AN EXAMINATION OF THE RELATIONSHIPS AMONG PARENTING STRESS VARIABLES, THE HOME ENVIRONMENT, AND EXTERNALIZING BEHAVIORS IN YOUNG CHILDREN

By

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To my Mom, who told me I could achieve anything

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TABLE OF CONTENTS

LIST OF TABLES

Abstract of Dissertation Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy

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A copious amount of research exists that examines externalizing behaviors. However, various questions remain unanswered, especially in young children. The stability and negative outcomes of these behaviors make it a particularly salient area for continued research. While a number of researchers have examined parenting stress, the home environment, and externalizing behaviors individually, less is known about the relationships among these variables, specifically in young children. Identification of those factors early on that can be modified to improve the outcomes for these children is critical.

The primary objective of this research was to examine the relationships among parenting stress variables, the home environment, child characteristics, and externalizing behaviors in young children. The main research questions that guide this study include: 1) What are the relative contributions of parental distress (PD subscale) and parent-child dysfunctional interaction (P-CDI subscale) as measured by the Parenting Stress Index-Short Form on externalizing behavior in children between the ages of 18 and 48 months? 2) What are the relative contributions of the home environment as measured by the Home Observation for Measurement of the Environment, language ability (total score on PLS), age, and gender on

externalizing behavior problems (CBCL Externalizing Problems scale) in children between the ages of 18 and 48 months? and 3) What are the relative contributions of parental distress (PD subscale), parent-child dysfunctional interaction (P-CDI subscale) and the home environment (HOME) on externalizing behavior (CBCL Externalizing Problems scale) in children between the ages of 18 and 48 months?

This study used multiple regression models to assess the relationships among the parenting stress variables, the home environment, and externalizing behaviors in 105 children recruited from three different sites in the United States. Results indicated that the parenting stress variable related to parent perceptions had the most significant relationship with externalizing behaviors in young children. Anticipated outcomes of this research include adding to the literature base on externalizing behavior in young children, furthering an understanding of the relationships among parenting stress variables, the home environment, and externalizing behaviors in young children, and utilizing information regarding these relationships to develop recommendations for prevention and intervention programs.

CHAPTER 1
LITERATURE REVIEW

Introduction

Behavior problems exhibited by young children may be symptomatic of more serious mental health issues (Keenan & Wakschlag, 2000). Although some of these behaviors are developmentally appropriate, a subgroup of children will continue on to exhibit more serious externalizing behaviors. A plethora of research exists in the area of externalizing behavior in children, and researchers have begun exploring the clinical significance of behavior problems in children who have not yet entered school (Campbell, 2002). Despite increased attention, researchers have indicated that questions remain regarding the extent to which specific factors increase the risk for young children in continuing to exhibit externalizing behaviors (Campbell, 2002; Olson, Bates, Sandy, & Lanthier, 2000). The period of early childhood, due to its transitional and maturational nature, is critical to understanding typical development and ipsative distinctions (Campbell, 2002). This period is the time in which developmental trajectories of behavior are being established, some as adaptive and others as maladaptive (Campbell, 2002; Shaw, Gilliom, Ingoldsby, & Nagin, 2003). Thus, there continues to be a need for research identifying factors contributing to externalizing behavior specifically during this developmental period.

This section will focus on the various terms and vocabulary used to define the relevant terms of this study. In the literature discussing young children various classification titles are used, depending on the distinct developmental period (Keenan & Shaw, 1997). In this study, the term young children will be used to represent children under the age of 5. The literature has identified risk factors related to poor developmental outcomes in general, as well as areas that require further investigation related to externalizing behavior. More specifically, parent-child

interactions have been shown to be a particular area of interest with regards to externalizing behaviors in young children (Campbell, 2002). In addition, language is an important factor in studying risk factors associated with externalizing behaviors due to the substantial overlap between language difficulties and externalizing behaviors. Most importantly, the earlier that behavioral and social-emotional difficulties can be identified, the greater the likelihood of remediation and an increased chance of more positive outcomes (Squires & Nickel, 2003).

The purpose of this study is to examine the effects the home environment and parenting stress have on externalizing behavior in young children. This chapter begins with an explanation of the terms and behaviors incorporated under the externalizing umbrella; followed by a discussion of the significance, stability, and negative sequelae of these behaviors. Gender and age are then examined in relation to externalizing behaviors. The relevant theoretical models are presented briefly. A general introduction to the environments associated with poor development outcomes is offered. Subsequently, the literature pertaining to the relationships between the environment and language, as well as the environment and externalizing behaviors are explored. The severity and stability of language impairment, and the roles of gender, maternal factors, parent-child interactions, and the home environment are all given further consideration under the environment and language section. The environment and externalizing behaviors section includes a discussion of family function and structure, parental psychopathology and neighborhood violence, parenting practices/parent-child interaction, and parenting stress. Finally, a summary detailing the purpose and questions of the study is provided.

Externalizing Behaviors

A plethora of terms are used to refer to behaviors categorized under the term externalizing. In addition, differences exist in the appropriate groupings of these behaviors,

specifically separated out by severity, as well as distinctions made by researchers on the point at which these behaviors can be considered clinical. Externalizing behaviors, also known as undercontrolled, include many conduct problems including disruptive, hyperactive, defiant, impulsive, aggressive, inattentive, and overactive behaviors, as well as those with antisocial features, conduct problems, and oppositional problems (Achenbach & Edelbrock, 1978; Briggs-Gowan, Carter, Bosson-Heenan, Guyer, & Horwitz, 2006; Campbell, 2002; Hinshaw, 1992; Liu, 2004; Mesman & Koot, 2001). Several studies explicitly discussing the terms related to externalizing behaviors will be discussed in the next section.

Despite the various behaviors categorized under the label of externalizing behaviors, some researchers have identified oppositionality, aggression, and hyperactivity as antecedents to externalizing behaviors (Mesman, Bongers, & Koot, 2001). In addition, many studies in the area of externalizing behaviors specifically discuss physical aggression, with some using the terms interchangeably (Broidy, Nagin, Tremblay, Bates, Brame, Dodge, et al., 2003; Hanish, Martin, Fabes, Leonard, & Herzog, 2005; Mesman & Koot, 2001). Furthermore, Tremblay and colleagues (1999) stated that developmental studies frequently confound physical aggression with other disruptive or challenging behaviors, such as verbal aggression, indirect aggression, opposition, hyperactivity, and competition. However, these behaviors are typically encompassed under the broad category of externalizing behaviors and therefore, are relevant here. Some researchers have argued that antisocial behavior describes more severe disruptive and destructive behavior (Shaw & Winslow, 1997). The most common behavioral disorders discussed in preschool age children are Attention Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD) (Egger & Angold, 2006). Furthermore,

Keenan and Wakschlag (2000) indicate that the DSM-IV cautions against applying the diagnosis of ODD or CD to preschool children.

In the same respect that researchers have difficulty defining the externalizing term, the research is also unclear on the point of differentiation for the behaviors. In determining whether externalizing behavior is one broad dimension or various interconnected dimensions, Olson and colleagues (2000) determined that the division into multiple dimensions may not occur until adolescence. Shaw and colleagues (2001) indicated that only a subset of children demonstrate externalizing problems in the classroom at the clinical level and therefore, the term “disorder” should be used cautiously with respect to the disruptive behaviors exhibited by young children. Yet, in an examination of trajectories of physical aggression for children from two to eight years of age the trajectories were stable for almost 90% of the sample (Arsenio, 2004). Thus, it would appear that even disruptive behaviors that are not at the clinical level should be cause for concern due to their stability. Furthermore, research has found that the greater amount or the more severe the problems, the greater the likelihood that the problems will persist (Briggs-Gowan et al., 2006). Thus, the persistent nature of behavior problems beginning early in life, the relationship with increased risk for chronic mental health problems, and the poor prognosis these problems yield has been well established (Hinshaw, 1992; Keenan & Wakschlag, 2000; Patterson, DeBaryshe, & Ramsey, 1989).

Numerous terms abound in the literature to describe behavior difficulties in young children, including such labels as problem behaviors, challenging behaviors, behavior problems, disruptive behaviors, and externalizing behaviors. One of the difficulties in determining whether behaviors are clinically significant in young children is that many of the behaviors are considered normative or developmentally typical (Campbell, 2002; Dunlap et al., 2006; Keenan &

Wakschlag, 2000). However, researchers have stated that for behaviors to be described as clinically significant they should be more frequent, intense, and chronic, as well as pose a significant interference with developmental and social functioning (Campbell, 2002; Keenan & Wakschlag, 2000). Many different behaviors fall under the umbrella term of externalizing behaviors, with some potentially considered as more harmful than others. Liu (2004) states that research has shown some children identified as demonstrating externalizing behaviors will grow to be criminal and/or violent, whereas some will not. Yet, some research includes delinquent behavior under the broad category of externalizing behaviors (Stacks, 2005). The lack of clarity in nosology for young children is in part due to the fact that behaviors during this developmental period are more generalized. Thus, there exists a difficulty in diagnosis for this age range and therefore, a general category of externalizing behavior (Campbell, 2002; Keenan & Wakschlag, 2000). Consequently, this study will focus on the broader category of externalizing behaviors, specifically due to the stability and negative outcomes of these behaviors which will now be discussed.

Significance

The significance of externalizing behaviors lies not only in the level of disruption caused, but also in the persistence and stability of these behaviors. Behavior problems that begin early in life have been found to endure and continue into adolescence and even adulthood. In addition, these early problematic behaviors are correlated with other difficulties later in life, such as school dropout, delinquency, and other negative outcomes. Thus, this section will discuss the stability and negative sequelae associated with externalizing behaviors in young children. In addition, these outcomes provide clear evidence as to why it is necessary to identify those factors that contribute to the behaviors.

Stability

That young children can exhibit significantly challenging behavior problems early on in development is well established (Campbell, 2002; Keenan, Shaw, Delliquadri, Giovannelli, & Walsh, 1998; Mathiesan & Sanson, 2000). Many of the behavior problems demonstrated during infancy and toddlerhood are frequently regarded as normative and transient. However, more recent research counters that notion and establishes the stability of behavior problems beginning in early childhood (Campbell, 2002; Carter, Briggs-Gowan, & Davis, 2004; Keenan et al., 1998; Lavigne, Arend, Rosenbaum, Binns, Christoffel, & Gibbons, 1998; Mathiesen & Sanson, 2000). In fact, the coefficients of stability for aggression in older children have been argued to be as stable as IQ in some figures (Loeber & Hay, 1997; Olweus, 1979). However, information regarding the persistence of early childhood behavior problems continues to be restricted due to a lack of research in this area (Mathiesen & Sanson, 2000).

Recent research suggests that externalizing behaviors frequently present during the early childhood years. Further, these studies suggest that not only are the symptoms severe, they often persist into later childhood and adolescence. For example, Lavigne and colleagues (1998) conducted a study examining the stability of several externalizing disorders in preschool age children. The researchers found the disorders to be reasonably stable and comorbidity levels were high for children with an initial diagnosis. In addition, the researchers indicated that roughly 20 to 30% of the children with no disorder at preschool age go on to manifest a diagnosable disorder within the following few years (Lavigne et al., 1998). Thus, this finding lends support to the notion that the factors associated with externalizing behaviors in young children should continue to be explored. Mathiesen and Sanson (2000) found that behavior problems at 18 months could be predictive of persistent problems in some children. The

researchers indicated that high stability may be caused both by the response style of the mother and the children's behavioral stability (Mathiesen & Sanson, 2000). In the study of the continuity of early behavior problems, Keenan, Shaw, Delliquadri, Giovannelli, and Walsh (1998) found that most of the problem behaviors proved to be moderately stable. The researchers found that, at 18 and 24 months, noncompliance in girls and aggression in boys were associated with externalizing behaviors at three and five years of age (Keenan et al., 1998). Keenan and colleagues (1998) argue that these early behavior problems could be interpreted as an indicator for later psychological illness. Mesman and Koot (2001) found that for preschool age children with externalizing problems at two to three years of age, those children were nearly 5 times more likely to demonstrate comparable behaviors later in life. Furthermore, if this is the case it will be critical to investigate the caregiving environment and individual differences early in childhood (Keenan et al., 1998).

Negative sequelae

In addition to the stability of externalizing behaviors, there are also numerous negative outcomes that result from those behaviors. As discussed in the previous section, the stability of externalizing behaviors that begin in early childhood has been demonstrated in various studies (Campbell, 2002; Keenan et al., 1998; Lavigne et al., 1998; Mathiesen & Sanson, 2000). The persistence of problem behaviors has been associated with numerous negative sequelae. Kazdin (1995) classifies the range of activities that comprise antisocial behaviors as including aggressive acts, theft, vandalism, fire setting, lying, truancy, and running away. Externalizing behaviors can impact various individuals in addition to the child exhibiting these behaviors, including parents, siblings, peers, teachers, the community, and society as a whole (Olson et al., 2000).

The behaviors classified as externalizing in nature may fall under the legal term of delinquency (Hinshaw, 1992). In addition, the persistence of these types of behaviors over a prolonged period and causing impairment in social, academic, or occupational functioning may call for a diagnosis of oppositional defiant disorder or conduct disorder depending on the severity of the symptoms (American Psychiatric Association, 2000). Furthermore, the APA (2000) indicates that a substantial proportion of individuals diagnosed with conduct disorder persist in their antisocial behaviors into adulthood that meet criteria for Antisocial Personality Disorder. Patterson and Dishion (1985) propose that the exhibition of antisocial behaviors is associated with involvement in a deviant peer group. The isolation that occurs as a result of the antisocial behaviors affords these children the opportunity to join deviant peer groups, which can intensify the rate and severity of antisocial behaviors exhibited (Frick, 1998). Additionally, the presence of externalizing behaviors in children has also been associated with deficits in academics (Patterson & Dishion, 1985). Externalizing problems have been identified with various other negative outcomes and as having a poor prognosis, especially when these problems have an early onset (Loeber, Burke, & Lahey, 2000). Broidy and colleagues (2003) differentiate between children who display a chronic trajectory of physical aggression or conduct problems and children who display a chronic trajectory of hyperactivity or opposition. The researchers indicate that the former groups are at increased risk for violent juvenile delinquency in comparison to the latter (Broidy et al., 2003). Thus, it is critical to examine children when they first begin to demonstrate these behaviors, which has been established to occur very early on in life.

