ABSTRACT

Title of Document:	TEACHER CHILD RELATIONSHIPS: EXAMINING THE RELATIONS AMONG CHILDREN'S RISKS, RELATIONSHIPS, AND EXTERNALIZING BEHAVIORS IN HEAD START
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Early externalizing behaviors can have significant and persistent impacts on young children's developmental trajectories (Campbell, 1994; 1995; Moffitt, 1993). High-quality teacher-child relationships have the potential to protect children living in high-risk family environments from developing externalizing behaviors. Using Bronfenbrenner's bioecological framework, the current study explored the impact of family risks and teacher-child relationship quality on children's externalizing behaviors. Specifically, the goals of the study were to: (a) investigate the associations between family risk factors and children's externalizing behaviors, (b) examine the associations between teacher-child relationship quality and children's externalizing behaviors, (c) examine whether teacher-child relationship quality moderates the impact of family risk on children's externalizing behaviors, and (d) investigate the associations among teacher, student, and classroom characteristics and teacher-child relationship quality. Data were gathered from 100 Head Start children, their parents, and their teachers. Controlling for children's age and gender, results revealed that two family risk factors, parent-child dysfunctional interaction and family cohesion,

significantly predicted child noncompliance. All of the teacher-child relationship quality variables including conflict, cohesion, dependency, and positive interactions significantly predicted children's externalizing behaviors, with conflict being the strongest and most consistent predictor. Finally, analyses on the interactions between the family risk and teacher-child relationship quality variables revealed that teacher-child conflict moderated the impact of family cohesion on child noncompliance. This finding suggested that low teacher-child conflict protects children from the impact of low family cohesion on child noncompliance, and high teacher-child conflict intensifies the impact of low family cohesion on child noncompliance. Overall, the results from this study suggest that teacher-child relationship quality may serve as both a risk and protective factor in the development of young children's externalizing behaviors. The findings presented have important implications for researchers, practitioners, and policy makers in understanding how to strengthen teacher-child relationships as a means to promote Head Start children's competence in the behavioral domain.

TEACHER CHILD RELATIONSHIPS: EXAMINING THE RELATIONS AMONG
CHILDREN'S RISKS, RELATIONSHIPS, AND EXTERNALIZING BEHAVIORS
IN HEAD START

By

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Dissertation submitted to the Faculty of the Graduate School of the
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Dedication

I dedicate this dissertation to my family and my fiancé, Brian. Dad, you have taught me to always believe in myself. Mark, you have shown me the importance of balancing work with fun, and have taught me not to take life too seriously. Mom, what an outstanding example you have been of a woman who has managed to have a successful career in academia while also being an incredible mother. You have shown me that it is possible to, "have it all". Brian, you have taught me the meaning of unconditional love with the patience, support, and humor that you have provided throughout this process. Finally, I also dedicate this to all those to who spend their careers trying to make a difference in the lives of children, especially teachers.

"The process of interacting with the children, not the content presented or placed around the children is what counts"

David Weikart

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I have been honored to work with the students in this department who are incredibly supportive, and genuinely respect each other. I have learned so much from you, and am looking forward to remaining not just colleagues, but also friends.

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Chapter I: Conceptual Framework

Early externalizing behaviors can have significant and persistent impacts on young children's developmental trajectories (Campbell, 1994; 1995; Moffitt, 1993). Head Start children are at an increased risk for developing problem behaviors due to the high-risk environments in which they live (Kaiser, Hancock, Cai, Foster, & Hester, 2000). It is imperative that researchers investigate factors that may buffer children from risks associated with these problem behaviors. High-quality teacher-child relationships have the potential to protect children living in high-risk family environments from developing externalizing behaviors.

With limited resources to spend on promoting positive outcomes for high-risk children, it is important to determine what factors are the most salient predictors of high quality teacher-student relationships for low-income, high-risk children. Teacher, student, and classroom characteristics have all been found to be predictive of teacher-child relationship quality (e.g., Ghazvini & Mullis, 2002; NICHD ECCRN, 2002; Stuhlman & Pianta, 2001). However, research on specific correlates is inconsistent and researchers have not widely examined teacher-child relationships in high-risk populations. With a better understanding of the mechanisms through which these relationships are developed, interventions can be designed that provide a research-based conceptual framework for training teachers on how to build and foster positive relationships with students. Such interventions represent one strategy for reducing the levels of problem behaviors in low-income, high-risk children.

The goals of this study are: (a) to investigate the relation between family risk factors and children's externalizing behaviors, (b) to examine the relation between

teacher-child relationship quality and children's externalizing behaviors, (c) to examine whether teacher-child relationship quality moderates the association between family risk and children's externalizing behaviors, and (d) to examine associations between teacher, child, and classroom characteristics and teacher-child relationship quality.

Theoretical Rationale

Bronfenbrenner's bioecological theory (1977; Bronfenbrenner & Ceci, 1994) presents a broad approach to understanding human development. This theory has been used to investigate proximal processes and developmental outcomes under varied environmental conditions (Bronfenbrenner & Ceci, 1994). Concepts of risk and resilience grew out of the bioecological theory (Luthar, 2003).

A resilience framework allows researchers to investigate interactive models that explain associations between risk and protective factors, and to understand the process by which the protective factors impact children's development (Luthar & Cicchetti, 2000). Applying this type of framework implies focus on positive outcomes in the presence of measurable predictors of poor outcomes (Luthar & Cicchetti, 2000; Masten & Gewirtz, 2006). There has been debate over how to define positive outcomes, or resilience, in young children. Several researchers have operationalized resilience as the absence of psychopathology and success in age-appropriate developmental tasks (Luther, 2006; Masten & Gewirtz, 2006). Others suggest that the absence of emotional and behavioral problems can be used to define successful adaptation (Luthar, Cicchetti, & Becker, 2000).

Behavior Problems

Problem behaviors in preschool are characterized by extreme variations in the development of self-regulation, social competence, and emotional expression (Campbell,

2006). Behavior problems have been categorized into internalizing and externalizing problems. Internalizing problems are characterized by worry, anxiety, sadness, and social withdrawal (Campbell, 2006). Externalizing problems are characterized by hostile and aggressive physical behavior, impulsivity, and hyperactivity (McMahon, 1994). Both types of behavior problems in young children can lead to later maladjustment, however, internalizing behavior problems are found to be less stable over time (Mesman, Bongers, & Koot, 2001). Although it is important to study the prevalence, correlates, and outcomes associated with both internalizing and externalizing behaviors in Head Start children, this study will focus on examining whether teacher-child relationship quality can protect children from developing externalizing behaviors.

It is critical to identify externalizing behaviors early, as research suggests that children who have early-onset antisocial behavior are particularly likely to have problems that increase in rate and severity as they age (e.g., Lahey & Loeber, 1994; Moffitt, 1993; Moffitt, Caspi, Dickson, Silva, & Stanton, 1996; Moffitt, Caspi, Harrington, & Milne, 2002). Early externalizing behaviors are associated with serious concurrent and future problems including peer rejection in childhood and adolescence (Coie, Dodge, & Kupersmidt, 1990), persistent delinquent behaviors (Bor & Sanders, 2004), and poor academic functioning (Campbell, 2002). Additionally, when symptoms lead to a diagnosed behavioral disorder in school-age children, they are relatively resistant to treatment (Hinshaw, 1994).

