the incarceration of a parent removes a child from exposure to deleterious life circumstances (*e.g.,* physical abuse, exposure to criminal activity).

The relationship between children and their incarcerated parents is seldom the subject of scholarly research, rehabilitation programs, or child welfare services. It may be of benefit for incarcerated parents, under certain circumstances, to have access to interventions and programs which promote adaptive parenting skills and the health of the parent-child relationship.

6.1.3.8. Neglect

Based on prior research findings, it was expected that neglect would be positively correlated with the presence of other risk factors, including in utero exposure to drugs/alcohol, parental drug/alcohol abuse, and history of foster care. The results strongly supported prior research findings, as significant correlations were found between neglect and the risk factors "in utero exposure to drugs/alcohol," "parental drug/alcohol abuse," and "history of foster care." In addition, a significant correlation was found between neglect and the risk factor "absence of biological mother." Risk factors with the highest rates of co-occurrence with neglect included absence of biological mother (71.4%), history of foster care (59.4%), and in utero exposure to drugs/alcohol (46.1%).

Considering that neglect frequently co-occurs with several risk factors, an enhanced understanding of the independent and joint contributions of neglect toward adverse developmental outcomes will require future research studies to consider or consistently control for the influence of co-occurring risk factors.

With regard to implications for practice, early intervention staff must be able to quickly identify symptoms suggesting disturbances to children's development resulting from neglect (whether it does or does not co-occur with other risk factors). Programs should be equipped to foster self-care skills, encourage positive and healthy attachments to biological or foster parents, and promote social skill development. In addition, intervention programs should have components that involve working with parents on basic skills such as teaching parents how to maintain a safe physical environment for their children and responding to their children's basic needs.

In terms of implications for social policy, it is of primary importance that, in addition to identifying instances of neglect early, there be appropriate, easily accessible programs that can both treat children and families and effectively deter further neglect. Such programs should be geared toward: 1) decreasing co-occurring environmental risk factors, 2) enhancing parenting abilities, 3) promoting the parent-child relationship, and 4) addressing the specific developmental needs of neglected children.

6.1.3.9. Physical Abuse

Based on prior research findings, it was expected that physical abuse would be significantly correlated with the presence of the following risk factors: exposure to domestic violence, parental mental illness, parental drug/alcohol abuse, and history of foster care. The results partially supported prior research findings, as positive significant correlations were found between physical abuse to the children and the risk factors "exposure to domestic violence" (among parents) and "history of foster care." In addition, a positive correlation was found between physical abuse and the risk factor "absence of biological mother." However, no significant correlations were found between physical abuse and parental mental illness, and parental drug/alcohol abuse. In terms of the risk factors with the highest rates of co-occurrence with the risk factor "physical abuse," it was found that approximately 43% of the children who experienced the absence of their biological mother, 36% of children with a history of foster care and 32% of children reportedly exposed to domestic violence also experienced physical abuse.

As for the research implications of the findings, it is possible that the lack of significant correlations between physical abuse and the risk factors "parental drug/alcohol abuse" and "parental mental illness" were attributable to due to that fact that there were no data on the frequency, severity, and persistence of physical abuse. Neither was the variability in the treatment, frequency, severity and persistence of parental substance abuse and mental illness symptoms analyzed or controlled for in this study. Once again, it is important for researchers investigating risk factor correlates to consider the variability within each of the investigated risk factors.

In addition, the significant, positive correlation found between physical abuse and the risk factor "absence of biological mother," supports the need to conduct in-depth investigations of the experiences of physically abused children whose mothers are not at all involved in their lives, as this interaction of risk factors has not been adequately addressed within prior risk research studies.

Regarding implications for practice, early intervention staff must be able to quickly identify developmental problems resulting from physical abuse (whether it does or does not co-occur with other risk factors). In addition, programs should provide parent-focused treatment techniques including modeling and role playing of adaptive behaviors, cognitive restructuring, training in child management skills, teaching of anger management skills, and teaching stress reduction skills.

In terms of implications for social policy, it is of primary importance that, in addition to the early identification of physical abuse, there be programs geared toward encouraging positive parenting and preventing physical abuse. It is important that such programs focus on: 1) decreasing co-occurring environmental risk factors, 2) enhancing parenting ability to healthily express thoughts and feelings, 3) improving the parent-child relationship, and 4) addressing the developmental needs of physically abused children.