Gender

In a review of the literature of behavior problems in preschool children, Campbell (1995; 2002) states that several studies have reported more externalizing behaviors from boys, whereas

other studies indicate there are little gender differences in the behavior of preschool children. In addition, research examining gender differences in aggression of preschool children demonstrated that boys and girls differ in the types of aggression exhibited, with boys being more physically aggressive and girls more relationally aggressive (Ostrov & Keating, 2004). Other research found the precursors in infancy of externalizing behaviors to be distinct for preschool age boys versus girls (Shaw, Keenan, & Vondra, 1994). The researchers suggest that in order to depict the developmental pathways resulting in behavior problems for each gender, distinct models are necessary (Shaw, Keenan, & Vondra, 1994). Moreover, the research has established that more distinct gender differences exist at school entry (Offord et al., 1987). Keenan (2001) stated that during the same period of school entry, problem behaviors tend to be more stable for girls.

In spite of the research presented that indicates gender differences, other research has suggested that no such differences exist. In a study of the prevalence of social-emotional and behavioral problems of one and two year old children, no significant sex differences were observed in problem behaviors (Briggs-Gowan, Carter, Skuban, & Horwitz, 2001). Another study examining the persistence of problem behaviors in children from 12 months to 48 months of age also showed no gender differences in the persistence and stability of behavior problems (Briggs-Gowan, et al., 2006). Webster-Stratton (1996) found identical levels of total externalizing behaviors in both genders in a sample of children ranging in age from 4 to 7 years of age. Olson and colleagues (2000) found no gender differences with respect to the types of early risk factors predicting externalizing behaviors. It has been stated that studies have been inconsistent with regards to gender differences in behavior problems of preschool children, yet

the majority of the studies point to a lack of gender differences (Campbell; 1995; Qi & Kaiser, 2003).

However, it is possible that due to the expansive nature of the label of early childhood, there is an overlap of different ages in the various studies, which leads to difficulty in pinpointing the time at which gender differences emerge. For example, Mesman, Bongers, and Koot (2001) found no gender differences for externalizing problems for children ages two to three years, except for boys scoring higher on the Aggressive syndrome. Yet, for children at ages four and five, boys exhibited significantly more externalizing behaviors (Mesman, Bongers, & Koot, 2001). Shaw and Winslow (1997) also support the claim that boys begin to show increased levels of externalizing behaviors later on in the preschool time period. Researchers state that further exploration is needed to determine if gender differences in early pathways to externalizing problems exist (Olson, et al., 2000). Thus, gender continues to be an important factor in examining externalizing behaviors in young children.

Age

Research has shown that the features of children's behavior problems vary with age (Campbell, 2002). However, as indicated by Egger and Angold (2006) DSM diagnostic criteria generally indicate symptoms should be "developmentally inappropriate." Yet, the term developmentally inappropriate is left to interpretation as there is no further guidance explaining the parameters (Egger & Angold, 2006). Additionally, there is a lack of research examining the stability of externalizing behaviors in children less than 24 months of age (van Zeijl, Mesman, Stolk, Alink, van Ijzendoorn, Bakermans-Kranenburg, et al., 2006). Van Zeijl and colleagues (2006) found the stability of externalizing behaviors over one year in children aged 12-months old to be significant, although less than that of the 36 month olds in the sample. The researchers

also determined the correlates of externalizing behavior were relevant for both 12-month-old children and preschool children (van Zeijl, et al., 2006). Van Zeijl and colleagues (2006) indicate that distinct patterns of behaviors in various age groups may be attributed to developmental differences between 12-month-old children and older children. The researchers purported that based on the transactional model, younger children have had fewer interactions with the environment and therefore, less maladaptive behavior patterns have been established as compared to older children (van Zeijl, et al., 2006).

Theoretical Models

In general, research in the area of externalizing behaviors and in resilience in young children has examined those factors within the child, parental factors, and environmental factors (Kim-Cohen, Moffitt, Caspi & Taylor, 2004). The factors commonly identified as within the child may include cognitive abilities and developmental level, and temperament. Parental factors may include parenting skills/techniques, parental responsiveness/warmth, and parental mental health (Kim-Cohen et al., 2004). Environmental factors frequently include stimulation within the environment, social support, and factors related to socioeconomic status. However, it is critical to note that these factors are not mutually exclusive. Behavior problems early on and parental responses to these behaviors, along with environmental factors, can impact each other. Thus, the research in this area has recurrently focused on transactional models (Campbell, 2002).

Transactional Model

Due to the focus of this study on environment and behavior, the transactional model will be presented as a point of reference. A number of theories have been proposed to explain the relationship between parenting factors and behavior, as well as between the home environment and behavior. Sameroff and Chandler (1975) indicated that in examining psychological behavior from a different perspective critical relationships may be discovered with respect to the etiology

of disorders that were not previously identified. An overarching model that will be used to explore the relationship of parenting factors, the home environment, and behavior problems is the transactional model (Sameroff & Chandler, 1975; Sameroff & Fiese, 1990). The transactional model asserts that a child's development is an outcome of the constant interactions of the child and the environment. The environment of the child includes both the family and the social context. Accordingly, within the family context the child is influenced by the beliefs, values, and personality of his or her parents, as well as the interactional patterns of the family and the history of the family across generations (Sameroff & Fiese, 1990). Sameroff and Fiese (1990) identify the social context as encompassing socialization beliefs, controls, and supports of the culture. Thus, all of the factors within the contexts also influence the child's development. The relationship between child and environment will be considered when investigating the possible etiologies of externalizing behaviors.

Control Theory

Control theory, originally proposed by Hirschi (2002), is used to explain the development of antisocial behaviors in children. Control theory is based upon the notion of disrupted parent-child bonding caused by harsh discipline and a lack of supervision (Patterson, DeBaryshe, & Ramsey, 1989). Children who have experienced a disruption in bonding then are unable to acquire those values, both parental and societal, pertaining to conformity and work (Patterson et al., 1989). Control theory proposes that these children are then bereft of internal control, which would lead to difficulty in regulating moral behavior and inhibitory processes (Patterson et al., 1989). Research has affirmed the notion that parents who use harsh discipline have children with decreased ability to regulate moral conduct and increased externalizing problems (Kerr, Lopez,

Olson & Sameroff, 2004). Thus, control theory underscores the importance of examining parental factors with regards to externalizing behaviors.

Social-Interactional Perspective

Patterson and Dishion (1985) proposed that antisocial behaviors can be viewed from a social-interactional perspective. Patterson and Dishion (1985) proposed that during adolescence parental supervision and behavior management are deficient which then leads to an increase in those negative behaviors. In addition, during this period the children's opportunities to develop social and academic skills are hampered, which leads to an elevated risk for rejection by typical peers (Patterson & Dishion, 1985). The cycle continues with poor parental supervision and the adolescents' poor social skills increasing the probability to become involved with deviant peers and, subsequently, the risk of engaging in delinquent activities (Patterson & Dishion, 1985). Patterson and Dishion (1985) identifies key contributors of antisocial behavior as poor parental supervision and monitoring, lack of appropriate discipline techniques of children's antisocial behavior, and an inability to control children's involvement with a deviant peer group. Patterson and Dishion (1985) referred to this perspective as pertaining to the period of development of adolescence. However, as previously stated it is critical to examine the externalizing behaviors that begin early on because of the stability of those behaviors.

Eddy, Leve, and Fagot (2001) attempted to determine whether Patterson's theory also applied to younger children, more specifically using a sample of 5-year-old children. The researchers replicated the results in which poor parental discipline techniques and antisocial behaviors by children were comparable for the sample of younger children (Eddy, Leve, & Fagot, 2001). Additionally, the researchers did not find discrepancies for child antisocial behavior across genders, except in the extremes (Eddy et al., 2001).

The literature proposes multiple hypotheses on the relationship between parenting stress, the home environment, and externalizing behavior. One hypothesis is that a child exhibits externalizing behaviors, which in turn exacerbates maternal stress and the reaction reinforces the problem behaviors. Another hypothesis is that a stressful home environment contributes to an increase of children's behavior problems when at home (Barry, Dunlap, Cotton, Lochman, & Wells, 2005; Beautrais, Fergusson, & Shannon, 1982). The other hypothesis is that both relationships are involved, as explained in the transactional model.

Environment and Poor Developmental Outcomes

Researchers have identified various risk factors associated with poor developmental outcomes. Research has established that children raised in disadvantaged, dysfunctional, or impaired home environments are susceptible to poor developmental outcomes, such as mental health issues, criminal behavior, substance abuse, and low educational achievement (Fergusson & Horwood, 2003). Moreover, these environments are often characterized by conditions of poverty, parental drug or alcohol use, adolescent parents, parental psychopathology, limited community service and scarce support systems (Guralnick, 2000). Powell, Dunlap, and Fox (2006) argue that those behaviors that disrupt learning and impede healthy social interactions are ingrained in the relationship framework between child and caregiver, and the subsequent interactions.

The environment as defined in this study will include factors related to mother-child interactions, such as parenting practices and family functioning, as well as those delineated under the Home Observation for Measurement of the Environment (HOME). The HOME examines responsiveness, acceptance, organization, learning materials, involvement, variety, physical environment, language stimulation, academic stimulation, and modeling. Many of the items in the HOME can be categorized as related to mother-child interactions and the actual physical

environment. Thus, when discussing environment this study is referring to the factors mentioned above.

One significant factor related to environment is poverty. Poverty is a widely researched area, due to its deleterious impact on cognitive, social, and academic outcomes for children (Kaiser & Delaney, 1996). Children raised in poverty are more likely to exhibit conduct problems, depression, peer conflict, low self-confidence, and have IQs lower than middle-class children, be delayed in developing language and literacy skills, and perform more poorly on academic tests and within the school setting (Kaiser & Delaney, 1996). Children in poverty frequently reside in segregated communities with features that amplify risk factors, such as substandard housing, inadequate resources, and few jobs, in turn dwindling opportunities to escape poverty (NICHD Early Child Care Research Network, 2001). Furthermore, socioeconomic status (SES) plays an important role in the family environment overall, specifically impacting the context of parenting, parental attitudes and values, and family interactions (Sameroff, Gutman, & Peck, 2003). Parenting of families living in poverty is typified as harsh and inconsistent, with limited parental responsiveness, low levels of warmth, and abuse (Kaiser & Delaney, 1996; Kim-Cohen, Moffitt, Caspi, & Taylor, 2004).

As discussed previously, mother-child interactions, and more specifically, parenting stress is one of the factors in the environment of interest in this study. Parenting is affected by various other stressors, including unemployment, family violence, marital discord, divorce, lack of support and resources (Patterson, DeBaryshe, & Ramsey, 1989). Consequently, these stressors frequently disrupt and strain the caregiver-child interactions, leading to problems in adjustment and increased stress for the parent. The various factors that have the potential to impact developmental outcomes have been identified and briefly discussed. The literature on the various

risk factors related to poor developmental outcomes is extensive and not within the scope of this paper. Researchers have established that cumulative risks, defined as the presence of multiple stressors, place children at higher risk for poor developmental outcomes (Foster & Furstenberg, 1999). The focus will now be on the environmental risk factors related to language development and externalizing behavior.

Environment and Language Development

Language as a factor of externalizing behaviors: Due to the fact that language has an important role with respect to externalizing behavior and its development is impacted by the environment, it will be discussed here. Language is critical for success in many areas, more specifically in social relationships. Thus, language impairments have the potential to negatively impact various skills sets. A great deal of the literature focuses on the interplay between language impairments or delays and behavior problems, including both internalizing and externalizing difficulties. In addition, this literature specifically examines social skills, social competence, and socioemotional behavior and the relationship with language. Research has been conducted in both clinical and nonclinical populations and settings, using teacher and parent reports, as well as observations and direct assessment. Regardless of the factors considered the conclusion is that a substantial degree of overlap exists between populations of children with language problems and emotional/behavioral problems. Additionally, studies have documented that in children with concurrent language and behavior problems, even when their language skills return to normal, behavioral and social difficulties persist (Shevell, Majnemer, Webster, Platt, & Birnbaum, 2005). Thus, language is an important factor in the examination of externalizing behaviors in young children, especially considering this is the period during which language development takes place.

A significant number of studies have presented externalizing behaviors as the principal problems exhibited by children with language impairment. Some research has indicated that children who exhibit externalizing problems are more likely to have language deficits than those who experience internalizing behavior (Nelson, Benner, & Cheney, 2005). Children with behavior disorders have been found to be at increased risk for language disorders. For example, Camarata, Hughes, and Ruhl (1988) found that 97% of the children with behavior disorders in their sample scored at least one standard deviation below the mean on a test of language development, the Test of Language Development-Intermediate (TOLD-I). Speltz, DeKlyen, Calderon, Greenberg, and Fisher (1999) examined the language abilities of children with externalizing behaviors. The researchers found that these children had lower scores of verbal ability as measured by the verbal scale of the Wechsler Preschool and Primary Scale of Intelligence-Revised (WPPSI-R), the Expressive One-Word Picture Vocabulary Test-Revised (EOWPVT-R), the Peabody Picture Vocabulary Test (PPVT), and the Test of Early Reading Ability (TERA-2) (Speltz et al., 1999).

Reciprocally, a number of researchers have established that early language disorders also are predictive of disruptive behavior disorders (Toppelberg & Shapiro, 2000). Children with speech language impairment are more likely to exhibit externalizing behaviors, such as physical aggression, including pushing and shoving, in order to initiate and participate in social situations (Marton, Abramoff, & Rosenzweig, 2005). In another study examining behavioral correlates in preschoolers with language impairment, McCabe (2005) found a strong effect size for these children and aggression. Qi, Kaiser, and Milan (2006) examined the behavioral problems in preschool children between the ages of 3 and 4 years old with high and low language skills. Children with low language abilities were found to exhibit more behavior problems, specifically

disruptive behavior, compared to children with high language abilities (Qi, Kaiser, & Milan, 2006). Baker and Cantwell (1982) found nearly half of a sample presenting to a speech clinic to have a psychiatric illness. More specifically, the researchers found some of the more common diagnoses of children with communication disorders were externalizing behavior disorders (Baker & Cantwell, 1982). Cohen, Davine, and Meloche-Kelly (1989) found that children recently diagnosed with language disorders were more likely to display externalizing behaviors. The researchers argue that language disorders have the potential to be undiagnosed in certain children due to the highly disruptive nature of their behavior problems (Cohen, Davine, & Meloche-Kelly, 1989).