There is some evidence to suggest that there has been underreporting of problem behaviors in Head Start. A study of records from 1994-1995 showed that less than 1% of Head Start children were identified as having emotional or behavioral problems

(Yoshikawa & Knitzer, 1997). However, according to recent studies, the prevalence is much higher (Kaiser et al., 2000). The prevalence of problem behaviors in the general population of preschool children is estimated to be between 7 – 25% (Webster – Stratton, 1997). Head Start children fall at the high end of the range with studies suggesting that 25% of Head Start children exhibit problem behaviors (Kaiser et al., 2000). Compared to community samples, significantly more 4-year old children enrolled in Head Start were reported by mothers as having behavior problems in the clinical or subclinical range (Kaiser et al., 2000). They have also been found to demonstrate higher levels of physical aggression (Kupersmidt, Bryant, & Willoughby, 2000).

Family Risk

Head Start children may be more likely to exhibit behavior problems as a result of living in high-risk environments. Risk factors such as economic instability (Fuller et al., 2002), family adversity (Nadeau, Tessier, Boivin, Lefebvre, & Robaey, 2003), and parents' poor mental health (Leadbeater, Bishop, & Raver, 1996) have all been shown to be associated with problem behaviors.

A recent study of Head Start families provided a rich profile of participant families at risk (Administration for Children and Families, Office of Planning, Research, and Evaluation [ACF, OPRE], 2000). Almost 90 percent of the families manifested at least one of six socioeconomic risk factors (i.e., single parent, high school drop out, family income below poverty line, child living with a parent without full-time employment, welfare receipt, no health care insurance), and about a fifth had four or more risk factors. Children in families with more risk had higher teacher and parent reports of problem behaviors. For example, 25% of parents were classified as moderately or severely

depressed. These parents reported that their children had more problem behaviors and fewer positive social behaviors.

Although most children in Head Start come from economically disadvantaged families, there remains variability in the amount and type of contextual risk that these children face. Head Start programs should obtain information from families that will help them to determine which children are most at-risk for developing behavior problems and similarly, identify what factors may protect these children from such negative social and emotional outcomes.

Teacher-Child Relationships as a Protective Factor

Children reared in high-risk environments can have positive developmental outcomes despite the challenges that they face. There is some evidence that children's positive relationships with their teachers may reduce the negative consequences of living in high-risk environments (e.g., Hamre & Pianta, 2005). Studies suggest that children's relationships with their teachers can significantly impact their developmental outcomes (e.g., Hagekull & Bohlin, 1995; Peisner-Feinberg, et al., 2001; Pianta, Nimetz, & Bennett, 1997). Pianta (1999) has argued that an understanding of children's relationships with their teachers is critical in predicting children's adaptation and maladaptation, as teachers regulate many aspects of children's academic and social development.

There are a small number of studies that suggest that teacher-child relationships can act as a protective factor for at-risk children. Pianta, Nimetz, and Bennett (1997) found that positive teacher-child relationships in preschool were related to kindergarten teachers' reports of at-risk children's frustration tolerance, work habits, and overall

competence. However, they did not test the relation between specific risk factors and children's problem behaviors, and further, did not examine the interaction between risk and teacher-child relationships as predictors of children's social-emotional functioning.

In a similar study, Hamre and Pianta (2005) found that at-risk students placed in first grade classrooms offering strong instructional and emotional support had achievement scores and student-teacher relationships equal to their low-risk peers. Although this study did examine the moderating impact of teacher support, the overall sample was not high-risk, and narrowly defined family risk using mother's level of education. Similarly, the researchers acknowledged that global composites used to define classroom processes did not allow for analyses of types of interactions between individual students and teachers that may moderate risk. Finally, although these researchers examined the moderating impact of teacher-child relationships on achievement, they did not investigate the impact of high quality relationships on children's problem behaviors. Researchers have not yet examined whether teacher-child relationships moderate the impact of family risk on children's externalizing behaviors. Roosa (2000) has argued that there is need for progress in identifying moderators to increase our understanding of the complexity of the influence of risk factors on children's development, and in developing theories of resilience.

The current study will examine the moderating role of teacher-child relationships on the link between family risk and child externalizing behavior. There has been debate over how to conceptualize and measure teacher-child relationships. Many studies have measured teacher-child relationship quality using only teacher-report measures (e.g., Hamre & Pianta, 2001) to assess teachers' perceptions of their relationships with

students. The Student Teacher Relationship Scale (STRS; Pianta, 2001), derived from attachment theory and research on teacher-child interactions, is commonly used to measure teacher-child relationship quality and captures dimensions of closeness, dependency, and conflict. Studies have indicated that the STRS correlates with concurrent and future measures of behavior problems in the classroom (Pianta,1994; Pianta, Steinberg, & Rollins, 1995). Additionally, in studies of young children, the STRS is related to observations of children's engagement in the classroom, and teachers' sensitive responsiveness (Stuhlman & Pianta, 2001).

The use of only teacher-report measures to assess teacher-child relationship quality (e.g., Pianta, 1994; Pianta et al., 1995; Stuhlman & Pianta, 2001) has led several researchers to cite the need for multiple perspectives and methods to assess aspects of these relationships (Pianta, 1999; Meehan, Hughes, & Cavell, 2003). Tools have been developed to observe teacher-child interactions that reflect the quality of the teacher-child relationship. Although initial observation systems did not focus specifically on the relationship between teachers and children, new tools have been developed that allow for a more refined measurement of teacher-child interactions (e.g., Observational Record of the Caregiving Environment; NICHD ECCRN, 1996; Child-Caregiver Observation System; Boller, Sprachman, & EHS Research Consortium, 1998). Pianta (2006) argued that the use of standardized observations has the potential to reform teacher training and address shortcomings in the quality of care provided to children. Observational data can be used to help design staff trainings and support high-quality teacher-child relationships within Head Start programs. Current research should be extended to collect both teacher-

report data of teacher-child relationship quality and observations of teacher-child interactions in the classroom context.

Correlates of Teacher-Child Relationship Quality

To determine how to best to foster positive teacher-child relationships, it is important to examine what factors may enhance teacher-child interaction quality. Bronfenbrenner and Ceci (1994) asserted that the proximal processes affecting development vary as a function of the characteristics of the developing person, of the environment, and of the nature of the developmental outcomes. Teacher-child relationships are impacted by individual characteristics of the teacher and child as well as classroom and school characteristics.

Specifically, some studies suggest that teacher training and education are strongly associated with high quality interactions between students and teachers (Burchinal, Cryer, Clifford, & Howes, 2002; NICHD ECCRN, 2001). However, other researchers have found non-significant (Phillips, Mekos, Scarr, McCartney, & Abbott-Shim, 2000) to modest associations (Pianta et al., 2005) between teacher training and measures of classroom quality (e.g., teacher-child interactions). The inconsistent findings may be related to differences in the definitions and measurement of training and education. Tout, Zaslow, and Berry (2006) suggest that it is of critical importance to collect specific data on the type of education and training that teachers have received.