6.1.3.10. Absence of Biological Mother

Since an exhaustive literature review yielded no empirical data regarding risk factor correlates or frequency of co-occurrence with the risk factor "absence of biological mother," no particular results were predicted in advance. Risk factors shown to correlate significantly and positively with the risk factor "absence of biological mother" included history of foster care, neglect, in utero exposure to drugs/alcohol, parental drug/alcohol abuse, physical abuse, parental incarceration, and absence of biological father. Risk factors with the highest rates of co-occurrence with the risk factor “absence of biological mother” included neglect (46%), history of foster care (39.1%), physical abuse (34.3%), and in utero exposure to drugs/alcohol (34.2%).

With regard to implications for practice, it is important that early intervention programs understand the developmental needs of young children confronting multiple hazardous life circumstances without the support of their biological mother. Issues of trust and safety as well as basic skills related to supporting and facilitating appropriate attachments to caregivers should be addressed in early intervention programs. Essentially, early intervention staff must develop a clear understanding of different ways the absence of a child’s biological mother can affect his/her functioning, particularly when the child has also been exposed to other risk factors.

In terms of social policy, the results draw attention to the plight of children experiencing exposure to risk factors without the support of their biological mother. Efforts to develop and implement preventive and treatment measures will be contingent on research endeavors contributing to an enriched understanding of how the absence of a child’s biological mother combined with exposure to other risks can threaten the child’s development.

6.1.4. Behavior Problems

6.1.4.1. Non-Compliance

Analysis of the data revealed that 80.2% of the children had clinically significant levels of non-compliance upon intake.

This high frequency of non-compliance among clinically-referred child necessitates ongoing investigations because clinically significant non-compliance in early childhood can be a precursor to more severe conduct problems in adolescence and/or adulthood. Further, it is important for early intervention staff to identify the function a child's non-compliance serves, as well as identifying the factors that are reinforcing the behaviors. Because patterns of non-compliant behaviors are often the manifestation of ongoing transactions between the child and the environment, staff must become adept at identifying what is contributing to the non-compliant behaviors and what interventions are most appropriate for each particular child.

Of the children who listed non-compliance as a presenting symptom, 72 (53.7%) had non-compliance considered by program staff to be at a moderately severe level (*i.e.,* averaging three or more non-compliant behaviors per day) or above.

In terms of implications for research and practice, these findings draw attention to the variability in non-compliance severity levels, which suggest the need for researchers to investigate the causes of clinically significant non-compliance across severity levels. However, merely tabulating the frequency of non-compliant behaviors may not be an adequate gauge of severity. Gaining a thorough understanding of the severity of a child's non-compliance may necessitate identifying the functions of a particular child's non-compliant behaviors, what factors are contributing to the maintenance of such behaviors, and how the child responds to different types of redirection. Early intervention programs may need to utilize different treatments based on the child's level of non-compliance and to capture and share information regarding treatment effectiveness across behavior severity levels.

6.1.4.2. Aggression

Analysis of the data revealed that 79% of the children had clinically significant levels of aggression upon intake. Due to the high frequency of young children presenting with clinically significant aggression, there are definite implications for research and practice. In terms of implications for research, it is essential that ongoing investigations focus on the putative causes of clinically significant aggression among young children, as clinically significant aggression in early childhood can often be a precursor to more severe conduct problems in adolescence and/or adulthood.

Regarding implications for practice, it is clear that, as is the case with non-compliance, tabulating the frequency of aggressive behaviors is not adequate. The high frequency of aggression among clinically-referred children will require early intervention staff to become adept at identifying the functions of a particular child's aggressive behaviors, what factors are contributing to the maintenance of such behaviors, and what interventions are most appropriate for addressing them.

Of the children who had aggression as a presenting symptom, only 60 (45.4%) had aggression considered by program staff to be at a moderate severity level (*i.e.,* averaging one or more aggressive behaviors per day) or above. It is believed that the average daily frequencies for aggression ended up being lower than expected (and thus rated at a lower severity level) because aggression among the children is often inconsistent (on some days their aggression will be severe, but it will not be present at all on other days).

6.1.4.3. Tantrums

53.9% of the children presented with clinically significant levels of tantrum behaviors upon intake.