Researchers have suggested that children with limited language skills display externalizing behaviors as a means of replacing verbal behavior (Gallagher, 1999). In a study comparing communication skills in children with and without externalizing behaviors, Dumas, Blechman, and Prinz (1994) found children with aggressive behavior to demonstrate ineffective communication. An example of the ineffective communication includes failing to use questions to understand people and objects. Additionally, children with externalizing behaviors demonstrated more disruptive communication, such as interrupting while others are speaking (Dumas, Blechman, & Prinz, 1994). However, the researchers failed to determine whether these children were experiencing language impairments that spurred the ineffective communication or simply lacked the knowledge with respect to social competence that lead to the ineffective communication. The researchers did not address the possibility that the children may have language impairment. Instead, they did purport that the groups may have differed due to differences in verbal intelligence or cognitive functioning, yet did not measure either of those areas (Dumas, Blechman, & Prinz, 1994).

Severity and stability of language impairment: Similar to the research on externalizing behaviors, researchers have professed that speech and language problems are generally stable over time (Beitchman, Brownlie, Inglis, Wild, Mathews, Schachter, et al., 1994). In a study examining the stability of speech/language impairment, 72% of children with SLI at age 5 continued to be impaired at 12.5 years of age (Beitchman et al., 1994). Research has found that the type of speech/language profile is associated with behavioral problems later on (Beitchman, Wilson, Brownlie, Walters, Inglis, & Lancee, 1996; Silva, Williams, McGee, 1987). Beitchman and colleagues (1996) established that children with pervasive language problems that began early persisted in their behavioral disturbance into late childhood. In their sample of toddlers between 18 and 34 months of age, Paul, Looney and Dahm (1991) found that the persistence of language delay was associated with expressive language deficits. However, early language delay has been shown to be linked to later behavioral problems, even if the language delay does not persist (Stevenson, Richman, & Graham, 1985). Thus, early identification is critical to prevent further negative outcomes.

The rate of behavioral problems is the highest when language delay is general and most severe (Beitchman, Hood, Rochon, & Peterson, 1989). Generally, children with more severe language impairments that begin earlier in life have a poorer prognosis. However, the research presents mixed findings on which type of language impairment is most detrimental to children's development. Baker and Cantwell (1987) found that the group of children in their study with psychiatric illness was more likely to have more severe language problems.

The severity of language impairment has also been investigated with respect to social behavior. Hart, Fujiki, Brinton, and Hart (2004) found children with severe impairments in either or both receptive and expressive language to demonstrate fewer prosocial behaviors. In addition,

children with severe impairment in receptive language were also rated as less likeable (Hart, Fujiki, Brinton, & Hart, 2004). Additionally, impairment in receptive language skills is linked to more severe psychiatric conditions (Cohen, Barwick, Horodezky, Vallance, & Im, 1998a). The severity of language impairment has also been associated with psychiatric morbidity in another study. Children with more severe and persistent language impairments have been found to have a poorer prognosis (Snowling, Bishop, Stothard, Chipchase, & Kaplan, 2006). In a longitudinal study of children identified at age 5 with language impairments, speech impairments and without impairment, those with early childhood speech and language functioning had poorer outcomes (Beitchman et al., 2001). Furthermore, males with language impairment were more likely than the nonimpaired group to have a poorer prognosis, such as being diagnosed with antisocial personality disorder later on (Beitchman et al., 2001). In another study researchers attempted to ascertain the developmental and functional outcomes of young children with language impairment at school entry (Shevell, Majnemer, Webster, Platt, & Birnbaum, 2005). The children with language impairment diagnosed early continued to exhibit persistent significant difficulties at school age in developmental and functional profiles (Shevell et al., 2005). Thus, the researchers purport that early language delay does not simply suggest a maturational lag, rather it represents an indicator of increased risk of more extensive neurodevelopmental problems (Shevell et al., 2005).

Gender: As previously discussed, research has identified gender differences with respect to externalizing behaviors, which is also the case with gender differences with respect to outcomes of language delays. However, the literature with respect to difference in gender between language delay and behavior is inconsistent. Tallal, Dukette, and Curtiss (1989) found that total behavior scores on the Child Behavior Checklist for their sample of 4-year-old

language impaired boys were significantly different than age-matched controls. However, the girls in the sample did not demonstrate this difference (Tallal et al., 1989). Kaiser, Cai, Hancock, and Foster (2002) investigated the early emergent behavioral, language, and social problems based on a sample of children in Head Start at 3 years of age. The researchers found boys were more likely to be in the clinical range for externalizing behavior than internalizing behavior. Girls were likely to have scores in the clinical range for either internalizing or externalizing behavior. In addition, the boys in the sample scored significantly lower on the Preschool Language Scale – Third Edition (PLS-3) and PPVT-III language measures than the girls in the sample. In general, children in the sample with externalizing behavior were more likely to have low language skills than those without externalizing behavior (Kaiser, Cai, Hancock, & Foster, 2002).

One explanation for the inconsistencies in the findings may be related to the severity of the language impairment. For example, Kaiser and colleagues (2002) found externalizing behaviors are more likely to be exhibited by boys when their language scores are less than 80. Girls were less likely to have scores below 80; however, girls were nearly equally as likely to exhibit externalizing behaviors whether scores were above or below 80 (Kaiser, Cai, Hancock, & Foster, 2002). Kaiser, Hancock, Cai, Foster, and Hester (2000) proposed that language is a mediating factor, as an explanation for the girls higher language scores and lower rates of behavior problems in their study. Stowe, Arnold and Ortiz (2000) found that poor language development was found only when behavior problems also were present. Consequently, language development in girls is more likely to go unnoticed due to the weaker relationship between behavior problems and language skills for girls (Stowe, Arnold, & Ortiz, 2000). Research has also suggested that a more negative home environment is necessary to bring out conduct

problems in girls and girls who receive referrals for antisocial behavior frequently are raised in more disturbed homes (Keenan, Loeber, & Green 1999).

In order to better understand the relationship between language impairment and behavior problems, the origins of language should be explored and therefore will be discussed here. In addition, other factors related to language discussed in the literature will be identified. The environments in which children are raised inherently have qualities that are necessary for the development of language. Children reared in extreme isolation and deprivation may demonstrate significant cognitive and language impairment, often failing to attain useful language (Puckering & Rutter, 1987). One of the major factors influencing language development is communication in the mother-child relationship (Puckering & Rutter, 1987). Thus, this factor will be discussed more extensively, along with others related to language development.

Maternal factors: A substantial amount of literature is available with regards to the relationship between maternal factors and language. However, a review of that literature is beyond the scope of this paper (see Tomblin, Smith, & Zhang, 1997, for a review). Research has demonstrated the significance of maternal attention and responsiveness and language development in their children. Fewell and Deutscher (2002) examined the relationship between maternal factors of responsiveness and directiveness, and later language ability. The researchers found that children's verbal performance scores increased when mothers displayed more responsive interactions (Fewell & Deutscher, 2002). Additionally, mothers who displayed more maternal directiveness had children with lower verbal scores at age five (Fewell & Deutscher, 2002).

La Paro, Justice, Skibbe, and Pianta (2004) found that maternal factors also influence language impairment in preschoolers. The researchers investigated the influence of maternal

sensitivity and maternal depression on resolution or persistence of language impairment in their children (La Paro, Justice, Skibbe, & Pianta, 2004). The findings indicated that mothers with greater symptomatology of depression and lower maternal sensitivity had children with language impairment that persisted. Thus, the results suggest the relationship between mother and child is significant in impacting language growth in preschool children with language impairment (La Paro et al., 2004).

Parent-Child Interactions and Language: One aspect of the environment related to language development is the mother-child interaction, more specifically the content of the communication between mother and child. Hart and Risley (1995) identified specific features of verbal content of parents that contributed to the quality of everyday interactions. The first feature described by the researchers was talking by parents outside of that which is necessary for to care for the children. The talking by parents included using words to supplement actions and to stay involved. The next feature pinpointed by Hat and Risley (1995) was the parents actively listening, which served to augment information, encourage commenting, and stimulate elaboration. Another feature was the parents attempt to be nice when correcting their children. This attempt to be nice was observed when parents were enforcing rules and when forbidding exploration. An additional feature identified by Hart and Risley (1995) was parents offering children choices as a reminder and to teach appropriate behavior. Parents telling children more than was necessary and elaborating was another feature. In these interactions, parents identified for their children events that were note-worthy and should be remembered, as well as warning children on what to expect in certain situations and coping. Finally, the researchers observed children interacting with their siblings, and witnessed the interactional style being passed on to the next generation (Hart & Risley, 1995).

Cultural priorities of families were observed to be transmitted through language (Hart & Risley, 1995). The professional families used many different words and a wealth of nouns, modifiers, and past-tense verbs within their remarkable amount of talk, which implied a culture interested in names, relationships, and recall (Hart & Risley, 1995). The researchers found questioning, prompting through talk, and engaging talk by these families were utilized as a means of ensuring children's access to education. Alternatively, the welfare families reduced amount of talk focused on parent-initiated topics, imperatives, and directives, which indicates established customs are the concern of the culture (Hart & Risley, 1995). These families were focused on teaching their children obedience, politeness, and conformity. The working-class families included both of the cultures described for professional families and welfare families (Hart & Risley, 1995).

Another critical component of the language characteristics studied by Hart and Risley (1995) was the tone of feedback modeled by the family. Children in professional families, at age three, reflected the affirmative tone of their family. Similarly, children in welfare families mirrored the negative tone prevalent in their families. Hart and Risley (1995) found that within the welfare families the frequency and tone of interactions restricted the words and meaning children experienced. These families frequently use more directives and prohibitions, and have fewer interactions overall. Thus, parents have fewer occasions to discover topics of interest for their children and skill levels of children (Hart & Risley, 1995).

Hart and Risley (1992) found that parents who prohibited their children's activities more were less likely to encourage communication in their children. These parents were less apt to repeat, paraphrase, or expand on the talk produced by their children (Hart & Risley, 1992). Parents who prohibit their children's activities were more likely to be from low SES

backgrounds. Additionally, the discouraging words and lack of elaboration on children's speech was rarely seen in higher SES families (Hart & Risley, 1992). Thus, prohibitions by parents were shown to discourage children from talking.

The transactional model of Sameroff and Chandler (1975) discussed previously holds that children's development is based upon an interaction between the environment, specifically the family, and the child. Therefore, the findings of Hart and Risley (1995) can clearly be comprehended within the context of the transactional model. More specifically, children's interactions with their families influence their development of language. In turn, children use the language with their siblings and parents, which may develop into a cycle or pattern of interactional styles.

Home Environment and Language: The home environment has previously been found to influence language competence, more specifically vocabulary scores (Bradley, 1993). Roberts, Burchinal, and Durham (1999) examined the child and family factors that influence early language development of African American children, primarily from low-income families. The researchers found children from more stimulating and responsive homes when compared to children from less responsive and less stimulating homes were reported by parents to have larger vocabularies, use more irregular nouns and verbs, use longer utterances, and had more rapid rates of acquisition of irregular nouns and verbs and longer utterances over time. Gender differences were also found in language development in this sample. Girls were found to use longer utterances and more irregular forms, as well as having larger vocabularies and more rapid rates of acquisition of irregular nouns when compared to boys (Roberts, Burchinal, & Durham, 1999). In addition, one of the most important family and child variables influencing children's language development was the home environment. Roberts, Burchinal, and Durham (1999) found that the

responsiveness and stimulation children receive within the family environment is linked to early language development of the African American children in the sample.

The previous research discussed illustrates the significance of mother-child interactions and the differences in language development across the SES groups. One study sought to identify the associations between change in income-to-needs and child outcomes at 36 months of age, including language and behavior (Dearing, McCartney, & Taylor, 2001). The researchers examined the quality of the home environment as a mediator between changes in family income-to-needs and child outcomes. The quality of the home environment was assessed with the Home Observation for Measurement of the Environment (HOME). Dearing, McCartney and Taylor (2001) found the HOME was a strong predictor for both receptive and expressive language, as well as positive social behavior. Horwitz and colleagues (2003) sought to identify characteristics of the environment of young children with expressive language delay specifically. The researchers found children with expressive language delays were more likely to be raised in environments with low expressiveness and high levels of parenting stress (Horwitz, et al., 2003).

The previous research highlights the significance of the home environment in children's language development. The deleterious effects of poverty on developmental outcomes were also previously identified. Children living in poverty are more likely to experience a home environment that is less stimulating and responsive than those who are not. Consequently, poverty is another risk factor for children's language development. Stanton-Chapman, Chapman, Kaiser, and Hancock (2004) sought to investigate the relationship between cumulative risks, measured at birth, and the language development of low-income children. The researchers found that the presence of multiple risk factors was shown to intensify the negative effects of poverty. Gender differences were also found in this study. Cumulative risk impacted language scores of

girls more than boys, which was surprising given that girls are usually more resilient. The researchers indicated that the low-income children in this study experienced a greater number of risk factors, confronted the risk factors in an impoverished environment, and had lower language scores apart from the number of risk factors in comparison to the general population (Stanton-Chapman, Chapman, Kaiser, & Hancock, 2004).

The multiple risk factors influencing the development of language in children have been discussed. The amount of talking that parents produce, the features of verbal content, the relationship of the amount of talking and SES, the maladaptive pattern of interactions that occurs within certain parent-child dyads, the importance of the home environment, and the effect of cumulative risks were identified as influencing language development. The relationship between language development and social/emotional development has been proposed to exist at the appearance of language (Bloom & Capatides, 1987; Donahue & Cole, 1994). Bloom and Capatides (1987) found that the differences in the expression of affect are manifested in the emergence of language. The risk factors associated with externalizing behaviors will now be discussed with the intention of ultimately identifying the commonalities of risk factors for externalizing behaviors that exist in the home environment and in parental qualities.

Environment and Externalizing Behavior

The various factors of the environment related to language development have been discussed. Furthermore some of these factors are also related to externalizing behaviors, in addition to others which have yet to be identified. Additionally, the focus of this research is on externalizing behaviors and the associated factors of the environment. Thus, the factors of the environment related to externalizing behaviors will now be discussed. Risk factors in the environment of children frequently identified as influencing externalizing behaviors include

ineffective parenting practices, family functioning, parental psychopathology, child maltreatment, and family structure (Patterson et al., 1989). In addition, extrafamilial risk factors within the child's environment that impact externalizing behavior are neighborhood/community violence and association with a deviant peer group (Patterson et al., 1989). Poverty and the risk factors associated with living in poverty, several of which were previously mentioned, have a significant impact on behavioral development (Liaw & Brooks-Gunn, 1994). This discussion of environmental factors impacting the risk for externalizing behaviors is not intended to be exhaustive; rather, the more frequently identified risk factors are identified and briefly discussed. However, two variables of interest to this study, parenting and parenting stress, are discussed more extensively due to their relevance. As mentioned previously, parenting/mother-child interactions are included under the definition of the environment in this study.