In addition to teacher-related factors, children's characteristics are also associated with teacher-child relationship quality. For example, some studies have shown that teachers report differences in their relationships with children based on children's gender (Howes, Phillipsen, & Peisner-Feinberg, 2000; Hughes, Cavell, & Wilson, 2001; Kesner,

2000), and temperament (e.g., Churchill, 2003; Rimm-Kaufman et al., 2002; Rimm-Kaufman & Kagan, 2005). These data have important implications for training teachers on how to develop positive relationships with all students in their classrooms.

Other studies suggest that it is important to examine aspects of the classroom environment in predicting high quality relationships between students and teachers. For example, group size is associated with overall classroom quality (Ghazvini & Mullis, 2002; NICHD ECCRN, 2002; Pianta, La Paro, Payne, Cox, & Bradley, 2002). However, few studies have examined whether classroom characteristics are associated with teacher-child relationship quality.

Study Rationale and Overview

This study will examine whether the teacher-child relationship can serve as a protective factor for vulnerable children. To date, there have been no studies that have examined whether teacher-child relationship quality moderates the impact of family risks (i.e., parental mental health and family functioning) on children's externalizing behavior problems. This study will extend previous studies on teacher-child relationship quality by including both teacher-report data and observations to measure this construct. Additionally, although researchers have examined teacher, child, and classroom correlates of overall classroom quality, few have specifically investigated the associations between these factors and children's relationships with their teachers. This study will examine whether teachers' training and experience, children's gender and temperament, and classroom group size are related to teacher-reported relationship quality and observed teacher-child interaction quality.

There are four objectives of the proposed exploratory study: (a) to examine the relation between family risk factors and children's externalizing behaviors, (b) to examine the relation between teacher-child relationship quality and children's externalizing behaviors, (c) to examine whether teacher-child relationship quality moderates the association between family risk factors (parental mental health and family functioning) and children's externalizing behaviors, and (d) to examine associations between teacher, child, and classroom characteristics and teacher-child relationship quality. The proposed research project has been designed to answer the following research questions. Preliminary hypotheses are also offered.

1. Are there associations among parental mental health, family functioning, and children's externalizing behaviors?

    a. *The two latent risk variables (i.e., parental mental health, family functioning) have a direct effect on children's externalizing behaviors. Children have fewer externalizing behaviors when parental mental health and/or family functioning is higher.*

2. Is teacher-child relationship quality related to children's externalizing behaviors?

    a. *Teacher-child relationship quality has a direct effect on children's externalizing behaviors. Children have fewer externalizing behaviors when teacher-child relationship quality is higher.*

3. Does teacher-child relationship quality moderate the association between parental mental health and children's externalizing behaviors?

    a. *A model with teacher-child relationship quality moderating the impact of parental mental health on children's externalizing behaviors fits the data.*

There is a significant association between the interaction variable (i.e.,

teacher-child relationships x parental mental health) and children's

externalizing behaviors. The effect of parental mental health on

externalizing behaviors changes as a result of differing levels of teacher-

child relationship quality.

4. Does teacher-child relationship quality moderate the association between family

functioning and children's externalizing behaviors?

   a. *A model with teacher-child relationship quality moderating the impact of*

family functioning on children's externalizing behaviors fits the data.

There is a significant association between the latent interaction variable

(i.e., teacher-child relationships x family functioning) and children's

externalizing behaviors. The effect of family functioning on externalizing

behaviors changes as a result of differing levels of teacher-child

relationship quality.

5. Are teacher, child, and classroom characteristics associated with teacher-child

relationship quality and interactions?

   a. *Teachers' level of training and education are positively correlated with*

teacher-child relationship quality and positive interactions.

   b. *Teachers' years of experience in an early care and education environment*

are positively correlated with teacher-child relationship quality and

positive interactions.

   c. *Teachers report more positive teacher-child relationships and exhibit*

more positive interactions with girls, than with boys.

d. *Teachers report less positive relationships and exhibit less positive interactions with children whose parents report that they exhibit high levels of emotionality and low levels of sociability.*

e. *Teacher-child ratio is positively correlated with teacher-child relationship quality and positive interactions with children.*

Chapter II: Literature Review

The field of prevention science has called for the design of programs to protect young children from risks associated with developing behavior problems (Shonkoff & Phillips, 2000). Head Start represents an ideal venue to buffer children from these risks. In this vein, policy-makers have identified the promotion of social-emotional competence as a recent priority for Head Start (ACF, OPRE, 2006a). With an understanding of the impact of teacher-child relationships on children's social and emotional competence, Head Start programs can be more effective in strengthening this domain of development, thereby preventing young children's behavior problems.

Extant research reveals that 25 percent of Head Start children exhibit internalizing and externalizing problem behaviors (Kaiser et al., 2000), which is at the high end of the ranges reported for preschool children in community samples (Webster – Stratton, 1997). Children who exhibit problem behaviors in early childhood are likely to experience difficulties in later life that can have implications for society at large. Studies suggest that children who are identified as having problem behaviors in preschool have a 50 percent chance of continuing to have difficulties in elementary school (Campbell, 1994, 1995). These children may have trouble with social competence, poor academic functioning, and persistent delinquent behaviors (Bor & Sanders, 2004; Campbell, 2002; Hinshaw, 1992; Moffitt et al., 2002). As an early preventive intervention program, Head Start has the potential to alter the developmental trajectories of young children who may be at risk for behavior problems.

Given the growing body of evidence documenting high rates of behavior problems in Head Start children, it is essential that researchers identify factors that may

affect positive behavioral functioning in this population. Particularly important is an understanding of the role of teacher-child relationships in promoting positive behaviors in young children.

As an increasing proportion of mothers enter the workforce, there has been an increase in the number of children attending pre-school programs (Adams, Tout, & Zaslow, 2007). This trend has led to increased research on the experiences of young children in early education programs, such as the impact of teacher-child relationships on young children's social and academic functioning. Early childhood researchers have primarily used an attachment perspective to investigate whether aspects of teacher-child relationships (e.g., closeness, conflict, and dependency) are related to children's development (Davis, 2003). Studies suggest that the quality of these relationships have a significant impact on children's emotion regulation, social competence, and behavioral functioning (Hagekull & Bohlin, 1995; Peisner-Feinberg, et al., 2001; Pianta et al., 1997). There is some evidence that high-quality relationships are particularly important for children at-risk for developing behavior problems (Hamre & Pianta, 2005; Pianta et al., 1997).

This literature review will address the role of teacher-child relationships in reducing the levels of externalizing behavior problems in low-income, high-risk children. First, I will provide a brief overview of the theoretical model and conceptual framework that guide our understanding of children's behavioral functioning, and the factors that promote positive outcomes in this domain, specifically teacher-child relationships. Next, research on problem behaviors in young children will be reviewed, and studies of the association of specific risk factors and children's problem behaviors will be cited.

Research on the impact of early teacher-child relationships will be examined within the framework of a discussion on factors that protect against the influence of risk on children's problem behaviors. Then, research will be presented on predictors of positive early teacher-child relationships, a potential buffer against the impact of risk on children's social-emotional development. Finally, suggestions will be made for further research, and implications for policy and practice will be discussed.