Although the frequency of young children presenting with clinically significant tantrums was not as high as the frequency of children presenting with non-compliance or aggression, there are still relevant implications for research and practice. It is important to understand the causes of clinically significant tantrums among young children, as clinically significant tantrums in early childhood can be a precursor to more severe emotional and/or behavioral disturbances later in life.

As is the case with both non-compliance and aggression, more complete data regarding the timing and severity of the tantrum as well as the contextual issues surrounding the tantrum (both at home and in the early intervention program) would be helpful in determining the root causes of the behavior as well as the function such behavior serves.

Furthermore, richer contextual data will enhance early intervention staff's ability to identify when a child's tantrums are the manifestation of an emotional disturbance, a behavioral disturbance, or both, and help to identify appropriate responsive interventions.

6.1.5. Correlations between Behaviors

The correlations between non-compliance and aggression were found to be statistically significant at $p<.01$ with the entire sample included, as well as being statistically significant within each gender with boys exhibiting greater frequencies of both non-compliance and aggression. This finding is not surprising since both aggression and non-compliance clearly are externalizing behavior problems, and the relationship between boys and externalizing behavior has been well established in the literature.

The significant correlation between non-compliance and aggression supports the need for researchers conducting ongoing investigations to focus on the causes of co-occurring clinically significant levels of aggression and non-compliance among young children, as it is possible that the combined presence of these behaviors might be a precursor to more severe conduct problems in adolescence and/or adulthood. Further, future research studies should attempt to gather richer contextual data on both non-compliance and aggression which may help to shed light on the ways in which non-compliance and aggression are related.

Early intervention staff need to be adequately prepared to effectively work with children who present with co-occurring clinically significant aggression and non-compliance. Co-occurring aggression and non-compliance may require staff to utilize interventions that are different than interventions intended to address only one or the other behavior.

Tantrums were not significantly correlated with either non-compliance or aggression. The lack of relationship between tantrums and the other two behaviors may be attributable to the fact that tantrums can be considered a manifestation of deficits in a child's capacity to regulate emotion, as the data indicate that this emotional deficit is not related to the more anti-social directed behaviors of aggression and non-compliance.

6.1.6. Frequency of Behaviors across Risk Factors

6.1.6.1. Non-Compliance

Based on a review of research literature, it was expected that non-compliance would frequently occur when the following risk factors were present: physical abuse, neglect, and in utero exposure to drugs/alcohol. Although clinically significant non-compliance was frequently present when the children experienced the risk factors “physical abuse,” “neglect,” and “in utero exposure to drugs/alcohol,” non-compliance occurred most frequently when the following risk factors were present: parental incarceration (84.3%), absence of biological father (82.8%), parental mental illness (82.1%), and absence of biological mother (82.1%).

Based on the frequent presence of clinically significant non-compliance across risk factors, it is clear that future studies should continue to work toward clarifying the nature of the relationships between specific risk factors and clinically significant non-compliance.

6.1.6.2. Aggression

Based on prior research findings, it was expected that aggression would frequently occur when the following risk factors were present: exposure to domestic violence, physical abuse, and parental incarceration. The results strongly support prior research findings, as aggression was frequently a presenting problem when the child had experienced the following risk factors: exposure to domestic violence (84.6% of the time), physical abuse (82.9%), and parental incarceration (80.4%). In addition, aggression was often present among children with a history of foster care (81.2%) and children who experienced the absence of their biological father (82.8%).

6.1.6.3. Tantrums

Since an exhaustive literature review yielded no empirical data regarding the risk factors most closely linked with clinically significant tantrums, no specific relationships with tantrums were predicted in advance. The results showed that tantrums were most frequently a presenting problem when the child had experienced exposure to domestic violence (46.2%), in utero exposure to drugs/alcohol (46.1%), and absence of biological father (43.1%).

6.1.7. Correlations between Risk Factors and Behavior Problems

The first specific objective of this study was to identify salient relationships between background risk factors and externalizing behavior problems. The data analysis originally proposed began with a correlation analysis, which, if significant, would be followed by a regression analysis. Based on prior research findings, it was thought that aggression might be significantly correlated with the following risk factors: exposure to domestic violence, physical abuse, and parental incarceration. It was also thought that non-compliance might have a significant, positive correlation with the following risk factors: physical abuse, neglect, and in utero exposure to drugs/alcohol. It should be noted that the correlations calculated were between the presence/absence of individual risk factors and the average daily frequency counts of non-compliance and aggression. As for the relationships between risk factors and tantrums, the correlations calculated were between the presence/absence of individual risk factors and the presence/absence of clinically significant tantrums.