Family functioning/structure

Family functioning may include parental separation or divorce, conflict in the marriage, and domestic violence (Qi & Kaiser, 2003). Family functioning and structure have been shown to be related to externalizing behaviors in young children. For example, children of divorced parents have been shown to have higher rates of externalizing behaviors then children from intact, well functioning biological parents (Connor, 2002). However, the impact of separation or divorce is mediated by aggression and conflict between the parents. Similarly, children from homes in which domestic violence occurs also exhibit more externalizing behaviors than children from no conflict or verbal conflict only homes (Connor, 2002). Additionally, children who are victims of child abuse and neglect are at increased risk for exhibiting externalizing behaviors (Connor, 2002).

The characteristics of family structure linked to externalizing behaviors are large family size, birth order, and single-mother parenting. However, these factors are also mediated by low SES, which includes fewer resources impacting the availability of supervision (Connor, 2002). The middle males of large, low SES families are found to be at increased risk for higher rates of externalizing behavior (Connor, 2002). The resources available to higher-SES families outside the family have the potential to counteract family structure risk factors (Connor, 2002).

Parental psychopathology and neighborhood environment

Parental psychopathology and neighborhood violence are other factors related to externalizing behaviors in children. Research has indicated that children of parents with psychopathology frequently demonstrate increased rates of externalizing behaviors (Connor, 2002). The psychopathology of these parents usually falls into one or more of the following categories: substance use disorders, maternal depression, maternal somatization, and antisocial personality disorder (Connor, 2002). The impact of parental psychopathology on externalizing behaviors of children is also mediated by such factors as whether one or both parents is impaired, the number of conditions the parents experience, the quality of interactions between parent and child, the extent of parental monitoring and supervision, SES, and the neighborhood environment quality (Connor, 2002). As all of the factors that have been discussed have also been associated with SES, the focus will now be on the risk factors associated with living in poverty.

Children living in poverty reside in neighborhoods characterized by high crime rates and violence. Children from neighborhoods with high levels of dangerousness are exposed to multiple risk factors (Campbell, Shaw, & Gilliom, 2000). Poverty-stricken and high-crime neighborhoods are characterized by violence that children witness, such as shooting and stabbings that may increase the likelihood they will engage in those behaviors (Hill, 2002).

Furthermore, many models of crime are present, a readily available supply of drugs exists, and engaging in externalizing behaviors may be the only means of surviving (Hill, 2002).

Parenting practices/parent-child interaction

Ineffective parenting practices include harsh and inconsistent parenting, poor discipline, coercive patterns, poor monitoring and supervision, and low positive involvement (Patterson et al., 1989). Researchers have posited that patterns of risk related to caregiving are able to be recognized as early as six months (Olson et al., 2000). Furthermore, Webster-Stratton and Taylor (2001) differentiate between the effects of harsh discipline and inconsistent parenting. The researchers propose that a negative model of behavior is established through harsh parenting. Consequently, children are not reinforced for prosocial behavior and adaptive social-cognitive skills are inhibited (Webster-Stratton & Taylor, 2001). Conduct problems early on develop into stable behavioral patterns as a consequence of inconsistent parenting and poor limit-setting by parents (Webster-Stratton & Taylor, 2001). Additionally, stress within the family impacts all the members and the externalizing behaviors being exhibited (Webster-Stratton & Taylor, 2001). Stern and Smith (1999) proposed that with an escalation in externalizing behaviors, parents feel a sense of diminished control and parenting efficacy.

Research has presented various theoretical models explaining the relationship between parenting/mother-child interactions and externalizing behaviors in young children. These theoretical models include Control Theory and the social-interactional perspective, as well as the "communication hypothesis" and transactional model. As previously discussed, Control Theory proposes that harsh discipline and lack of supervision cause a disruption in child-parent bonding, which then prevents the child from taking on parental and societal values regarding conformity (Patterson et al., 1989). In the social-interactional viewpoint, parental failure to use positive

reinforcers for prosocial behaviors and a lack of effective punishment for deviant behaviors serves as the method for family members to directly teach the child to use antisocial behaviors (Patterson et al., 1989). Other researchers have presented explanations for the purpose of externalizing behaviors as they relate to family variables, and more specifically parenting practices.

The "communication hypothesis" of problem behavior, presented by Wickstrom-Kane and Goldstein (1999), specifies the methods for establishing the meaning communicated by problem behavior. Wickstrom-Kane and Goldstein (1999) indicate that there is a paucity of research on the development of problem behavior in young children. The authors further stated that the behaviors that begin as sensory related, may ultimately be influenced through social reinforcement. Wickstrom-Kane and Goldstein (1999) propose that parents/caregivers alter their actions and expectations to adapt to their children's behaviors, thereby potentially providing an unnatural environment. The research supports the notion that there is a transactional nature between parenting practices and externalizing behavior.

Another perspective of the relationship between parenting and externalizing behavior is presented by Dadds (1987). In a review of the research examining the relationships between child behavior and family variables, Dadds (1987) discusses the function that aggressive behavior has within in the family system. Aggressive behavior can serve as a response and stimulus for the behavior of those within the family (Dadds, 1987). In addition, it can be conceptualized that short-term rewards can be achieved through the use of aggressive behavior by the child or parent, thereby precluding the need for more complex social behaviors (Dadds, 1987). Dadds (1987) states that particular environments, more specifically parenting styles and family stress, impede children's development as maintained by the research. The research

delineating the relationship between parenting styles and externalizing behavior in children will now be presented; followed by a discussion of the research on parenting stress and externalizing behavior in children.

Some research has suggested that physical discipline, also referred to as harsh discipline or corporal punishment, may be related to externalizing behaviors in children. In a study by Eamon (2000), the researcher sought to determine which parenting practices mediate the relationship between persistent, recent, and transitional poverty and the problem behaviors in children four and five years of age. In this study, a smaller number of stimulating experiences partly account for externalizing behaviors, such as bullying, arguing, stubbornness, disobedience, and impulsiveness, in recently poor children (Eamon, 2000). In addition, the researcher ascertained that large effects of physical discipline on externalizing behavior were observed (Eamon, 2000). Thus, parenting practices in the study by Eamon (2000) proved to play an integral role in the development of externalizing behaviors in young children.

Javo, Rønning, Heyerdahl, and Rudmin (2004) sought to study the parenting factors that are related to child behavior problems, while taking into consideration the effects of gender, family demographics, and ethnicity. The researchers found that affection from parents, physical closeness, and warmth are critical to the mental wellbeing of children across cultures (Javo, Rønning, Heyerdahl, & Rudmin, 2004). Conversely and similar to the findings in the Eamon (2000) study, corporal punishment and harsh discipline were found to be related to behavior problems (Javo et al., 2004). Furthermore, Javo and colleagues (2004) concluded that parental warmth serves as a protective factor in child behavior development.

Another study attempted to examine the relationship between coercive and affectionate mother-child interactions and aggressive behavior in children (McFadyen-Ketchum, Bates,

Dodge, & Petit, 1996). The researchers found that children who experienced mother-child interactions characterized as coercive exhibited more aggressive and disruptive behavior (McFadyen-Ketchum et al., 1996). In addition, less aggressive and disruptive behavior was found in children who experienced mother-child interactions characterized as affectionate (McFadyen-Ketchum et al., 1996). The researchers also found increased aggressive and disruptive behaviors over time were exhibited by boys who had more coercive mother-child interactions (McFadyen-Ketchum et al., 1996). Clearly, the mother-child interactions characterized by warmth and closeness, and lacking in harsh discipline and physical punishment are associated with less externalizing behaviors in children.

In a related study, researchers attempted to examine the child and parent behaviors that potentially disrupt parent-child relationships and increase externalizing behaviors in children (Shaw, Winslow, Owens, Vondra, Cohn, & Bell, 1998). The researchers found that maternal rejection was a constant predictor early externalizing behaviors across genders. In addition, Shaw et al. (1998) found that decreased maternal responsiveness during infancy has a greater impact on boys. The researchers concluded that boys are at an increased risk for externalizing problems when there are discrepancies in maternal responsiveness during infancy. Similarly, Mesman and Koot (2001) found that negative maternal attitudes during the preschool period were correlated with both internalizing and externalizing psychopathology eight years later.

Despite the role of parenting practices discussed, children, and more specifically the externalizing behaviors exhibited by them, have the potential to influence parenting practices. The transactional model would hypothesize that children's behaviors are impacted by the environment (i.e. parenting/mother-child interactions), which then reciprocally impact parental reactions to the behaviors (e.g., harsh discipline, lack of parental warmth/closeness, increased

parental stress). Research related to parental stress and externalizing behaviors in young children will now be presented.

Parenting stress

Parenting stress is a significant factor with respect to externalizing behavior in young children. More specifically, maternal stress is a particular area of interest in this study. Various factors contribute to maternal stress. For example, factors related to living in poverty including unemployment, low income, poor housing, and overcrowded living conditions, all potentially contribute to parental stress. Parenting stress is also impacted by child characteristics, parent characteristics, and negative life events (Morgan, Robinson, & Aldridge, 2002). Child characteristics may include age, number of children, and birth order, whereas parent characteristics include such factors as psychological health of the parent (Morgan et al., 2002). Another characteristic of the child related to parenting stress addressed in many studies is the presence of developmental delay or other neurodevelopmental disorders, such as attention deficit hyperactivity disorder (ADHD) (e.g., Anastapoulous, Guevremont, Shelton, & DuPaul, 1992; Baker et al., 2003; Creasey & Jarvis, 1994; DeWolfe et al., 2000).

The directionality of the relationship between stress and externalizing behavior remains unclear. Some research has suggested that the presence of externalizing behaviors in children leads to increased parental stress. On the other hand, other research suggests that children are able to perceive increased levels of parental stress and consequently, children respond with externalizing behaviors. Another notion is that parents rate their children as having increased externalizing behaviors, partly due to the fact that they are unable to recognize typical behaviors because of the stress they are experiencing. Additionally, as discussed in the previous section,

there may be a reciprocal or cyclical nature to the relationship between stress and externalizing behaviors in children. Research further delineating these points will now be presented.

Assel and colleagues (2002) examined maternal stress, parenting, and children's behavioral outcomes, as well as mothers' childrearing histories. The researchers found that mothers with higher stress were more apt to identify their children as demonstrating difficult behaviors (Assel et al., 2002). Additionally, maternal stress was found to be directly linked to social and attentional problems in their children (Assel et al., 2002). Children were rated as having more attentional and social problems when their mothers experienced mild to moderate levels of stress (Assel et al., 2002). However, higher stress was associated with memories of harsh and neglecting parenting. Thus, there appears to be a cyclical nature associated with parenting styles and stress. Mothers who experienced more stress were also more likely to exhibit less warmth and flexibility in the interactions with their own children. These children, in turn, exhibited less attempts to gain attention from adults (Assel et al., 2002).

As previously mentioned, some research has suggested that mothers with higher levels of stress are more likely to rate their children as exhibiting more externalizing behaviors and are more likely to negatively impact their children's behaviors. Research has indicated that daily hassles associated with parenting contribute to stress within parent-child relationship. Crnic and Greenberg (1990) found that stress experienced by mothers significantly contributed to predictions of increased occurrences of behavior problems in their sample of 5-year-old children. In addition, these children demonstrated lower social competence and in turn, their mothers experienced greater maternal distress (Crnic & Greenberg, 1990). Similarly, Creasey and Jarvis (1994) attempted to investigate the relationship between parenting stress and the behavioral functioning of 2-year-olds. The researchers assert that parenting stress is likely to negatively

impact child behavior, and that problem behaviors in children can influence parental adaptation (Creasey & Jarvis, 1994). Creasey and Jarvis (1994) found that parents who reported greater parental stress related to their child also rated their child as demonstrating increased behavior problems. In addition, the behaviors being reported were more likely to be externalizing (Creasey & Jarvis, 1994). The researchers also propose that mothers reporting greater stress are potentially less able to recognize the behaviors of their children that are considered typical and consequently evaluate the children more severely on measures of behavior problems (Creasey & Jarvis, 1994). Wakschlag and Keenan (2001) found parenting stress to be most strongly associated with disruptive behavior disorder symptoms of the children in their study of children between the ages of 2 ½ and 5 ½ years (Wakschlag & Keenan, 2001). Wakschlag and Keenan (2001) proposed that parents who experience increased levels of stress and isolation potentially react inflexibly to the varying developmental needs of their children. Campbell, Shaw, and Gilliom (2000) suggested that parents with a high amount of stress are more apt to exhibit a harsh or inconsistent parenting style, which then exacerbates the behavior problems of their children.

Researchers have also attempted to determine how maternal stress and distress are related to child disruptive behaviors in the home and school settings (Barry, Dunlap, Cotton, Lochman, & Wells, 2005). Maternal stress was defined as environmental stress, whereas maternal distress included symptoms of depression and anxiety/somatization (Barry et al., 2005). Barry and colleagues (2005) proposed that SES and parenting stress would be related to teacher-reported child behavior problems. In addition, the researchers predicted that maternal distress would be associated with behavior problems in children, despite controlling for stress variables (Barry et al., 2005). Barry and colleagues (2005) found high levels of parenting stress to be related to a

significant proportion of unique variance, over and above SES, in mother-reported behavior problems in children. Thus, the researchers suggested that general parenting hassles should be considered an added critical environmental factor (Barry et al., 2005). In addition, mothers with higher stress levels connected with parenting tasks were likely to have boys with more externalizing problem behaviors (Barry et al., 2005). The researchers also conclude their findings to be consistent with the transactional model, wherein a stressful home environment contributes to an increase of children's behavior problems when at home (Barry et al., 2005).

Another factor potentially impacting parental stress is related to the work-family conflict. Hart and Kelley (2006) examined work and family variables in dual-earner couples in relation to each parents' reports of externalizing and internalizing behaviors in their children. Mothers enduring greater work-family conflict, experiencing increased stress in the role of parent, and viewing their children as difficult were more apt to perceive internalizing and externalizing symptoms in their children (Hart & Kelley, 2006). The researchers propose their findings are also consistent with the transactional model, wherein these mothers view their children less favorably, and the children may be attuned to their mothers' stress which contributed to more difficult child behavior (Hart & Kelley, 2006).