Theoretical and Conceptual Framework

In this study, Bronfenbrenner's bioecological theory (1977; Bronfenbrenner & Ceci, 1994) is used to conceptualize the multiple factors that influence children's development. This theory emphasizes the interrelations among individual, relational, and contextual factors in understanding children's early behavioral trajectories. Building on the bioecological theory, researchers have suggested that it is important to identify risk and protective factors that may influence these pathways (e.g., Calkins, Blandon, Williford, & Keane, 2007). This study applies a risk and resiliency perspective to frame research on the impact of family risk and teacher-child relationships on young children's externalizing problem behaviors.

The Ecological Theory (Bronfenbrenner, 1977) reflects a contextualist model of development. In this model, the individual and the environment are mutually influential. Contextualism is based on the idea that there are many factors that influence an individual's development (i.e., biological, relational, and environmental) and that all of these influences interact and have an effect on each other. Contextualist theorists posit that there is not one single cause of an individual's development, rather, that within-

person variables, interpersonal variables, and extra-personal variables interact to produce change (Lerner, 1986, 1991).

Bronfenbrenner's bioecological theory (1977; Bronfenbrenner & Ceci, 1994) encompasses a broad view of child development. This theory allows researchers to account for individual characteristics and environmental variables when examining questions about child development. Bronfenbrenner's bioecological theory (1977; Bronfenbrenner & Ceci, 1994) has been used as a framework to understand the development of behavior problems in young children (Stacks, 2005). Researchers have used this theory to present factors that account for the most variance and the persistence of young children's problem behaviors (Stacks, 2005).

More specifically for research on risk and protective factors, the application of the bioecological theory allows the researcher to focus not only on outcomes related to individual and environmental variables, but also on the process through which these variables interact to impact children's development.

This theory can help to explain why some children who are at-risk for developing poor outcomes do so and others do not (Howard & Johnson, 2000). The individual develops within several microsystems, defined as a "pattern of activities, roles, and interpersonal relations experienced by a developing person in a given setting" (Bronfenbrenner, 1979, p.22). Within each microsystem, proximal processes function to facilitate or impede development (Eamon, 2001). One microsystem within which an individual develops is the home. Children whose parents cannot provide stimulating, caring, organized home environments, may be at-risk for poor developmental outcomes (e.g., Evans, 2004; NICHD, ECCRN, 2001).

However, the home is not the only microsystem within which a child develops. Several researchers have argued that the school should be conceptualized as a setting that may positively impact children's development through proximal process that may buffer children from risk (Farmer & Farmer, 1999). Bronfenbrenner & Ceci (1994) suggest that proximal processes can reduce or buffer against environmental differences in developmental outcomes, and appear to have the greatest effect in the most disadvantaged environments. Teacher-child relationships have been found to be particularly important to children's development, particularly for children living in high-risk family environments (Pianta et al., 1997).

The role of teacher-child relationships in promoting the development of at-risk children can be conceptualized within a resiliency framework. Luthar, Cicchetti, and Becker (2000) cite two conditions for resilience: exposure to "significant threat or severe adversity", and "the achievement of positive adaptation despite major assaults on the developmental process" (p. 543). Although there has been disagreement over how to define resilience, some suggest that the absence of emotional and behavioral maladjustment can be used to define positive adaptation (Luthar et al., 2000). Similarly, adaptation has been conceptualized as how well children are doing in meeting age-appropriate behavioral tasks, for example, control of aggressive impulses (Masten & Gewirtz, 2006).

Several studies have examined resilience as the absence of behavior problems, despite strong family risks associated with poor behavioral outcomes (e.g., Luther, 2006). For example, Rutter (2002) suggests that behavioral inhibition implies resilience for those at risk for antisocial behavior. Similarly, Masten, Best, & Garmezy (1990) argue that

resilience may be conceptualized as psychopathology scores on externalizing and internalizing scales that are better than expected based on levels of risk experienced.

The experience of family risk may constitute the threat and adversity that are conceptualized to be conditions of children's resilience. Children who face great family risk are vulnerable to developing externalizing behaviors both at home and in the classroom (Hamre & Pianta, 2005; McLoyd, 1998). Children reared in low-income families characterized by high levels of stress, depression, and conflict are vulnerable to developing externalizing behaviors in preschool (Campbell, 2006). Head Start children may be more likely to exhibit behavior problems due to the high-risk environments in which they live.

However, some children are resilient, and experience positive behavioral outcomes despite their compromised family environments. Children's early school experiences may serve as a buffer against risk. Noam and Hermann (2002) have suggested that in order for resilience to develop, children must experience the, "personal, interpersonal, and emotional dimensions inherent in relationships" (p. 874). There is some evidence that high quality teacher-child relationships can protect young children from risk, and lead to positive social-emotional outcomes (Hagekull & Bohlin, 1995; Pianta et al., 1997). Specifically, children's relationships with their teachers have been shown to predict positive social, behavioral, and emotional outcomes (Peisner-Feinberg, et al., 2001; Pianta et al., 1997). Empirical evidence suggests that early teacher-child relationships can be unique, longitudinal predictors of children's academic, social, and emotional outcomes (Birch & Ladd, 1998; Hamre & Pianta, 2001).

Recently, developmental researchers have suggested that the charge for this generation of researchers is to develop causal models of process that explain vulnerability and resilience in children and to provide the rationale for interventions that promote positive development (Masten & Gewirtz, 2006). There remains a need for a comprehensive analysis of the relation between risk and resiliency, examining the specific impact that teacher-child relationships can have on young children's social-emotional development.

Young Children's Externalizing Behaviors

Developmental researchers distinguish the period of age 2 – 5 as a time of developmental change during which children learn how to regulate their emotions and control their behavior (Campbell, 2006). Denham (2006) suggested that teachers consider children's positive emotional expressiveness, enthusiasm, and their ability to regulate their emotions and behaviors as indicators of positive school adjustment, and 'readiness to learn'. Although many children may experience tantrums and periods of non-compliance, a smaller group exhibit more serious problems.

In early childhood, externalizing behavior problems are manifested as hostile and aggressive physical behavior toward others, impulsivity, hyperactivity, and non-compliance with limits (McMahon, 1994). These behaviors are found to be highly correlated (Nagin & Tremblay, 1999) and are associated with later conduct disorders, antisocial behavior disorders, and academic underachievement (Bennett et al., 1999; Farmer, 1995; Hinshaw, 1992; Moffitt et al., 2002; White, Moffitt, Earls, Robins, & Silva, 1990). Children who exhibit early antisocial behaviors, as compared with those who don't develop antisocial behavior until adolescence, account for almost half of all

adolescent crime and the majority of violent crimes (Conduct Problems Prevention Research Group, 2000).

Externalizing behaviors have been found to be stable from toddlerhood through elementary school and into adolescence (Fox, Dunlap, & Powell, 2002; White et al., 1990). Specifically, research suggests that both observed aggression and parent reports of externalizing behavior are relatively stable from toddlerhood to age 5 (Pierce, Ewing, & Campbell, 1999). Further, about 50 percent of children who exhibit behavior problems in preschool continue to be identified as having these problems in elementary school (Campbell & Ewing, & Breaux, 1986; Campbell, 1995).