With the entire sample included, no significant correlations were discovered. Among males, the only significant, positive correlation between the risk factors and the behaviors of interest was the association between exposure to domestic violence and aggression, which does support prior research findings. Among females, there were no significant positive correlation between the risk factors and the behaviors of interest. Due to the lack of significant, positive correlations, it was not necessary to conduct a regression analysis.

The lack of significant correlations may be partially attributable to the fact that the participants within this study represented a rather restricted sample (poor, clinically referred preschool-age children), which resulted in range restrictions regarding the backgrounds of the participants. As previously noted, nearly 80 % of the participants in the study were exposed to three or more risk factors. In terms of risk factor exposure, the backgrounds of the children presenting with externalizing behavior problems (aggression, non-compliance, tantrums) were not significantly different from the backgrounds of children who did not present with externalizing behavior problems. It is possible that if this study had used a sample having greater variability in terms of the backgrounds of participants, a larger number of significant, positive correlations may have been found.

Another factor that may have contributed to the lack of significant, positive correlations is that the risk factors were dichotomous variables (they were either present or absent) within this study, thus requiring somewhat arbitrary dividing lines between where each variable was said to be "present" or "absent," thus creating restrictions within each variable. It would certainly seem to be important for future studies to recognize variations in the severity (*i.e.,* intensity, duration, frequency) and timing of risk factor exposure so that the risk factors are more properly recognized as continuous variables. By accounting for factors such as the severity and timing of risk exposure, future research studies could avoid treating risk factors as dichotomous variables and thus would not be subjected to the range restrictions that were experienced within this study.

Overall, the findings reflect the need to attend to contextual details regarding children's risk factor exposure, rather than to only the mere presence or absence of a risk factor. Because, in many cases children's responses to risk factor exposure can be influenced by individual traits (*e.g.,* temperament, cognitive functioning), and specific circumstances surrounding their exposure, future risk research studies should supplement statistical findings (regarding relationships between risk factors and developmental outcomes) with more complete qualitative descriptions of children's experiences regarding their exposure to a particular risk factor.

6.1.8. Correlations between Number of Risk Factors and Behaviors

The second specific objective of this study was to test the cumulative risk premise, which proposes that a positive relationship exists between the numbers of risk factors a child is exposed to and the severity of his/her symptoms. However, the correlation analysis revealed no significant relationship between the number of background risk factors and the severity (as measured by daily frequencies) of non-compliance and aggression.

It would seem that in order to identify the nature of the relationship between risk factors and the severity of maladaptive behaviors, researchers will need to gather data beyond the number of risk factors in a child's life. Because children's exposure to risk factors is distinct and often sporadic, future research studies should control for variability with regard to the severity and timing of risk factor exposure. Future research studies should also make efforts to examine how individual traits and the circumstances surrounding children's exposure to certain risk factors can act to influence their responses to those risk factors. For example, studies could include consideration of individual intelligence, temperament, sociability, and other personality traits.

6.1.9. Final Comments on Results

Although this study did not reveal significant correlations between risk factors and externalizing behavior problems among the children attending the early intervention/partial hospitalization program, the results did reveal: 1) children's exposure to several risk factors (absence of biological father, parental mental illness, in utero exposure to drugs/alcohol, parental drug/alcohol abuse) are disturbingly high; 2) most of the young children have backgrounds also characterized by exposure to other multiple hazardous life circumstances; 3) a significantly high percentage of young children in the early intervention program exhibit clinically significant aggression and/or non-compliance; 4) the need for future studies to recognize variability in the severity (*i.e.,* intensity, duration, frequency) and timing of risk factor exposure, as well as accounting for variability regarding individual traits (*i.e.,* temperament, cognitive functioning) in order to better understand the links between risk factors and clinically significant behavior problems.