Other researchers have suggested that the relationship between parenting stress and child behavior problems may be unrelated to the behavior of the children (Benzies, Harrison, & Magill-Evans, 2004). Instead, the researchers purport that these parents have a stable, negative cognitive representation of their children mediated by other factors, including marital quality or parental monitoring (Benzies et al., 2004). Furthermore, in another study examining parenting stress, the researchers found it to be related to externalizing behaviors, although moderated by parents' expectations (Anthony, Anthony, Glanville, Naiman, Waanders, & Shaffer, 2005).

Anthony and colleagues (2005) found that when parent expectations were low, increased parenting stress was associated with less externalizing behavior problems. Thus, the researchers hypothesized that parents with high stress and high expectations for their children may have children who are more susceptible for externalizing behaviors (Anthony et al., 2005). Additionally, perceptions on the part of the mother have been hypothesized to be impacted by dissatisfaction with the marriage and maternal depression (Sawyer, Streiner, & Baghurst, 1998).

Other researchers have attempted to identify a cumulative variable associated with externalizing behaviors. Mesman and Koot (2001) in a post hoc investigation of explicit preschool life events that comprise a cumulative variable found parental burnout and increase in maternal absence to be highly predictive of externalizing diagnoses later on in life. Thus, parental availability, or the lack thereof, during the preschool period is associated with increased risk of externalizing problems at a later age (Mesman & Koot, 2001).

A large body of research suggests that children of parents with higher stress have higher rates of externalizing behaviors across different contexts (Gross, Fogg, Garvey, & Julion, 2004). In general, researchers have found that parents with higher stress report their children as exhibiting more externalizing behaviors (Andra & Thomas, 1998; Assel, Landry, Swank, Steelman, Miller-Loncar, & Smith, 2002; Crnic & Greenberg, 1990). For example, in a sample of 300 low SES families, Shaw, Winslow, Owens, & Hood (1998) found that as family stressors increased, externalizing behaviors also increased. Furthermore, the researchers found that families with three or more stressors had children with higher scores on the externalizing behavior scale of the Achenbach Child Behavior Checklist (CBCL) compared to those with no stressors or only one stressor (Shaw, Winslow, Owens, & Hood, 1998).

Researchers have also examined the three potential interactions of child behavior problems and parents' perception of negative impact or stress (Baker, McIntyre, Blacher, Crnic, Edelbrock, & Low, 2003). One of the interactions proposed by Baker and colleagues (2003) is that child behavior problems predict subsequent increased parenting stress. Another interaction is that parenting stress predicts subsequent increased behavior problems. The final interaction is that both causal explanations apply. The sample included 205 children, with and without delays, from 3 to 4 years of age (Baker et al., 2003). Negative impact, or stress, scores were higher for parents of children with delay (Baker et al., 2003). Baker and colleagues (2003) found that child behavior problems at 36 months and changes in these behavior problems over the one-year period were found to be associated with parenting stress increases. Yet, it was also found that parenting stress at 36 months and changes in parenting stress over the one-year period were associated with child behavior problems increases (Baker et al., 2003). The researchers concluded that these results are consistent with the concept that maladaptive child behavior and parenting stress have mutually escalating effects on one another, which is consistent with transactional models (Baker et al., 2003). In addition, the researchers make the assumption that the parenting environment interacts with characteristics of the child, which in this study is the behavior problems, and that the child's behavior problems have a critical impact on the parenting environment (Baker et al., 2003). Similarly, Andra and Thomas (1998) found that parents rated their children as exhibiting more behavior difficulties concurrently to reporting increased stress. In addition, the parents in the study attributed more stress to factors related to the children if the child demonstrated more externalizing behaviors (Andra & Thomas, 1998).

Many of the studies previously discussed suggest a strong association between parental stress and externalizing behaviors in young children. However, one study has indicated that

despite the stress it is possible for family functioning not to be affected. DeWolfe, Byrne, and Bawden (2000) examined behavioral problems in preschool age children with ADHD in comparison to their typically developing peers. The researchers also included the familial environment in their study (DeWolfe, Byrne, & Bawden, 2000). One conclusion was that for preschool children with ADHD, parents described the relationship as more stressful and less rewarding (DeWolfe et al., 2000). Regardless of these negative reports, the ratings indicated that family functioning was not adversely affected (DeWolfe et al., 2000). The researchers hypothesize that parents are able to manage the stress associated with parenting through a variety of techniques, which may include positive reframing of the problem behavior, effective child behavior management or redirection, or finding comfort in the knowledge that this is a transient stage (DeWolfe et al., 2000). This hypothesis is a critical point in the examination of parenting stress and externalizing behaviors. Further research is needed investigating the other factors that come into play, so as to develop interventions to aid those parents whose stress is so great that the family functioning is disrupted.

The various factors in the environment associated with externalizing behavior have been discussed. These factors included parenting practices, family functioning and structure, parental psychopathology, and parenting stress. It is likely that the presence of multiple risk factors that have been discussed increases the likelihood of more externalizing behaviors. In one study, researchers sought to examine the prevalence of behavior problems in a sample of children with or at risk for developmental delay in relation to their same age peers without developmental delay (Feldman, Hancock, Rielly, Minnes, & Cairns, 2000). In addition, the researchers investigated family factors associated with behavior problems in children (Feldman et al., 2000). Feldman and colleagues (2000) found that total behavior problem scores were correlated with,

such factors as, maternal depression, parental coping strategies, financial stress, and child management. More specifically, parental stress associated with using behavioral management techniques with their children was significantly correlated with behavior problems (Feldman et al., 2000). Atzaba-Poria, Pike, and Deater-Deckard (2004) found that cumulative risk factors, in addition to gender and ethnicity, accounted for 40% of the variance in externalizing behaviors in the children in their sample. The previous sections have demonstrated that parenting stress is associated with externalizing behaviors in young children. Yet there are other important factors, such as age, gender, and language, which have not been considered collectively within this area that could be the key to a better understanding of this relationship. Although it is less clearly defined, the home environment also has been shown to be potentially related to externalizing behaviors in young children.

Parenting stress is defined in varying ways throughout the literature. Some studies identify parenting stress as daily parenting hassles, while other studies discuss it in a broader sense. Some research discusses maternal stress specifically, while other research delineates between maternal stress and maternal distress. In this study parental distress refers to the strain experienced by the parent due to personal factors connected to parenting (Abidin, 1995). Several studies refer to parenting stress are based upon parental perceptions of the child's behaviors. In this study, parental perceptions of the child and his/her behaviors are examined under the Parent-Child Dysfunctional Interaction subscale of the Parenting Stress Index. Previous research has not clearly distinguished between parental perceptions and other stresses associated with parenting and the relationship with externalizing behaviors. The present study seeks to examine the role of both parental perceptions and other parenting stresses in relation to externalizing behavior by utilizing the Parenting Stress Index - Short Form (PSI-SF) subscales.

Summary and Purpose of Present Study

As discussed previously, research has identified that maternal attention and responsiveness is critical for language development and in the development of externalizing behaviors in young children (Eamon, 2000; Fewell & Deutscher, 2002; Puckering & Rutter, 1987; Shaw et al., 1998). Less responsive parents potentially fail to provide a language-rich environment and place boys at an increased risk for externalizing behaviors (Hancock, Kaiser, & Delaney, 2002; Shaw et al., 1998). Hancock, Kaiser, and Delaney (2002) indicate that parent-child interactions typically involve both language support and behavior management. Stacks (2005) indicated that factors within the child, the caregiver, and the environment all contribute to the occurrence and stability of behavior problems. Additionally, research has established that mother-child interactions are disrupted when children exhibit externalizing behaviors (Campbell, 1995). Hancock and colleagues (2002) indicate that the parents who fail to offer a language-rich environment also have problems managing their children's behavior. These negative interactions frequently lead to coercive exchanges, with talk primarily centered on compliance. Parenting stress is potentially compounded by externalizing behaviors and, in turn, may increase the probability of negative interactions in the mother-child dyad. Parenting stress may also be increased due to the presence of language problems (Prizant, Wetherby, & Roberts, 2000). Thus, the home environment, as well as parenting stress, can be hypothesized to have an impact on both language and behavior. However, past research has not clearly defined parenting stress; therefore it is unclear if parental perceptions of children's behavior or if stresses related to the parenting role are associated more strongly with externalizing behavior. The Home Observation for Measurement of the Environment (HOME) has been shown to be associated with language (Bradley, 1993). Less research has examined the relationship between the HOME and socioemotional behavior (Bradley, 1993). Additionally, a significant amount of research

examining the environment has focused on nonmaternal child care (Stacks, 2005). Furthermore, little research examines language and behavior concurrently using the HOME. Research on the home environment, and more specifically parenting, is critical to developing interventions (Bradley, Burchinal, & Casey, 2001).

Therefore, the present study seeks to examine the role of two factors with respect to externalizing behavior problems in preschool age children, while taking into account the effect of language, gender, and age. One factor to be examined is the role of the home environment with respect to externalizing behaviors, recognizing that language, gender, and age are related. The other factor that will be examined is the role of parenting stress with respect to externalizing behaviors, again with the recognition of the associated variables of language, gender, and age. Parenting stress will include two distinct areas, parental distress and parent-child dysfunctional interaction. In order to examine the data effectively, the data analysis strategy consists of two parts. The first part is to examine the interrelationships among all variables. The second part will take into account the potential interrelationships to specifically address the following questions:

1. What are the relative contributions of parental distress (PD subscale) and parent-child dysfunctional interaction (P-CDI subscale) as measured by the Parenting Stress Index-Short Form on externalizing behavior in children between the ages of 18 and 48 months?

2. What are the relative contributions of the home environment as measured by the Home Observation for Measurement of the Environment, language ability (total score on PLS), age, and gender on externalizing behavior problems (CBCL Externalizing Problems scale) in children between the ages of 18 and 48 months?

3. What are the relative contributions of parental distress (PD subscale), parent-child dysfunctional interaction (P-CDI subscale) and the home environment (HOME) on externalizing behavior (CBCL Externalizing Problems scale) in children between the ages of 18 and 48 months?

CHAPTER 2
METHODOLOGY

The purpose of this study is to explore the effects of the home environment and parental stress on externalizing behaviors in young children. In addition, the research in this area indicates that age, language, and gender are potentially significant factors to be considered and therefore, will also be included in this investigation. To that end, this study examines the following questions:

1. What are the relative contributions of parental distress (PD subscale) and parent-child dysfunctional interaction (P-CDI subscale) as measured by the Parenting Stress Index-Short Form on externalizing behavior in children between the ages of 18 and 48 months?

2. What are the relative contributions of the home environment as measured by the Home Observation for Measurement of the Environment, language ability (total score on PLS), age, and gender on externalizing behavior problems (CBCL Externalizing Problems scale) in children between the ages of 18 and 48 months?

3. What are the relative contributions of parental distress (PD subscale), parent-child dysfunctional interaction (P-CDI subscale) and the home environment (HOME) on externalizing behavior (CBCL Externalizing Problems scale) in children between the ages of 18 and 48 months?

The data included in this study was obtained from an existing database of a multi-site national project, entitled the Kids in Development Study (KiDS). The purpose of the KiDS study was to identify those variables that contributed to school readiness, both within the home and social environments. In addition, the KiDS study was focused on challenging behaviors in early childhood and providing intervention strategies related to these issues. The other sites, in addition to the University of Florida, include the University of Colorado, the University of Kansas, Lehigh University, Tennessee Voices for Children, and the University of South Florida. In order to ensure that only children with externalizing disorders or those at risk for externalizing behaviors are included, the sample of three of the sites were used for this study. The three sites were the University of Florida, the University of Kansas, and the University of South Florida.

Participants

The participants in this study include 105 children between the ages of 18 and 48 months. Children were recruited from early childhood centers (i.e., child care centers) based on specific criteria. Specifically, all participants either exhibited challenging behaviors or were deemed to be at high risk for challenging behaviors based on the presence of four or more of 10 risk factors identified based on the literature (Table 2-1). The risk factors were incorporated with the intent of recruiting children who may have been exposed to abuse and neglect by determining if families had been involved with child protection and family safety. The participants were obtained from 3 of the 6 sites or programs around the United States in order to target high risk populations. To keep the focus of the study on children with externalizing behaviors not due to developmental disability, children with a diagnosis on the autism spectrum disorder or developmental delay were excluded from the study. Twenty-two children were excluded from the sample based on the diagnosis of autism spectrum disorder or other developmental disorders. Five children had to be excluded due to incomplete data sets.

The final sample was comprised of 61.9% male children and 38.1% female children. The ethnicity and race of the sample included 61.91% African-American, 20.95% Caucasian, 11.43% Hispanic, and 5.71% other. Approximately 59% of the participants were younger than 36 months of age at the time of enrollment and 41% were older than 36 months of age at enrollment (Table 2-2). The mean age is 33 months with a standard deviation of 8.933. In addition, 61 of the respondents were single, 34 were married, 3 were divorced, 6 were separated, and 1 was classified as other and engaged.

Measures

Child Behavior Checklist (CBCL/1½ -5)

The Child Behavior Checklist for Ages 1½-5 (CBCL/1½-5) was used to measure behavior profiles (Achenbach & Rescorla, 2000). The CBCL/1½ -5 is a 99 item scale completed by parents or caregivers of children in family settings. The respondent can rate each item as 0 for not true, 1 for somewhat or sometimes true, or 2 for very true or often true. The CBCL/1½-5 provides scores for both internalizing and externalizing behaviors, as well as DSM-oriented scales. The CBCL/1½ -5 provides total scores, T scores, and percentiles. T scores between 65 and 69, or the 93rd to 97th percentile, indicate the borderline clinical range. T scores above 70 indicate the clinical range. T scores for the Externalizing Problems scale will be used in the analyses. The T scores for this scale are not truncated and therefore, provide results similar to analyses with raw scores (Achenbach & Rescorla, 2000). The benefit of using scores that are not truncated is the range of variation they provide.

The CBCL/1½ -5 is frequently used to identify maladaptive behavior in preschoolers and has been shown to have adequate reliability and validity. The test-retest reliability ranged between .80 and .90 for most scales, with a mean of .85 across all scales (Achenbach & Rescorla, 2000). More specifically, test-retest reliability for the externalizing behavior is .87.

To examine the validity for the Externalizing scale of the CBCL, it was correlated with the externalizing scales of the Infant-Toddler Social and Emotional Assessment … resulting in Pearson product moment correlation coefficients ranging between .46 and .72 (Achenbach & Rescorla, 2000). Other comparisons include correlations with the Behavior Checklist and Toddler Behavior Screening Inventory. The CBCL Total Problems has been shown to correlate between .56 and .77 with the total problems on the Behavior Checklist and .70 with the Toddler Behavior Screening Inventory.