Researchers, and more recently clinicians, have distinguished between two groups of antisocial youth, early versus late starters (Moffitt, 1993; Moffitt et al., 1996; Moffitt et al., 2002). Children in the childhood-onset group begin exhibiting conduct problems as early as pre-school and their behavior problems tend to increase in rate and severity as they age (Lahey & Loeber, 1994). In a series of studies that followed a group of males from ages 3 to 26, Moffitt (Moffitt, 1993; Moffitt et al., 1996; Moffitt et al., 2002) found that those who exhibited early-onset, life-course persistent antisocial behaviors were usually high-risk children (e.g., cognitive deficits, difficult temperament, hyperactivity) who were raised in high-risk environments (e.g., inadequate parenting, disrupted family bonds, poverty). In sum, the evidence on children's behavioral functioning suggests that early childhood marks the onset of behavior problems that may persist into later childhood if children experience high levels of personal and environmental risk.

Researchers have identified risk factors associated with the development of externalizing behaviors in early childhood. Rubin, Burgess, Dwyer, and Hastings (2003)

cite three categories of risk associated with young children's problem behaviors: (a) forces internal to the child (e.g., race, gender, temperament), (b) socialization forces (e.g., parent-child interactions), and (c) external forces (e.g., SES and family structure).

Research suggests that children's characteristics, or "internal forces", may influence the pathways from risk to externalizing behaviors. Studies have shown differences in rates of problem behaviors based on race/ethnicity (e.g., Goldstein, Davis-Kean, & Eccels, 2005; Nguyen, Huang, Arganza, & Liao, 2007). However, it is difficult to determine whether differences are due to race/ethnicity, or other confounding factors like socioeconomic status and family structure (Campbell, Shaw, & Gilliom, 2000). In an analysis of the equivalence of the Child Behavior Checklist 1 ½ - 5, a widely used assessment of children's problem behaviors, researchers found that externalizing scale means differed by family income, but not racial/ethnic groups (Gross et al., 2006).

Some researchers have suggested that there are cultural differences in the pathways leading to externalizing behaviors based on race. For example, Deater-Deckard and Dodge (1997) have suggested that discipline practices have differential impacts on children's behavioral outcomes based on race, with the impact of harsh discipline being less severe for African American children. Researchers conducting a longitudinal examination of children's problem behaviors in early childhood found that there was not a linear relationship between maternal negative control and children's behavior problems for African American children, as there was for European American children (Spieker, Larson, Lewis, Keller, & Gilchrist, 1999). However, other studies examining the correlates of problem behaviors suggest similar pathways to problem behaviors, regardless of race or culture (e.g., Goldstein et al., 2005; Piko, Fitzpatrick, & Wright,

2005). Campbell, Shaw, and Gilliom (2000) note that there has been very little research on the relation between race/ethnicity and behavior problems, and cite the need for future research in this area. Similarly, there is a need for further research on how behavior problems are defined and perceived by specific cultural groups.

In contrast, there has been a great deal of research examining gender differences in rates of externalizing behaviors (e.g., Kaiser et al., 2000; Spieker et al., 1999). Studies show that preschool boys exhibit more attention problems and aggressive behaviors than girls, with differences beginning to emerge around age 4 (Keenan & Shaw, 1997; Mesman et al., 2001; Spieker et al., 1999; Stacks & Goeff, 2006). Some research has suggested that boys may experience more physiological factors that are correlated with externalizing behaviors (Zahn-Waxler, Cole, Welsch, & Fox, 1995). Other research has suggested that boys, as compared to girls, have greater exposure to psychological stressors (Eme & Kavanaugh, 1995).

Additionally, temperamental style has been found to be a predictor of antisocial behavior (Frick, 2004). Specifically, high emotionality, and low sociability are associated with behavior problems (Rende, 1993; Schmitz, Fulker, & Plomin, 1999). Biologically based risk factors often combine with socialization forces to impact children's poor social-emotional functioning. For example, harsh parenting, inconsistent discipline, and a lack of positive parenting have all been found to influence children's antisocial behavior (Loeber & Dishion, 1983; Moffitt et al., 2002).

Although it is important to examine child characteristics in determining children's vulnerability to developing behavior problems, longitudinal research suggests it is particularly important to investigate family risk in predicting *early* and *persistent*

behavior problems (Aguilar, Sroufe, Egeland, & Carlson, 2000; Campbell, 1997; Moffitt et al., 2002). What Rubin, Burgess, Dwyer, and Hastings (2003) termed, "external forces", and what others have referred to as, family risks (e.g., NICHD, ECCRN, 2000) impact the development of children's behavior problems. Studies consistently show that family risk factors including poverty, parents' psychopathology, and poor family functioning are predictors of externalizing behaviors (Anthony et al., 2005; Conger et al., 1992; Fox et al., 2002; Sameroff & Seifer, 1983).

Family Risk Factors Associated with Externalizing Problem Behaviors

Before school entry, it is primarily family factors that place children at-risk for school failure (Hamre & Pianta, 2005). Family characteristics such as socioeconomic disadvantage, family discord, and parental mental health problems can diminish parents' ability to provide sensitive caregiving (McLoyd, 1990), thus increasing the risk for children's externalizing behaviors. Several studies have found a higher prevalence of emotional and behavioral problems among poor children (e.g. Adams, Hillman, & Gaydos, 1994), and current poverty has been related to externalizing problems for this group (McLeod & Shanahan, 1993). Differences based on socioeconomic status in rates of externalizing problems increase during the preschool and early school years (McLoyd, Ceballo, & Mangelsdorf, 1996).

Although some researchers argue that it is poverty itself that leads to poor developmental outcomes in children, others hypothesize that economic loss and poverty affect children indirectly through their impact on family functioning and parents' psychological well-being. For example, McLoyd (1990) suggests that poverty increases parents' psychological distress, which diminishes their ability to provide sensitive care

giving, and this leads to children's impaired socioemotional functioning. Various models have been theorized to explain the pathways through which poverty impacts children's development. Recent longitudinal studies with large data sets have provided more information on possible mediators of poverty on children's outcomes (e.g. NICHD ECCRN, 2005).

For example, research has shown that mothers living in poverty are more likely to experience psychological distress due to increased exposure to acute and chronic stressors, and decreased access to resources that could protect them from the impact of these stressors (Bassuk, Browne, & Buckner, 1996; Petterson & Albers, 2001). There are several studies that have linked parental risk factors such as lack of family cohesion and parents' poor mental health with children's problem behaviors (e.g. Conger et al., 1992; Sameroff & Seifer, 1983).