6.2. Limitations of the Study

The first limitation of the study is that since the sample for the study consisted of pre-school age children attending an urban early intervention program, the results should not be generalized to the general population of preschool-age children. The population of poor, young children attending urban early intervention programs should be distinguished from the general population of preschool-age children experiencing clinically significant problems who are not being treated for their problems. Relative to children living within families with greater financial resources, children living in poverty are more susceptible to exposure to multiple risk factors. It should also be noted that the sample used in this study may not necessarily be representative of the greater population of at-risk children, as many young children exposed to the unfavorable life circumstances are either not presented the opportunity to be clinically referred for treatment or are not brought in (by a caretaker) to receive treatment.

A second limitation of this study is a methodological limitation common to many quantitative risk studies, which is the lack of precision in measuring risk and the non-incorporation of protective factors. Clearly, children who experience common risk factor sets should not be viewed as a homogeneous group, as variations in the degree (*i.e.,* frequency, severity, duration) and timing of exposure, variations in the types of experiences (*e.g.,* foster care, parental mental illness, parental incarceration), and variations in individual traits (temperament, cognitive functioning) can influence how a child responds to a particular risk factor. In addition, the presence of positive external protective factors (*e.g.,* a supportive teacher, mentor, relative) can also have a significant mediating influence in how a child responds to a risk factor. Unfortunately, because this study was a secondary data analysis, information regarding positive or protective factors was not included in the original design protocol. The lack of data regarding the protective factors that may or may not have been at work in the lives of these children as well as the fact that risk was dichotomously scored likely contributed to the lack of significant findings.

Another noteworthy limitation was that many medical records were not used because relevant data (*i.e.,* thorough psychological evaluations, frequency counts) were missing. Medical records were able to be used for about 60% the children treated at the program because records for the other children were missing or incomplete. A significant increase in the number of medical records used within this study may have allowed for the inclusion of certain additional risk factors (*i.e.,* sexual abuse, having an adolescent parent), as well as allowing for the categorization of other risk factors (*e.g.,* parental mental illness). In addition, it is possible that children who were disqualified from the study due to missing medical information, may vary from children who have more complete records in some important ways.

Finally, because the primary purpose of data collection at the center has been for treatment purposes and not for research purposes, there is some question as to how closely target behaviors were monitored and, thus, how accurate and reliable the behavior frequency counts are. Also, it is debatable whether frequency counts alone can offer an accurate depiction of the severity of a child's maladaptive behaviors. It would seem that more accurate accounts of behavioral severity would require an acknowledgement of other dimensions (*e.g.,* intensity, duration) along which behaviors can vary.

6.3. Improving the Quality of Risk Research

Despite the challenges regarding risk research, there remains a tremendous need to advance our understanding of the role that risk factors play in the development and maintenance of clinically significant developmental problems among preschool-age children. In order to strengthen future risk research studies, greater attention will need to be placed on the individual's personal traits, differences in the severity and timing of risk factor exposure and, other relevant contextual details in the individual's life including the range of positive (protective factors) and negative environmental influences in his/her life and the transactions between the child and his/her environmental experiences.

6.3.1. Investigating Personal Traits

With regard to the individual's personal traits, it may be helpful to closely attend to how a particular child's temperament, neurological functioning, and level of cognitive functioning can influence the manner in which he/she responds to different risk factors. Specifically, it is important to understand the roles that certain personality traits can play regarding how children respond to any given situation or any particular risk factor.

Some children are more likely to externalize, as opposed to internalize, their responses. For example, dimensions of child temperament and neurological functioning related to reactivity to stimulus, adaptability, tolerance of stimulation, and activity level can certainly influence how a child responds to his/her experiences. In addition, a child's level of cognitive functioning can be a factor in the degree to which he/she is able to understand and verbally express thoughts and feelings as opposed to acting out those thoughts and feelings in an inappropriate manner.

Thus, it would be prudent for future risk research studies to collect data pertaining to children's temperament, intelligence, and neurological functioning for the purpose of investigating what individual traits, when combined with exposure to a particular risk factor, appear to contribute to the presence externalizing behavior problems.

6.3.2. Investigating Differences in the Degree of Risk Factor Exposure

As previously noted, it is important to understand how variations in the type and degree (*i.e.,* frequency, severity, duration) and timing of exposure to a particular risk factor can influence how the child responds to that risk factor.