Preschool Language Scale –Fourth Edition (PLS-4)

The Preschool Language Scale – Fourth Edition (PLS-4) was used as a measure of language ability. The PLS-4 is an individually administered standardized test used with children from ages between birth and 6 years, 11 months to identify language disorder or delay. The test is composed of two subscales that yield norm-referenced test scores, which are Auditory Comprehension and Expressive Communication, as well as a Total Language score (Zimmerman, Steiner, & Pond, 2002). The test is administered through observing and eliciting responses from the child via the use of manipulatives and a picture manual. The PLS-4 provides raw scores to be converted to standard scores, confidence intervals, percentile ranks, and age equivalents.

The PLS-4 is a commonly used measure of language ability in preschoolers and has been demonstrated to have adequate reliability and validity. The test-retest coefficients were reported for the subscales to be between .82 and .95. The coefficients for the Total Language Score are between .90 and .97 (Zimmerman, Steiner, & Pond, 2002). The internal consistency values for the two subscales and Total Language Score ranged between .66 and .97 (Zimmerman et al., 2002).

The PLS-4 has been shown to correlate highly with other valid measures of language ability (Zimmerman et al., 2002). Children who scored within the “normal” rating on the Denver II language strand also scored within 1 standard deviation of the mean on the PLS-4 (Zimmerman et al., 2002). The PLS-4 was also shown to correlate with the PLS-3. Auditory comprehension on the PLS-4 correlated at .65 with the PLS-3. Expressive comprehension on the PLS-4 correlated at .79 with the PLS-3 (Zimmerman et al., 2002). In addition, in examining the internal structure, the PLS-4 subscale standard scores were found to correlate at .74 across ages (Zimmerman et al., 2002).

Parenting Stress Index – Short Form (PSI-SF)

The Parenting Stress Index – Short Form was used to measure the stress parents experience related child and parent characteristics, as well as the mother-child interaction (Abidin, 1995). The PSI/SF is a 36-item scale standardized for use with parents of children between the ages of 1 month and 12 years (Abidin, 1995). The respondent chooses between SA for strongly agree, A for agree, NS for not sure, D for disagree, or SD for strongly disagree. Two of the items require the respondent to follow the instruction "For the next statement, choose your response from the choices '1' to '5' below" (Abidin, 1995, p.54). The PSI/SF provides raw scores which can be converted into percentile scores. The 15th to 80th percentiles indicate a normal range, where as high scores are those above the 85th percentile. The PSI/SF includes four scales which are a Defensive Responding scale, a Total Stress scale, a Parental Distress scale, a Parent-Child Dysfunctional Interaction scale, and a Difficult Child scale.

The reliability of the PSI/SF is adequate with test-rest reliabilities between .68 and .85 for all scales (Abidin, 1995). In addition, internal consistency ranges between .80 and .91 (Abidin, 1995). The Total Stress scale on the PSI/SF was determined to correlate .94 with the full-length PSI Total Stress scale (Abidin, 1995). The correlation between the Parent Domain score on the full-length PSI and the Parental Distress subscale is .92 (Abidin, 1995). Similarly, the Difficult Child scale was highly correlated with the full-length PSI Child Domain score at .87 (Abidin, 1995). The Parent-Child Dysfunctional Interaction scale on the PSI/SF was found to correlate .73 with the Child Domain and .50 with the Parent Domain on the full-length PSI (Abidin, 1995).

The manual of the PSI/SF does not offer research on its validity, rather only on the full-length version. However, research has supported the construct validity of the PSI/SF (Reitman, Currier, & Stickle, 2002). Reitman, Currier, and Stickle (2002) found the regression analyses

supported this in that maternal reports of child behavior were most strongly associated with the Difficult Child scale of the PSI-SF. Furthermore, researchers have provided support for existence of two related yet qualitatively distinct domains of parenting stress, which include a domain based on “mother characteristics” and one of “child characteristics” (Haskett, Ahern, Ward, & Allaire, 2006). Haskett and colleagues (2006) determined a two-factor model of personal distress and childrearing stress had the strongest support. The internal consistency for the total scale was .83 based on the two factor model (Haskett et al., 2006). The researchers also found that parents who reported high levels of stress on the PD subscale were more likely to report poor emotional health generally on the Symptom Checklist-90-Revised (SCL-90-R) (Haskett et al., 2006).

Home Observation Measurement of the Environment (HOME)

The Home Observation Measurement of the Environment was used as a systematic measure of the family environment. Two versions of the HOME were employed for use with this sample, the Infant/Toddler HOME (IT-HOME) and the Early Childhood HOME (EC-HOME). The Infant/Toddler HOME is a 45-item scale for which each item can be scored as plus or minus. The items on both versions are coded to be based on Observation (O), Either (E), or Interview (I), depending on the item. The items on the Infant/Toddler HOME are arranged into subscales of Responsivity, Acceptance, Organization, Learning Materials, Involvement, and Variety. The Early Childhood HOME is a 55-item scale for which each item can be scored with a plus or minus. The items on the Early Childhood HOME are arranged into subscales of Learning Materials, Language Stimulation, Physical Environment, Responsivity, Academic Stimulation, Modeling, Variety, and Acceptance. The summary sheet provides median scores for each subscale and the total inventory score.

The internal consistency for total scores of the Infant/Toddler HOME has been found to be as high as .80, and as high as .93 for the Early Childhood HOME (Totsika & Sylva, 2004). The test-retest reliability has been reported as high as .94 (Saudino & Plomin, 1997). Three of the subscales in particular, Parental Warmth, Learning Stimulation, and Interior of Home, have been shown to have reliability estimates between .50 and .90 (Leventhal, Martin, & Brooks-Gunn, 2004). The HOME has been found to correlate most highly at .65 with stimulation through toys, games and materials and maternal education (Totsika & Sylva, 2004).

The Infant/Toddler HOME and the Early Childhood HOME both have five factors that account for 95.4% and 88% of the variance, respectively (Mundfrom, Bradley, & Whiteside, 1993). The dominant factor, accounting for approximately half of the variance (i.e., 49.4% and 52.4%, respectively), was also identical for both the IT-HOME and EC-HOME versions. The researchers state that these two versions generally assess identical environmental facets at two distinct developmental stages. Additionally, Mundfrom and colleagues (1993) indicated that both versions "measure what they were intended to measure" (p.487).

In order to account for the two versions of the HOME measure in the analyses, the score for each participant was converted to a percent. In converting the HOME score to a percent the measure could be entered as a single score for each participant. Thus, the measure could be included in the regression equations without losing any participants.

Procedures

Data Collection

Researchers at each of the six sites enrolled families based on specific criteria. In order to be eligible for the study, the child had to have been exhibiting challenging behaviors or be considered "at risk" for challenging behaviors. In addition, other criteria included the child must have been between the ages of 18 months and 4 years at the time of enrollment. At the time of

enrollment researchers were required to complete a uniform eligibility screening form (Appendix A). The eligibility screening form presents questions on how the potential participant heard about the study, the reason for eligibility, and the criteria met related to the risk factors. The researchers met with the families every 6 months over a period of 3 years to collect information on the child's development, family history, behavioral difficulties, information on the child's home, childcare/school, intervention services, and parenting factors. However, the data used in this study were from the first data point only which was collected between April and August of 2005. Each site was responsible for training the data collectors on the measures. The data collectors were also required to be certified on standardized measures through practice administration and videotaping reviewed by another site.

Statistical Analysis

Data reduction: As a first step to organizing the data and in order to develop a smaller set of composite variables a correlation matrix was constructed with all relevant variables. The data analysis strategy for this study entailed two steps. The first step involved investigating the interrelationships among all the variables. The potential interrelationships were taken into account in the second step in order to specifically address the research questions.

Multiple regression analyses: One goal of the study was to examine the relationship between parenting stress and externalizing behavior while controlling for age in children between 18 and 48 months of age (Refer to Question 1). Multiple linear regression analysis was used to examine the relationships between the scores from the Parental Distress subscale of the PSI-SF, the Parent-Child Dysfunctional Interaction subscale of the PSI-SF, and the Externalizing Problems scale of the CBCL while including the predictor variable of age.

[Externalizing Problems Scale = A + a coefficient (PD subscale) + a coefficient (P-CDI subscale) + a coefficient (age) + residual]

Another goal of the study was to investigate the relationship between the home environment and externalizing behavior while including the predictor variables of language ability, age, and gender in children between 18 and 48 months (Refer to Question 2). Thus, multiple linear regression will also be used to examine the relationships between the scores from the Home Observation for Measurement of the Environment, the Externalizing Problems Scale of the CBCL, and the total score on the PLS, while entering age and gender into the equation.

[Externalizing Problems Scale = A + a coefficient (HOME) + a coefficient (PLS total score) + a coefficient (age) + a coefficient (gender) + residual]

Finally, the study sought to examine the relative contributions of child characteristics, parent characteristics, and the home environment on externalizing behavior in young at-risk children (Refer to Question 3).

[Externalizing Problems Scale = A + a coefficient (HOME) + a coefficient (PD subscale) + a coefficient (P-CDI subscale) + a coefficient (age) + residual]

Table 2-1. Risk factors for challenging behaviors: Criteria for eligibility for study.

Risk Factors
Living in a household with an income below the poverty line or eligibility for Temporary Aid for Needy Families
The mother was under 18 when the child was born
Mother is not a high school graduate
Single parent household
Risk for poor developmental outcomes based on past testing
Current or past history of involvement by Child Protective Services
History of domestic violence
Substance use problem in mother
Clinical depression or other psychiatric illness in mother
Mother is low functioning due to cognitive delay

Table 2-2. Demographics of sample by site.

Category	UF	KU	USF
African-American	50.00%	58.97%	71.11%
Caucasian	27.27%	20.51%	17.78%
Hispanic	13.64%	12.82%	8.89%
Other	9.09%	7.69%	2.22%
Male	54.55%	68.42%	60.00%
Female	45.45%	31.58%	40.00%
>36 mos. of age	31.82%	50.00%	37.78%

CHAPTER 3
RESULTS

This study sought to examine the effects of the home environment and parental stress on externalizing behavior in young children. More specifically, the current study investigated the relative contributions of the home environment, parental distress, parent-child dysfunctional interactions, age, language, and gender on externalizing behaviors in preschool age children.

The results will be described subsequently, beginning with an overview of descriptive statistics for participants and recruitment sites. Then, correlations between the HOME Total raw scores, PLS Total Language standard scores, PSI-SF Parent-Child Dysfunctional Interaction (P-CDI) raw scores, PSI-SF Parental Distress (PD) raw scores, CBCL Externalizing Behavior T-scores, age, and gender are presented. Regression analyses testing main hypotheses and hypotheses established through data reduction are introduced. A summary of main findings and the implications of these findings are discussed in a subsequent chapter.

Descriptive Statistics

Participant characteristics: The 105 child participants consisted of slightly more males than females (female n=40, male n=65). The participants ranged in age from 18 to 48 months, with a mean age of 33 months and a standard deviation of 8.933. Fifty percent were over the age of 36 months. Table 3-1 provides descriptive statistics for the measures used in this study.

Data Reduction

To explore relationships among the variables, Pearson product-moment correlations were used to examine the relationships between HOME scores, PLS scores, PSI-SF Parent-Child Dysfunctional Interaction scores, PSI-SF parental distress scores, CBCL Externalizing Behavior scores, age, and gender.

HOME total scores correlated significantly with PLS Total Language scores (r=.223, p=.023) and PSI-SF Parent-Child Dysfunctional Interaction scores (r=-.208, p=.035). Specifically, as HOME scores increased, the total language scores measured by the PLS also increased. Additionally, as HOME scores decreased, parent-child dysfunctional interaction increased as measured by the PSI-SF. Externalizing behaviors as measured by the CBCL significantly correlated with Parental Distress (r=.245, p=.012), Parent-Child Dysfunctional Interaction (r=.354, p=.000), and the total stress (r=.510, p=.000) as measured by the PSI-SF. As parental distress scores increased, externalizing behavior scores tended to increase. Furthermore, as parent-child dysfunctional interaction scores increased, externalizing behavior scores also tended to increase. As total stress scores increased, externalizing behavior scores also tended to increase. Table 3-2 depicts correlations found among major independent and dependent variables of interest.

Findings from data reduction were used to identify variables to include in the regression equations. Multiple regression was used to examine the extent to which the independent variables (parental distress, parent-child dysfunctional interactions, home environment, language, age, and gender) predicted the dependent variable (externalizing behavior). More specifically, the following models were tested as an outcome of data reduction:

1. Externalizing Problems Scale = *A* + a coefficient (PD subscale) + a coefficient (P-CDI subscale) + a coefficient (age) + residual,
2. Externalizing Problems Scale = *A* + a coefficient (HOME) + a coefficient (PLS total score) + a coefficient (age) + a coefficient (gender) + residual,
3. Externalizing Problems Scale = *A* + a coefficient (HOME) + a coefficient (PD subscale) + a coefficient (P-CDI subscale) + a coefficient (age) + residual.

Statistical Assumptions

Based on statistical output, the assumptions of conditional normality, linearity, and homoscedacity were met for each independent variable. Therefore, the use of multiple regression was deemed appropriate.

Multiple Regression Analyses

Research Question 1: What are the Relative Contributions of Parenting Stress Variables and Age on Externalizing Behavior in Young Children?

The first hypothesis pertained to the relationship between parenting stress variables (i.e., parental distress and parent-child dysfunctional interaction) and externalizing behaviors, with age as a factor. It was expected that higher parental distress and higher parent-child dysfunctional interaction scores would be observed in children with more externalizing behaviors. In order to test the first hypothesis, a multiple regression analysis was conducted to determine whether parenting stress variables and age were significantly related to externalizing behaviors.

The scores reported by the participants on the Parental Distress and Parent-Child Dysfunctional Interaction subscales, along with age, accounted for significant variation in externalizing behavior scores, $F(3, 104) = 6.396$, $p = .001$. R^2 for the model was .160 and adjusted R^2 was .135. Table 3-3 displays the unstandardized regression coefficients (B) and standardized regression coefficients (β) for each variable. The standardized beta coefficient for the Parent-Child Dysfunctional Interaction subscale ($\beta = .311$) was significant and in the positive direction, $t = 3.024$, $p = .003$. The standardized beta coefficient for the Parental Distress Subscale ($\beta = .100$) was also in the positive direction, but not significant, $t = .978$, $p = .331$. Finally, the standardized beta coefficient for age ($\beta = -.161$) was in the negative direction and not significant, $t = -1.766$, $p = .080$. This finding supported the hypothesis that the parenting stress variable of

parent-child dysfunctional interaction is related to higher levels of externalizing behaviors, with the substantial effect size of 16% of the variance accounted for.