Indicators of family processes such as family cohesion, marital status, and partner satisfaction are related to parents' and teachers' reports of children's behavior (Fox et al., 2002; Harland, Reijneveld, Brugman, Verloove-Vanhorick, & Verhulst, 2002; Marshall, English, & Stewart, 2001). Researchers have found that children's behavior problems are positively related to family conflict, and negatively associated with family organization and cohesion (Jones Harden et al., 2000; Koblinsky, Kuvalanka, & Randolph, 2006; Halpern, 2004). Smith, Prinz, Dumas, and Laughlin (2001) conducted a study of African American children and families examining the relation between family processes and children's problem behaviors. They found that family cohesion was consistently related to teachers' report of positive behavior in the classroom. Conversely, Harland, Reijneveld, Brugman, Verloose-Vanhorick, and Verhulst (2002) identified children at

increased risk for behavioral and emotional problems based on family risk factors. They found that children with recent experiences of parental divorce or separation were at relatively high risk for behavioral and emotional problems.

Parenting stress is also negatively associated with children's social-emotional well-being in preschool (Anthony et al., 2005). Stress has been found to indirectly impact children's problem behaviors through an impact on quality of maternal care and mother-child attachment security (Murray, Fiori-Cowley, & Hooper, 1996; Teti, Nakagawa, Das, & Wirth, 1991). Stress can negatively impact parents' interactions with their children and is associated with inconsistent discipline, lack of warmth, and inappropriate expectations of children (Crawford & Manassis, 2001; Deater-Deckard & Scarr, 1996). Sameroff and Seifer (1983) suggested that highly stressed mothers may not provide the quality and quantity of care necessary to promote children's cognitive, affective, and social development.

In contrast to studies examining mediators of parenting stress on children's social and emotional development, Anthony et al. (2005) examined the direct relation between parenting stress in the home context and children's behavior in preschool. They found that parenting stress was significantly related to teacher ratings of children's internalizing and externalizing behaviors.

Stressful experiences associated with parenting can increase psychological distress in parents and lead to depression (Bolger, DeLongis, Kessler, & Schilling, 1989; Murray et al., 1996). Fox, Dunlap, and Powell (2002) found that young children who showed the most chronicity and stability in problem behaviors were more likely to live in families who experienced poverty, marital distress, and parental depression. Research has

documented that depressed compared to non-depressed mothers are more withdrawn, inconsistent, intrusive, and hostile in their interactions with their children (Downey & Coyne, 1990). They are also less engaged and responsive to their children's needs (Downey & Coyne, 1990). For example, in an Early Head Start sample, infants were less likely to be classified as secure when the level of maternal depression was high (Coyl, Roggman, & Newland, 2000).

Parental depression is concurrently and prospectively related to children's social-emotional functioning (Duncan, Brooks-Gunn, & Klebanov, 1994; Campbell, 1995). Research suggests that depression is strongly correlated with children's behavior problems (Downey & Coyne, 1990). Maternal depression is associated with elevated rates of childhood anxiety (Alpern, & Lyons-Ruth, 1993), social interaction difficulties (Assel et al., 2002), and higher levels of internalizing and externalizing problems at school (Downey & Coyne, 1990). Parents' mental health has consistently been found to be highly correlated with children's internalizing and externalizing behaviors (Anthony et al., 2005; Downy & Coyne, 1990; Moore, Cohn, & Campbell, 2001).

Research specific to the Head Start population has documented high levels of family risk and concomitant behavior problems in young children. A recent study showed that Head Start families experience high levels of socioeconomic risk and associated adverse parent and child outcomes (AFC, OPRE, 2000). Children in these high-risk families had higher teacher and parent reports of problem behaviors. Further, twenty-five percent of these parents were classified as moderately or severely depressed. These parents reported that their children had more problem behaviors and fewer positive social behaviors. Almost one fifth of the sample of Head Start parents reported that someone in

their household had been arrested and charged with a crime. Children in families, in which a parent reported that someone in their household had been arrested and charged with a crime, were more aggressive and had more problem behaviors overall.

Thus, there is ample support for the idea that family risk factors are associated with problem behaviors in young children. High levels of family risk, and its linkage with young children's behavior problems, have been documented among Head Start populations. However, not all children reared in high-risk environments experience poor social-emotional outcomes. The literature on resilience indicates that children who experience multiple social and environmental risks can have positive developmental outcomes despite the challenges that they face (Doll & Lyon, 1998).

Resiliency in At-Risk Children

Although the above delineated family risk factors have been found to be associated with children's externalizing behaviors, there is a significant proportion of children who remain resilient and do not develop problem behaviors. Researchers have tried to investigate why and how some children are able to avoid negative outcomes associated with risk. Several factors have been identified as reducing the negative consequences of risk for children. Positive parenting practices and role models outside of the family are potential buffers for vulnerable children (Burchinal, Roberts, Zeisel, Hennon, & Hooper, 2006; Garmezy, Masten, & Tellegen, 1984; Rutter, 1986; Werner, 1984). Researchers have found that high parenting quality is associated with positive developmental outcomes across domains even in the context of severe, chronic adversity (Masten et al., 1999). For example, in a study of 243 premature, low birth weight children living in poverty, 26 were identified as functioning in the normal range for cognitive,

social adaptive behavior, health, and growth at age 3 (Bradley et al., 1994). These resilient children were receiving more responsive, accepting, stimulating, and organized care in their home environment.

Similarly, Prevatt (2003) found that family risk factors and poor parenting accounted for the majority of the variance in child externalizing behaviors, whereas family protective factors and positive parenting primarily accounted for the variance in child adaptive behaviors. Ackerman, Izard, Schoff, Youngstrom, and Kogos (1999) investigated the relations between cumulative risk, caregiver emotionality, and teacher reports of problem behaviors in 6 – 7 year olds. The results showed that the relation between cumulative risk and problem behaviors could be moderated by caregiver positive emotionality. Clearly, parents can play an important role in protecting children against the potentially negative impacts of risk on development.

Parents are not the only figures who can help buffer children against the negative impact of risk. Children experiencing childhood adversity who identify at least one supportive adult from their past have shown higher academic achievement, less substance abuse, less violent behavior, and better relationships with their parents and peers than those who do not report such support (Grossman & Tierney, 1988). Pianta (1999) suggests that in order for a relationship to function as a "regulatory mechanism" for children, there must be frequent and intense interactions. Children in school experience daily interactions with their teachers. These interactions, as part of children's relationships with teachers, can have a significant impact on children's developmental trajectory.

Teacher-Child Relationships

Until recently, researchers had examined children's relationships with parents and peers as predictors of children's social and emotional outcomes. Little was known about how children's relationships with teachers impacted their functioning. However, as an increasing number of young children are spending time in non-parental care, there has been increased attention to the role of teacher-child relationships. There is a growing body of research that suggests that teachers' relationships with children, particularly in early childhood, can have a significant influence on children's behavioral and social outcomes.

In a review of the perspectives used to study the impact of student-teacher relationships on children's development, Davis (2003) cites three dominant frameworks that have been used to study relationships between teachers and children: social constructivist, motivation, and attachment. The social constructivist approach is based on Vygotzsky's (1978) theory that cognitive development occurs within the context of relationships, and emphasizes the co-construction of social and academic knowledge by teachers and students in the classroom (Cobb, 1996; Goldstein, 1999). DeVries & Zan (1996) asserted that the children develop an investment in learning when teachers promote a sense of autonomy through cooperative group work, allow students to help make classroom decisions, and provide opportunities for sociomoral discussions. Meaning of tasks are negotiated and renegotiated throughout learning experiences, and both the teacher and student change both affectively and cognitively as a result of the interactions (Goldstein, 1999). Researchers using this approach often measure reciprocity, responsibility, cognitive involvement, and the support of autonomy

(Goldstein, 1999). The social constructivist approach to studying teacher-child relationships is similar in some aspects to the motivational perspective.