There are several risk factors (physical abuse, neglect, exposure to domestic violence, sexual abuse) whose effects on children may be significantly influenced by variability in frequency, severity, duration, and timing of their exposure. For example, a preschool-age child may respond differently to domestic violence than a fifteen year old, as teens generally have the ability to remove themselves from exposure to certain risk factors (*e.g.,* go over to a friends' houses). In addition, a child's response may vary based on the severity of violence witnessed (*e.g.,* ranging from pushing to attempted homicide), whether they witnessed a single or multiple instances of violence, and the type of violence (e.g. just physical or also sexual).

Parental mental illness is another risk factor sensitive to variation in the frequency, severity and persistence of symptoms (Beardslee, Versage, & Gladstone, 1998; Cummings & Davies, 1994). It has been suggested, for example, that the extent of children's dysfunctional outcomes can be greatly influenced by whether the severity of parental mental illness is mild, moderate, or acute and whether symptoms are brief, intermittent, or chronic (Hammen, 2003).

In terms of investigating the effects of prenatal drug exposure, it has been strongly suggested that future research studies consistently acknowledge the interactive effects of polydrug exposure (Singer, 1999). In addition, it might be prudent for future research studies to investigate the differing effects that variations in the severity, frequency, duration of use, and/or gestational timing of prenatal exposure to drug use may have on pre- and post-natal development (Behnke & Eyler, 1993).

It should also be kept in mind that certain "risk factors" can, depending on the situation, actually be protective factors. For example, it may be of great benefit for studies to illustrate the variability in the experiences of foster children, as foster care has the capacity to be either a risk factor or a protective factor. Variables such as the events preceding a child's placement in foster care, the quality of the biological parent-child relationship, the anticipated length of separation from biological parents, the number of foster placements, the familiarity with foster placement (*i.e.,* non-relative foster home or group home setting vs. kinship care), and the goodness of fit between child and foster parents can all play a significant role in how a child responds to foster care placement (Leslie et al., 2000; Milan & Pinderhughes, 2000). Parental incarceration is another life event in which certain variables (*e.g.,* quality of the parent-child relationship, safety of the child prior to parental incarceration, whom the child is going to stay with) should be acknowledged before being deemed a risk or protective factor.

It would also be prudent for researchers to investigate the degree to which prior treatment or lack thereof of the child and/or family can influence how that child responds to certain risk factors, as there are certain risk factors (parental mental illness, parental drug abuse), whose effects on children can be buffered through treatment. Hence, it may be advisable for researchers not only to examine whether or not a child has received prior treatment, but also to note whether or not a parent has received or is receiving treatment for a particular condition (*e.g.,* mental illness, drug abuse).

Finally, it would also be constructive for researchers to investigate whether children tend to respond differently when their mother is experiencing a particular circumstance (*e.g.,* mental illness, drug abuse, incarceration) versus having their father experience the circumstance, as well as investigating the differences, if any, between having one parent experience a condition versus having both parents experience that condition.

6.3.3. Attending to Contextual Details

Just as children's development can be challenged by deleterious life circumstances, their development can also be supported by protective factors. The concept of protective factors/processes arose from a need to account for positive adaptation in the lives of children confronted with challenging life circumstances, leading researchers and clinicians to search for the processes that protect development from perilous growing conditions. Studies of resilience have taken a variety of approaches to try to identify the factors associated with better adaptation among children at risk, and then to understand the processes that may underlie those correlates or predictors of positive adaptation. Factors believed to help at-risk children adapt positively include individual attributes (good intellectual skills, positive temperament, and positive views of the self), family qualities (high warmth, cohesion, expectations, and involvement), and support systems outside of the family (strong social networks, good schools). It is important for the presence of such protective factors to be adequately accounted for within future risk research studies.

Although somewhat difficult to quantify, it is nevertheless important to adequately address the ongoing transactions between the child and his/her environmental experiences when attempting to understand how a child is affected by exposure to different risk factors. In my own professional experiences working with aggressive and non-compliant children, I have often found that parent-child transactions laden with threatening tones, control tactics, impaired problem solving skills, and inconsistent responsiveness to one another seem to contribute to the onset and maintenance of non-compliant and overtly hostile behaviors.

In many of these cases, the children displaying such behaviors have been exposed to minimal risk factors and, in some cases, no risk factors at all. Clearly, there are some family dynamics that do not necessary qualify as risk factors and are not the result of risk factors, yet appear to contribute to the development and maintenance of externalizing behavior problems. If researchers included detailed descriptions of observed interactions between the individual and his/her environment, it could help illustrate which patterns of interaction may contribute to a child's development and/or maintenance of maladaptive behaviors.