Research Question 2: What are the Relative Contributions of the HOME and Child Variables on Externalizing Behaviors in Young Children?

The second hypothesis pertained to the relationship between the HOME, child variables (i.e., language, age, and gender) and externalizing behaviors. It was expected that lower HOME scores would be observed in children with more externalizing behaviors, with language, age, and gender as potential factors. In order to test the first hypothesis, a multiple regression analysis was conducted to determine whether HOME scores and child variables were significantly related to externalizing behaviors.

Taken together, the scores reported by the participants on the HOME and the child variables did not account for significant variation in externalizing behavior scores, $F(4, 102) = 1.344$, $p = .259$. R^2 for the model was .052 and adjusted R^2 was .013. Table 3-4 displays the unstandardized regression coefficients (B) and standardized regression coefficients (β) for each variable. The standardized beta coefficient for the HOME ($\beta = -.160$) was not significant and in the negative direction, $t = -1.583$, $p = .117$. The standardized beta coefficient for language ($\beta = .086$) was in the positive direction, but not significant, $t = .842$, $p = .402$. The standardized beta coefficient for age ($\beta = -.176$) was in the negative direction and not significant, $t = -1.775$, $p = .079$. Lastly, the standardized beta coefficient for gender ($\beta = -.010$) was also in the negative direction and not significant, $t = -104$, $p = .917$. This finding did not support the hypothesis that the HOME and child variables are related to higher levels of externalizing behaviors.

Research Question 3: What are the Relative Contributions of the Home, Parenting Stress Variables, and Age on Externalizing Behavior in Young Children?

The third hypothesis pertained to the relationship among the HOME, parenting stress variables (e.g., parental distress and parent-child dysfunctional interaction), age, and externalizing behaviors. It was expected that lower HOME scores and increased scores on the Parental Distress and Parent-Child Dysfunctional Interaction subscales would be observed in children with more externalizing behaviors, with age as a factor. In order to test the third hypothesis, a multiple regression analysis was conducted to determine whether HOME scores, parenting stress variables, and age were significantly related to externalizing behaviors.

The scores reported by the participants on the HOME, the Parental Distress and Parent-Child Dysfunctional Interaction subscales, and age accounted for significant variation in externalizing behavior scores, $F(4, 102) = 5.279$, $p = .001$. R^2 for the model was .177 and adjusted R^2 was .144. Table 3-5 displays the unstandardized regression coefficients (B) and standardized regression coefficients (β) for each variable. The standardized beta coefficient for the HOME ($\beta = -.068$) was not significant and in the negative direction, $t = -.721$, $p = .472$. The standardized beta coefficient for the Parent-Child Dysfunctional Interaction subscale ($\beta = .324$) was significant and in the positive direction, $t = 3.075$, $p = .003$. The standardized beta coefficient for the Parental Distress Subscale ($\beta = .084$) was also in the positive direction, but not significant, $t = .816$, $p = .416$. Finally, the standardized beta coefficient for age ($\beta = -.169$) was in the negative direction and not significant, $t = -1.841$, $p = .069$. This finding supported the hypothesis that the parenting stress variable of parent-child dysfunctional interaction is related to higher levels of externalizing behaviors, with the substantial effect size of 17.7% of the variance accounted for.

In order to determine how the amount of variance in this question compared to the variance found in earlier questions an additional analysis was conducted to include the HOME

variable. In the first model, parental distress, parent-child dysfunctional interaction, and age were included and the HOME variable was not included and the R^2 for the model was .173. The second model included the variables from the first model and the HOME variable and the R^2 for the model was .177. Thus, the HOME variable did not appear to contribute to the variance in a clinically significant way.

Summary

This study examined the relationship between the home environment, parenting stress variables, child variables, and externalizing behavior. The following hypotheses were tested: (1) higher scores on parenting stress variables would be observed in children with higher levels of externalizing behaviors, (2) lower scores on the HOME measure with age, gender, and language as factors, would be observed in children with higher levels of externalizing behaviors, and (3) there would be a cumulative effect of higher scores on parenting stress variables and lower scores on the HOME, with age as a factor, that would be observed in children with higher levels of externalizing behavior.

Pearson product-moment correlations indicated that parenting stress variables and externalizing behaviors were significantly correlated. In addition, the HOME was significantly correlated with the Parent-Child Dysfunctional Interaction subscale and language. Regression analyses were tested based on data reduction. The regression analyses partially supported the hypothesis that higher parental distress and higher parent-child dysfunctional interaction scores would be observed in children with more externalizing behaviors. More specifically, higher parent-child dysfunctional interaction scores alone were found to significantly predict higher levels of externalizing behaviors.

Table 3-1. Descriptive Statistics of Child Measures

Variable	Minimum	Maximum	Mean	Std. Dev.
CBCL Externalizing Behaviors t-score	40	100	62.48	11.318
HOME percent score	34	100	73.00	15.700
PLS Total Language Standard Score	50	132	88.32	15.735
PSI-SF P-CDI subscale raw score	12	50	23.36	7.460
PSI-SF PD subscale raw score	12	51	31.05	8.746

Table 3-2. Pearson Product-Moment Correlations

	CBCL External	HOME	PLS Total Language	PSI-SF P-CDI	PSI-SF PD	PSI-SF Total	Age	Gender
CBCL Externalizing	1.000	-.133	.034	.354**	.245*	.510**	-.196	.031
HOME		1.000	.223*	-.208*	-.068	-.165	-.049	.010
PLS Total Language			1.000	-.082	-.009	-.051	.119	-.025
PSI-SF P-CDI				1.000	.460**	.800**	.020	-.036
PSI-SF PD					1.000	.781**	-.011	-.039
PSI-SF Total						1.000	-.014	.005
Age							1.000	-.069
Gender								1.000

*indicates significant at the .05 level, ** indicates significant at the .01 level

Table 3-3. Summary of Regression Analysis for Parenting Stress Variables, Age, and Externalizing Behavior

Variable	B	SE B	β	t	P
Age	-.204	.116	-.161	-1.766	.080
PSI-SF P-CDI	.471	.156	.311	3.024**	.003
PSI-SF PD	.130	.133	.100	0.978	.331

*indicates significant at the .05 level, ** indicates significant at the .01 level

Table 3-4. Summary of Regression Analysis for Home Environment, Child Variables and Externalizing Behavior

Variable	B	SE B	β	t	P
Age	-.217	.123	-.176	-1.775	.079
Language	.060	.071	.086	.842	.402
Gender	-.234	2.247	-.010	-.104	.917
Home	-11.302	7.138	-.160	-1.583	.117

*indicates significant at the .05 level, ** indicates significant at the .01 level

Table 3-5. Summary of Regression Analysis for Home Environment, Parenting Variables, Age and Externalizing Behavior

Variable	B	SE B	β	t	P
Age	-.209	.113	-.169	-1.841	.069
Home	-4.773	6.617	-.068	-.721	.472
PSI-SF P-CDI	.477	.155	.324	3.075**	.003
PSI-SF PD	.106	.130	.084	.816	.416

*indicates significant at the .05 level, ** indicates significant at the .01 level

Table 3-6. Summary of Regression Analyses for Models Including and Excluding Home Environment

Variable	B	SE B	β	t	P
Model 1					
Age	-.205	.113	-.166	-1.815	.073
PSI-SF P-CDI	.500	.152	.339	3.292**	.001
PSI-SF PD	.103	.129	.082	.796	.428
Model 2					
Age	-.209	.113	-.169	-1.841	.069
PSI-SF P-CDI	.477	.155	.324	3.075**	.003
PSI-SF PD	.106	.130	.084	.816	.416
HOME	-4.773	6.617	-.068	-.721	.472

*indicates significant at the .05 level, ** indicates significant at the .01 level

CHAPTER 4
DISCUSSION

This study investigated the relationships among the home environment, parenting stress variables, and externalizing behaviors in young children. In addition, age, gender, and language ability were also included in the analyses as potentially significant factors. The following research questions guided the study:

1. What are the relative contributions of parental distress (PD subscale) and parent-child dysfunctional interaction (P-CDI subscale) as measured by the Parenting Stress Index-Short Form (PSI-SF) on externalizing behavior in children between the ages of 18 and 48 months?

2. What are the relative contributions of the home environment as measured by the Home Observation for Measurement of the Environment (HOME), language ability (total score on PLS), age, and gender on externalizing behavior problems (CBCL Externalizing Problems scale) in children between the ages of 18 and 48 months?

3. What are the relative contributions of parental distress (PD subscale), parent-child dysfunctional interaction (P-CDI subscale) and the home environment (HOME) on externalizing behavior (CBCL Externalizing Problems scale) in children between the ages of 18 and 48 months?

Effects of Parenting Distress and Interactions on Externalizing Behaviors

The first research question sought to examine the relative contributions of parental distress and parent-child dysfunctional interaction on externalizing behaviors in young children. Many studies have examined parenting stress, yet few studies specifically address parental distress and parent-child dysfunctional interactions simultaneously. In addition, studies have generally focused on the stress experienced by parents related to having a child with developmental delay or neurodevelopmental disorders, such as attention deficit hyperactivity disorder (ADHD) (e.g., Anastapoulous, Guevremont, Shelton, & DuPaul, 1992; Baker et al., 2003; Creasey & Jarvis, 1994; DeWolfe et al., 2000).

A number of studies have demonstrated that parents, and mothers specifically, who report increased levels of stress, also report more difficult behaviors in their children (Andra &

Thomas, 1998; Assel et al., 2002; Creasey & Jarvis, 1994; Crnic & Greenberg, 1990). Furthermore, parenting stress has been defined in a range of ways. Crnic and Greenberg (1990) refer to parenting stress as stress associated with daily parenting hassles. Barry and colleagues (2005) make a distinction between maternal stress and distress, with the former referring to environmental stress, and the latter including symptoms of depression and anxiety/somatization on the part of the parent. Additionally, other researchers have stated that maternal depression and marital dissatisfaction impact parental perceptions (Sawyer, Streiner, & Baghurst, 1998). Despite the differences in defining the term parenting stress, the research consistently reported increased parenting stress to be associated with increased externalizing behaviors (Anthony et al., 2005; Andra & Thomas, 1998; Assel et al., 2002; Baker et al., 2003; Barry et al., 2005; Campbell et al., 2000; Creasey & Jarvis, 1994; Crnic & Greenberg, 1990; Gross et al., 2005; Wakschlag & Keenan, 2001).

In the current study, parental distress was defined as the strain experienced by the parent due to personal factors connected to parenting (Abidin, 1995). Furthermore, the parent-child dysfunctional interaction term used within this study refers to parental perceptions of the child and his/her behaviors. Parental distress and parent-child dysfunctional interactions were shown to make a significant contribution to externalizing behavior in young children. Interestingly, the results of this study suggest that the parent-child dysfunctional interaction factor ($\beta = 0.311$) has the largest contribution in predicting externalizing behaviors. Based on the definition of the parent-child dysfunctional interaction term and the outcome of the analysis, it can be hypothesized that parental perceptions of the child and the behaviors of the child may be mediating stress as defined by researchers previously. The findings also suggest that the parent-child dysfunctional interaction variable has a more significant contribution to externalizing

behaviors, likely, due to the shared variance with the child's behavior as measured by the externalizing scale.

The parent-child dysfunctional interaction subscale used in this study was defined by Abidin (1995) as addressing parental perceptions of whether the child is achieving parental expectations. Thus, findings from this study may be similar to that of research by Anthony and colleagues (2005) which found that parenting stress and externalizing behaviors in children were moderated by parental expectations. Similarly, Creasey and Jarvis (1994) found that mothers were less able to recognize developmentally appropriate behaviors and rate their children as exhibiting more behavior problems. Again, the parent-child dysfunctional interaction subscale is, in part, assessing parental expectations. Consequently, if the parent is setting unrealistic expectations for their child, the parent will rate the child as exhibiting more behavior problems when the expectations are not met. In this study, parental perceptions were significant in examining the parenting stress variables and externalizing behaviors. It may be that parents who perceive their children as exhibiting more externalizing behaviors, despite whether or not the children are in fact demonstrating increased levels of externalizing behaviors, experience more stress due to that perception.

As discussed in the first chapter, Patterson, DeBaryshe, and Ramsey (1989) discuss Control theory with regards to the development of antisocial behaviors. Again, Control theory posits that disrupted parent-child bonding eventually leads to the child experiencing difficulties with regard to regulating inhibitory processes and increased externalizing problems (Patterson, DeBaryshe, & Ramsey, 1989). Thus, the negative parental perceptions as measured in this study may contribute to the disruption in parent-child bonding as in Control theory. Therefore, it may be that the perceptions the parent experiences are conveyed to the child through parent-child

interactions, which in turn creates a cycle of externalizing behaviors and reaffirmation of those perceptions for the parent.

Effects of the Home Environment, Language Ability, Age, and Gender on Externalizing Behaviors

The second research question examined the relative contributions of the home environment, language ability, age, and gender on externalizing behaviors in young children. Generally, research pertaining to the home environment and externalizing behaviors in young children has focused on family and neighborhood violence, family structure, and other similar variables. Some research, however, has examined the relationship between the home environment and language. Dearing and colleagues (2001) found the home environment to be a strong predictor of receptive and expressive language, as well as prosocial behavior. The home environment was measured with the Home Observation for Measurement of the Environment (HOME), language was measured with the Reynell Developmental Language Scale, and behaviors were measured using the Achenbach Child Behavior Checklist and the Adaptive Social Behavior Inventory (Dearing et al., 2001). Similarly, in this study there is a measure of the home environment and language, and instead of a measure of prosocial behavior there is a measure of externalizing behavior. The significant results in the Dearing and colleagues (2001) study lends credence to utilizing similar measures in this study. In addition, a significant amount of research has examined the relationship between language and externalizing behaviors in young children.