The motivation perspective characterizes the teacher-child relationship as rooted in the educational context, where a child's perception of his relatedness to his teacher affects the child's engagement in school, which subsequently impacts achievement (Davis, 2003). Wentzel and Wigfield (1998) suggested that teacher-student relationships may facilitate academic and school success through their contribution to social motivational processes. For example, Wentzel (1994, 1997) found that students' perceived support from teachers was associated with students' pursuit of goals. High quality relationships are characterized by high levels of relatedness, involvement, competence, and support of autonomy (Davis, 2003). Studies using the motivational perspective usually include adolescents, where there is more of a focus on the ability of teachers to help students feel competent and achieve their educational goals (Wentzel, 1996). Conversely, in early childhood, there is a stronger emphasis on the social process and emotionally supportive role of the teacher (Davis, 2003).

The attachment perspective has most commonly been used to study teacher-child relationships in early childhood (Davis, 2003). The attachment theory suggests that a child's secure relationship with an adult promotes active exploration, positive affect, and socially competent interactions with others. Research on children's attachment suggests that at an early age, children begin to develop internal working models of the social world based on the quality of their relationship with their primary caregiver (Bowlby, 1982, Main, Kaplan, & Cassidy, 1985). Children who are securely attached to their caregiver are more sociable and positively oriented (Pastor, 1981), show better ability to form

friendships, and are more popular with peers (Verschueren, Marcoen, & Schoefs, 1996).

Studies indicate that parent-child attachment is critical to children's school adjustment,

however, it has been suggested that once children enter school, adult caregivers other

than parents can function as attachment figures (Goosen & van Ijzendoorn, 1990) and

impact children's school functioning (Birch & Ladd, 1997; Hamre & Pianta, 2001;

Howes, Matheson, & Hamilton, 1994).

The teacher-child relationship can act as an extension of the parent-child

relationship where teachers can serve as a foundation from which children learn about

their academic and social surroundings. Some studies suggest that children's behavior in

school and interactions with their teachers can be predicted by the security of their

attachment relationship with their mothers (Howes and Hamilton, 1992; DeMulder,

Denham, & Schmidt, 2000; O'Connor & McCartney, 2006). Howes and Hamilton (1992)

found that children in a secure relationship with their mothers experienced more teacher

involvement than children in the avoidant or ambivalent categories, but children in

ambivalent categories experienced more teacher involvement than children in the

avoidant relationship categories. Similarly, Rydell, Bohlin, and Thorell (2005)

investigated children's representations of attachment to parents as predictors of children's

relationships with teachers. They found that children with avoidant representations of

their attachment to parents had more conflictual and less close teacher relationships.

Although some children develop relationships with their teachers that are similar

in quality to the parent-child relationships, other children have differentiated internal

working models and develop relationships that are distinct in their quality and type of

attachment (Davis, 2003). For example, Howes, Matheson, and Hamilton (1994) found

that the early teacher-child attachment, not mother-child attachment, significantly predicted children's social competency with peers. Furthermore, there is some evidence that teacher-child attachment relationships may compensate for insecure mother-child attachment relationships (Mitchell-Copeland, Denham, & DeMulder, 1997).

According to the attachment perspective, teachers can serve a regulatory function with regard to children's social and emotional development. The quality of teacher-child relationships can be characterized by the levels of closeness, conflict, and dependency teachers have with their students (Howes et al., 1994). Studies have found that these attachment-related aspects of relationship quality are associated with children's emotion regulation, and social and behavioral competence (e.g., Denham & Burton, 1996; Howes et al., 1994; Stuhlman & Pianta, 2001).

Emotion Regulation

Ayoub & Fischer (2006) suggest that children develop templates for coping skills based on their early relationships. Teachers can play an important role in helping children learn to become emotionally competent (Shields et al., 2001). Teachers who engage in high quality teacher-child interactions with children can help them to regulate their emotions and behavior by guiding their attention, assisting in interpreting emotions, and regulating the emotional demands of the classroom (Thompson, 1994). Denham and Burton (1996) implemented a social-emotional intervention for 3 to 5-year old, at-risk children. Teachers were trained to help children with relationship building, emotional understanding, and social problem solving. Children in the intervention group showed decreases in negative emotions, greater involvement, and more positive peer activity. This research suggests that teachers can have an important impact on children's

development of interpersonal skills and emotion regulation. Children who can regulate

their emotions are better able to control their behaviors and are more likely to be accepted

by their peers (Rubin, Coplan, Fox, & Calkins, 1995).

Social Competence

Attachment theory has been used to examine how children's relationships with

their teachers impact their social development (Howes, 1999; Pianta, 1999). According to

this perspective, teachers can act as a secure base from which young children can explore

their surroundings and interact with their peers (e.g. Birch & Ladd, 1998; Howes et al.,

1994; Peisner-Feinberg et al., 2001; Stuhlman & Pianta, 2001). Studies have consistently

shown that children who have more supportive and less conflictual relationships with

teachers are more accepted by their peers (Birch & Ladd, 1997; Hughes et al., 2001;

Taylor, 1989). Secure teacher-child relationships in early childhood have been found to

be positively associated with complex peer play, and higher sociometric ratings by

unfamiliar peers (Howes et al., 1994).

Hughes, Cavell, and Wilson (2001) examined the relation between peer

perceptions of teacher-child relationship quality and peer perceptions of a child's positive

and negative attributes in third and fourth grade. They found that teacher support and

teacher conflict made independent contributions to peer evaluations of children's

competencies and acceptance of children. Additionally, these researchers found that

teacher support contributed to the prediction of social preference scores beyond that

predicted by peer nominations of aggression.

Behavioral Competence

Campbell (2006) writes that well-functioning preschool children should be able to control their arousals and impulses and exhibit appropriate classroom behavior. Several studies indicate that the quality of children's relationships with their teachers is predictive of children's classroom behaviors. Secure teacher-child relationships are positively associated with gregarious and prosocial behavior and negatively associated with children's hostile aggression (Howes et al., 1994). In a study of 250 kindergarten children, Rimm-Kaufman, LaParo, Downer, and Pianta (2005) found that as classroom quality (partially measured by teacher-child interaction quality) increased, occurrence of children's problem behaviors was reduced in teacher-directed and whole-class settings.

When controlling for children's early problem behaviors, researchers have found that bonding with teachers predicts a lower likelihood of later disciplinary problems (Crosnoe, Kirkpatrick Johnson, & Elder, 2004). Children's kindergarten teacher-child relationship quality has been documented to predict changes in their behavioral orientation across kindergarten through first grade. Pianta and Nimetz (1991) found that secure and improved teacher-child relationships in kindergarten were related to fewer problems in first grade classrooms.