6.4. Recommendations for Early Intervention Programs

Although the concept of early intervention programs has gained much attention as one of the most favorable ways to support and promote the well being of children who have been placed at risk, there is an explicit need to advance our understanding of the processes through which early childhood interventions do promote well-being and the specific interventions most associated with favorable outcomes. As it is, there is limited information regarding the effectiveness of specific interventions geared toward at-risk children.

6.4.1. Gathering Pertinent Information upon Intake

It is essential that, upon intake, early intervention programs actively gather relevant, detailed information from caregivers and other professionals regarding factors such as the child's developmental history (including previously mentioned individual traits), family dynamics, neighborhood dynamics, and the parent-child relationship. The gathering of such information is quite important not only for treatment purposes (*i.e.,* understanding the etiology of developmental disturbances), but is also important for research purposes. The availability of more detailed information pertaining to the day-to-day life experiences of clinically-referred children can only help researchers and clinicians unravel the too often complex question of "What contributes to maladjustment among young children?"

As previously stated, understanding the factors contributing to a young child's maladjustment may help to devise successful interventions. Hence, understanding how young children's dysfunctions develop requires an awareness of the interplay of numerous biological and environmental factors present in their lives.

It is also important that early intervention programs ensure that baseline data related to children's presenting problems have been gathered (upon intake) and that data is periodically gathered over the course of treatment in order to help the process of assessing the effectiveness of specific treatments.

6.4.2. Conducting Functional Behavior Analyses

Common challenges confronting early intervention programs include: training staff to understand how environmental and individual factors have contributed to a young child's development and maintenance of maladaptive behaviors, and teaching staff to understand the functions of a particular maladaptive behavior. Nevertheless, these challenges must be met in order to provide the most appropriate interventions for a particular child. In addition, since preschool-age children also are quite limited in their ability to identify the functions of their own behaviors, early intervention staff must actively consult with caregivers and other professionals and carefully observe the maladaptive behaviors in different contexts (home, school, community) in order to determine what purposes, if any, the behaviors serve.

In order to help early intervention staff understand the nature of a child's maladaptive behaviors, it would be appropriate for a functional behavior analysis to be conducted soon after the child has been admitted into the early intervention program. Functional behavior analyses often include answering several specific questions including: What is the child attempting to communicate through his/her behaviors? What are the antecedents to the child's behaviors? Are the behaviors the result of cognitive distortions? Does the behavior reflect a disruption in emotion regulation? Are the behaviors observed in more than one setting? Does it appear that the behaviors were learned through observation? Are the behaviors a result of a medical (*i.e.,* physiological/constitutional) condition? What environmental factors serve to reinforce the child's behavior?

By designing interventions founded on an understanding of the apparent causes and functions of a child's maladaptive behaviors, treatments are likely to become more efficient and subsequently more specialized in addressing many of the sources and processes related to those behaviors. Increasing what we know about common functions and causes of problematic behaviors among young children is necessary in order to prioritize early intervention staff training foci, develop and implement effective interventions, and design future research endeavors that will evaluate the effectiveness of implemented interventions.

6.4.3. Understanding Risk, Underlying Processes, and Resilience

It is important for early intervention program staff to gain an understanding of maladaptive behaviors and the influence that certain risk factors can have on the development and maintenance of those behaviors. This requires staff to understand the theoretical pathways through which the child is affected by his/her experiences. It would also be beneficial for early intervention staff to learn about resilience and the factors that have been found to help children adapt positively when confronted with challenging life circumstances.

Training staff to better understand risk and resilience they will help them: 1) recognize the possible causes of children's presenting symptoms; 2) identify which factors (*e.g.,* individual traits, unresponsive home environment, unproductive parent-child transactions) can perpetuate and/or intensify the children's presenting symptoms; *e.*3) use appropriate preventive interventions designed to alleviate the effects of the child's exposure to risk factors by transferring skills to the child's primary care-giver(s); 4) use appropriate interventions designed to strengthen and/or protect the child's different adaptational systems; 5) opt for the most appropriate therapeutic interventions when addressing a particular child's presenting symptoms; and 6) connect children and their families with resources that support children's positive adaptation.

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