The research examining language and externalizing behaviors is inconclusive regarding the role of gender and age. Some researchers have found gender differences in the type of aggressive behaviors exhibited, as well as in the precursors of externalizing behaviors (Ostrov & Keating, 2004; Shaw et al., 1994). However, other researchers have stated that no gender differences exist

in observed problem behaviors of young children, or in the early risk factors predicting externalizing behaviors (Briggs-Gowan et al., 2001; Olson et al., 2006; Webster-Stratton, 1996). Similarly, gender differences have been found by some researchers in children with language impairment, wherein boys with language impairment tend to have more behavior problems and lower scores on measures of language ability (Kaiser et al., 2002; Tallal et al., 1989). On the other hand, some researchers have stated a weaker relationship exists between behavior problems and language for girls (Kaiser et al., 2002; Stowe et al., 2000). In addition, some research has found that children's behavior problems vary with age and that there are distinct patterns of these behaviors (Campbell, 2002; Van Zeijl et al., 2006). Thus, an examination of the home environment and the related variables (i.e., language, age, and gender) was clearly warranted.

Although the home environment and language scores were found to be significantly correlated, those factors, in addition to age and gender, were not found to significantly contribute to externalizing behaviors in young children. One potential explanation for the lack of significance is that the measure of the home environment may not have been sensitive enough to maternal responsiveness and attention, which have been found to be associated with language in other studies (Fewell & Deutscher, 2002; La Paro, et al., 2004). Fewell and Deutscher (2002) measured interactional styles between parents and children using the Maternal Behavior Rating Scale-Revised. La Paro and colleagues (2004) used the HOME in conjunction with semi structured procedures used to code interactions between mother and child. Although the HOME does report to address responsiveness it may not be as sufficient as other measures of parent-child interaction. Additionally, a large proportion of this sample was African-American (61.91%). Therefore, a cultural mismatch between this sample and the standardization sample for the HOME may have impacted the findings.

Another potential explanation is that another unknown variable(s) mediates the relationships among the home environment, child characteristics, and externalizing behaviors in young children. One variable that could potentially be mediating the relationships previously mentioned is the presence of additional supports or resources. Previous research has found the lack of supports and resources to impact parenting (Patterson, DeBaryshe, & Ramsey, 1989). The children or the parents in this study may be receiving some type of outside support that potentially impacted the findings. For example, within this study, recruitment at some sites occurred, in part, through centers offering classes and other types of supports to parents. Thus, the additional resources that these participants received may have mediated the findings in this study.

Another variable that might mediate the relationships among the home environment, child characteristics, and externalizing behaviors is the absence of adverse circumstances (Campbell, 2002). Previous research has found, for example, that insecure attachment is a risk factor for behavior problems later on only when there are also other adverse situations within the family (Campbell, 2002). Thus, the lack of significance for this research question may be due to a less harmful setting for the families in this study. However, the presence of other adverse circumstances was not measured within this study, and therefore, could be included in future studies. Finally, it may be that the expanse of the age ranges in this sample played a factor. As discussed previously, patterns of behavioral problems are distinct at different ages (Campbell, 2002; Van Zeijl et al., 2006). Thus, had this study included a large enough sample size to separate the child participants into two age groups, the findings for this question may have been significant.

Effects of Parenting Distress, Parent-Child Interactions, and Home Environment on Externalizing Behaviors

The third research question sought to examine the relative contributions of parental distress, parent-child dysfunctional interaction, and the home environment on externalizing behavior in young children. This question expands upon the previous two questions by examining the variables of parental distress, parent-child dysfunctional interaction, and the home environment cumulatively in one model. Mesman and Koot (2001) found that a cumulative variable of parental burnout and maternal absence were highly predictive of externalizing behaviors. Thus, although the home environment was not found to be significant in the previous research question, it was hypothesized that the home variable in conjunction with the parenting stress variables might significantly contribute to externalizing behaviors in young children.

Research has found that children with language delays are often raised in home environments with low expressiveness and high parenting stress (Horwitz, et al., 2003). However, the relationship between language and the home environment was not found in this study and therefore, language was excluded from the final question. Horwitz and colleagues (2003) measured expressiveness and conflict within the family using parental ratings on the Family Environment Scales. The Family Environment Scale was intended to differentiate distressed from nondistressed families (Horwitz et al., 2003). Thus, based upon the previous research it was hypothesized that young children with externalizing behaviors would be more likely to come from a less stimulating home environment that is characterized by high parenting stress.

In the current study, parental distress, parent-child dysfunctional interaction, and the home environment were found to make a significant contribution to externalizing behavior in young children. However, the variance for this model increased only slightly in comparison to

the variance explained in the first research question. The home environment does not appear to contribute in a clinically significant way beyond the effects of parental distress and parent-child dysfunctional interaction on externalizing behaviors. Although the home measure includes factors, such as responsivity and acceptance, there are a limited number of items that address the parent-child relationship.

The transactional model asserts that a child's development is the result of constant interactions of the child and environment (Sameroff & Chandler, 1975; Sameroff & Fiese, 1990). The environment includes both family and social context, and specifically the interactional patterns of family. In this study, the environment included an assessment of the home, as well as the family context, which was the parenting stress variable. Additionally, the child's development was measured through the level of externalizing behaviors. In terms of the transactional framework, the interaction between the child and the parent, who may be experiencing a significant amount of stress, demonstrates externalizing behaviors as a result of these interactions. In turn, the parent may become more stressed and consequently, continues the cycle of externalizing behaviors.

Limitations

Despite the significant findings of this study, the limitations of the study must also be taken into account. In this study, the assessment of externalizing behaviors in young children was based on parental report. The validity of parental reports is questioned, in part due to parental perceptions of children's behaviors being subject to multiple factors, including parent experiences in raising their other children, psychopathology within the parent or in their family history, and potentially their behaviors as a child (Campbell, 2002; Faraone, Biederman, & Milberger, 1995). Given that these factors also likely influence parent responses to the PSI and

HOME, one limitation of the study is the possibility of shared variance among the variables. Future studies should include teacher ratings or direct observations.

Another limitation concerns the use of data from a large scale research project. Although these types of projects are useful in that they provide a more robust sample, one of the difficulties is ensuring that all data collection is occurring with fidelity. Similarly, recruitment of participants can occur in various ways. In this study, three sites had to be excluded in order to ensure only those with externalizing behaviors were represented in the sample.

One limitation that occurs in research with at-risk children is that the behaviors impede upon data collection. Several data sets were incomplete due to the behaviors of the child participants in the study and had to be excluded from the analysis.

Another limitation concerns the validity of one of the measures used in the study. The HOME measure has not been updated for many years. Additionally, there are not currently other measures for the home environment that have been shown to be reliable and valid.

Future Directions

One difficulty associated with measuring behaviors in this age group is the range of behaviors that are exhibited during this developmental period. Some young children may exhibit externalizing behaviors only during this developmental period, whereas others may continue on a developmental trajectory leading to more severe behaviors. Thus, longitudinal studies with these children are of particular importance. In the future, it might be useful to study how parenting stress variables change as externalizing behaviors change over time.

Due to the stability and negative outcomes of externalizing behaviors continued research is necessary in order to develop effective prevention programs. The failure of intervention and prevention programs to address these behaviors calls for further research in this area; with the ultimate goal of developing programs that target those specific factors influencing the

development of externalizing behaviors (Hinshaw, 1992; Liu, 2004). The aim of these programs is to assist children in abandoning a maladaptive trajectory, for a healthy developmental trajectory that will increase the likelihood of success in social-emotional and academic areas (Powell, Dunlap, & Fox, 2006). Thus, future research could focus on how the children and parents in this type of study would respond to intervention. Ideally, intervention would serve to reduce stress and decrease externalizing behaviors, consequently hindering the cycle of negative parent-child interactions.

One of the limitations of this study was that the measure of externalizing behaviors was based solely on parental report. In the future, research in this area might use observations of parent-child interactions or additional raters to support the behavior ratings. The research remains unclear as to whether externalizing behaviors in the child cause parental stress, parental stress causes externalizing behaviors or whether there are other moderating and mediating factors causing both. Additionally, as discussed previously, the stress experienced by the parents may also influence their perceptions and consequently, their ratings. Thus, in order to avoid categorizing children as demonstrating externalizing behaviors on parental perceptions alone, observations would serve to identify children ideally with less bias than parental report.

APPENDIX
ELIGIBILITY SCREENING FORM

Eligibility Screening Form

Inquiry Number: __ __ __ __ ___ **Date: __ __ /__ __ /__ __**
Site [2] Inquiry # [3]

1. Name of Inquirer: _____ _____
First Last

2. Inquirer Phone Number: (__ __ __) __ __ __ - __ __ __ __

3. Address: _____ _____ _____ _____
Street **City** **State**
Zip code

3. Type of Inquirer: **[Circle One]**

a. Parent
b. Social Worker
c. Other. Specify: _____

Eligibility Questions:

4. How did you hear about the study? **[Record exact words said by Inquirer to extent possible.]**

[After recording Inquirer's words, circle below all that apply]

01 Social Worker [Name and Agency Affiliation:
_____

02 Saw Family Recruitment Flyer:

a. If Posted: Location where posted? _____
b. If Handed to Family: Who gave it to them? _____
c. If Obtained Another Way: Specify: _____

03 Saw *Research Study Questions and Answer Brochure:*

a. If Posted: Location where posted? _____
b. If Handed to Family: Who gave it to them? _____
c. If Obtained Another Way: Specify: _____

04 Heard about Research Study Another Way: Specify:

_____

5. What was the reason you called/thought you might be eligible to take part in this study? [**Probe to find out why Inquirer believed that they might be eligible to be in the study. Record exact words said by Inquirer to extent possible.]**

6. What is your child's date of birth and age?

a. D.O.B.: __ __ / __ __ / __ __

b. Age: _____. **IF NOT BETWEEN AGES OF 18 MONTHS AND 4 YEARS:**

1. **Thank Inquirer for time.**
2. **Explain that child is too young / too old to qualify to be in the study.**
3. **Terminate call.**

IF AGE ELIGIBLE FOR STUDY: Continue to probe to determine which (if any) of the following eligibility criteria are met [Check all eligibility criteria below that apply. Circle sub-criteria as appropriate.]

7. What are some of the problem behaviors your child has right now that worry you or makes him/her difficult for you to deal with as a parent? **[Record exact words said by Inquirer to extent possible.]**

8. **After recording Inquirer's words, check applicable criteria that is met.**

___ **Meets Criteria 1: Exhibits challenging behaviors of: [Circle all that apply.]**

01 No challenging behaviors noted at this time. **Go to Criteria (3)**

02 Tantrums

03 Hitting others

04 Tearing up property

05 Being withdrawn

06 Not doing what adults ask them to do more than most children their age

07 Other: _____

___ **Meets Criteria 2: Is enrolled in an early intervention or early childhood special education program because of their challenging behaviors. [If checked, ask for name of child's program and record below.]**

Name of Program: _____

___ **Meets Criteria 3: DOES NOT HAVE CHALLENGING BEHAVIORS RIGHT NOW, but meets AT LEAST 4 of the following "at risk" criteria [Circle all that apply]**

01 Lives in a household with an income below the poverty line/eligible for TANF

Suggested Prompt: "Are you getting any public assistance or money from welfare (TANF)?"

02 Mother or Primary Caregiver was under the age of 18 when child was born

Suggested Prompt: "How old were you when [CHILD] was born?

03 Mother or Primary Caregiver is not a high school graduate

Suggested Prompt: "What was the highest grade you were able to complete in school?"

04 Has a single Parent

Suggested Prompt: "Who are the adults in your home right now?"

05 Is at risk for poor developmental outcomes based on past testing

*Suggested prompt: "Has **[Child]** ever had any testing that showed he/she might have some trouble learning things as well as other children his/her age?"*

06 Has a current or past history of Child Protective Services involvement

*Suggested prompt: "Sometimes families have had situations come up in their lives when someone from a child protection agency has told them that there was a concern that a child in their home might not be safe or might need to be taken care of better. Has anyone ever come to talk with you or anyone else about any concerns they had about **[Child]** not being safe?*

07 Has a history of Domestic Violence in the Family

*Suggested prompt: "Has there been any history of domestic violence or spousal abuse in **[Child]** 's family?"*

08 Mother or Primary Caregiver has problems with Substance Use

Suggested prompt: "Have you or any other of [CHILD]'s caregivers ever had any serious problems with drinking alcohol too much or using illegal drugs?"

09 Mother or Primary Caregiver is Clinically Depressed or has other Significant Psychiatric Difficulties

Suggested prompt: "Have you or any other of [CHILD]'s caregivers ever had any any serious problems with depression or other mental health problems?"

10 Mother or Primary Caregiver is low functioning due to a Cognitive Developmental Delay

Suggested prompt: "Were you or any other of [CHILD]'s caregivers ever in special classes when you were in

school because you or the other caregiver wasn't able to learn things as easily as other children of the same age? "

Eligibility Confirmation Box

Inquiry No. __ __ __ __ __

Screening Completed By: _____ _____

Last Name **First Name**

[Check One]

___ **Eligible for Study Participation:**

- **Date Parental Informed Consent Given/Mailed to Prospective Participant**

__ __ / __ __ / __ __

Mo **Da** **Yr**

- **Date Signed Parental Informed Consent Signed:** __ __ / __ __ / __ __

Mo **Da** **Yr**

___ **Not eligible for Study Participation**

___ **Not enough information to determine eligibility for Study participation.**

- After explaining to prospective participant that more information is needed, record on Study Contact Log what will need to be done to clarify eligibility. Some ways that might be used could include:
  - **Administering Family Profile, terminating interview at any point that it is clear that the family is not eligible.**
  - **Obtaining written permission of inquirer to talk further with child's social**

Note: This form was developed by researchers on the Kids in Development Study, which is a part of the Center for Evidence-Based Practice: Young Children with Challenging Behavior and is funded by the U.S. Department of Education, Office of Special Education Programs.

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BIOGRAPHICAL SKETCH

Linda-Maritza Radbill was born in San Diego, CA and raised in Miami, FL. She obtained her undergraduate education at Vassar College, where she majored in psychology and pursued teaching certification in elementary education. Upon receiving her Bachelor of Arts in psychology, Linda taught in a kindergarten classroom and traveled abroad before applying to graduate school. After completing her travels, Linda decided she would like to pursue a graduate degree in school psychology. She was admitted as a graduate student in the school psychology program at the University of Florida in 2002 and successfully matriculated into the doctoral program the following year. Linda earned her Master of Education from the University of Florida in December of 2005. She completed a clinical internship at the Sarah Reed Children's Center in Erie, PA during the 2007-2008 academic school year. Upon graduation, Linda plans to pursue a post-doctoral placement which would allow her to work toward licensing hours.