Conversely, teacher-rated conflict with students has been documented to be negatively correlated with children's self-directedness and cooperative participation in the classroom (Birch & Ladd, 1997), and dependence on teachers has been associated with social withdrawal and hostile aggression (Howes et al., 1994). Studies suggest that conflict or lack of closeness in teacher-child relationships is associated with children's externalizing and internalizing problems in first grade (e.g., Pianta & Stuhlman, 2004).

Empirical evidence suggests that not only do children's concurrent relationships with teachers impact their peer relationships, but that children's early relationships with teachers can have developmental impacts on children's social competence. Researchers studying the association of child-care quality and children's social development found that children's relationships with their teachers in preschool were the strongest longitudinal predictor of children's social skills (Peisner-Feinberg et al., 2001). In a study of the relative contributions of preschool social-emotional competence and early individual teacher-child relationships, Howes (2000) found that children's social competence with peers in the second grade could be predicted by the quality of their relationship with their teachers in preschool. This research suggests that children with positive early experiences outside of the home may learn a style of interacting that facilitates later relationships.

In sum, evidence from the research on teacher-child relationships points to the salient influence of the teacher on young children's emotion regulation, social competence, and behavioral functioning. It has been suggested that positive teacher-child relationships play a particularly important role with at-risk children. As such, the behavioral adjustment of Head Start children may be particularly enhanced with positive teacher-child relationships.

Teacher-Child Relationships: A Protective Factor for Vulnerable Children

Protective factors have been defined as those that modify the effects of risk in a positive direction (Luthar & Cicchetti, 2000). Research suggests that early child-care quality (partially measured by teacher child relationship quality) can reduce the effects of poverty on children's developmental outcomes (Hagekull & Bohlin, 1995; Peisner-

Feinberg et al., 2001). For example, Peisner-Feinberg et al. (2001) examined children's cognitive and socioemotional development from ages 4 to 8 and found that the effects of child-care quality were stronger for children from more at-risk backgrounds. A recent study of African American children exposed to multiple risks during early childhood revealed that child care quality served as a protective factor in the reduction of problem behaviors (Burchinal et al., 2006).

Teacher-child relationships are an important indicator of classroom quality. Pianta et al. (1997) examined the relation between teacher-child relationships (measured by teacher report) and early school outcomes in a high-risk sample of children. They selected children to participate who demonstrated one or more risks (i.e. risk in regard to family income, maternal education level, family stress, cognitive development, motor development, language development, and behavioral adjustment). They found that security of teacher-child relationships in preschool was positively related to kindergarten teachers' reports of children's frustration tolerance, work habits, and overall competence.

In a more recent study, Hamre & Pianta (2005) conducted a secondary analysis of data from the NICHD Study of Early Child Care (NICHD, ECCRN, 1993). Children were identified as at-risk at ages 5 and 6 based on demographic characteristics and the display of behavioral, attention, academic, or social problems reported by kindergarten teachers. They found that by the end of first grade, at-risk students placed in first grade classrooms offering strong instructional and emotional support had achievement scores and student-teacher relationships equal to their low-risk peers. Conversely, at-risk students in less supportive classrooms had lower levels of achievement and more conflict with teachers.

There is emerging evidence that students' relationships with their teachers can serve as an important protective factor against the multiple risks that confront young children living in poverty (e.g., Hamre & Pianta, 2005). Pianta (1999) argued that too often, schools identify children after they have failed, instead of trying to prevent failure before it occurs. With the knowledge that positive student-teacher relationships can promote adaptive functioning in children, it is important to examine the correlates of student-teacher relationship quality. A comprehensive understanding of these pathways can serve as a foundation for the development of policies and practices that foster positive relationships, particularly for at-risk children.

Correlates of Teacher-Child Relationship Quality

Several large-scale longitudinal studies have been conducted examining factors that impact global quality of the early childhood classroom (e.g. The Cost, Quality and Outcomes Project, 1995; NICHD Study of Early Child Care, 1993). However, less is known about the specific correlates of early student-teacher relationship quality. As more studies emerge on the importance of teacher-child interactions, researchers have begun studying characteristics of teachers, children, and schools that are associated with positive early teacher-child relationships. According to Bronfenbrenner's theory (Bronfenbrenner, 1977), all of these systems are not mutually exclusive, but interact to influence the quality of teacher-child relationships.

Teacher Characteristics

Teacher-child relationship quality differs dramatically across a range of teacher characteristics including training, education, psychological functioning, and teaching practices. Differences in state regulations for educational requirements of early childhood

educators lead to significant variability in teachers' level of training and education as well as other characteristics that may be associated with their educational backgrounds.

Research on associations between teacher training and education and the quality of children's early educational experiences is inconsistent. There is some research suggesting that both training and education play an important role in determining the quality of early student-teacher relationships. Some studies indicate that the best predictor of high quality care and sensitive caregiving is formal education and specialized training in early childhood education (Arnett, 1989; Burchinal et al., 2002; Ghazvini & Mullis, 2002). Several studies have found that teachers with more education show more positive interactions with students, more emotional support, and better overall classroom quality (Howes, 1997; NICHD ECCRN, 2002). Burchinal, Cryer, Clifford, and Howes (2002) found that teachers with a baccalaureate degree displayed more sensitive interactions with children than those with an associate's degree or vocational courses. Teacher training has also been found to be related to more developmentally appropriate practices including less authoritarian child-rearing attitudes, more positive interaction style, less punitiveness, and less detachment (Arnett, 1989; Howes & Smith, 1995).

However, other studies report less conclusive findings. For example, Pianta et al. (2005) conducted an analysis of the National Center for Early Development and Learning's Multi-State Pre-Kindergarten study to determine what factors predicted classroom quality. They found that teacher training and education was only a modest predictor of observed quality. In another study examining factors contributing to positive caregiving, no significant association was found between caregivers' formal education and training and frequencies or ratings of positive caregiving (NICHD, ECCRN, 1996).

A recent meta-analysis of seven major studies of early care and education also found that overall, there was no impact of educational attainment on classroom quality (Early et al., 2007). Tout et al. (2006) have argued that the discrepancy in these findings highlight the need for specificity in defining and measuring training and education. For example, they concluded that it is important to not only determine the quantity, but also quality of professional development and training that teachers have received.

There is some evidence that teachers' psychological well-being is also related to student-teacher relationship quality. Although there is a wealth of research on how mothers' stress and depression impact their parenting (see Lovejoy, Graczyk, & O'Hare, 2000 for review), less is known about how these psychological risk factors impact teachers' relationships with their students. The few studies that have been conducted reveal that both stress and depression negatively impact teachers' interactions with children (Hamre & Pianta, 2004; Yoon, 2002). Stress has been found to predict negative teacher-child relationships (Yoon, 2002). Similarly, teachers who report higher levels of depressive symptoms are less sensitive and more withdrawn than teachers reporting fewer depressive symptoms (Hamre and Pianta, 2004). Although these findings may not be surprising, they suggest that it is important for administrators to promote mental health in educators. In most early childhood education settings, teachers' psychological well-being is not assessed or monitored.

Pianta (1999) further suggests that how the teacher-child relationship develops and influences children is biased toward input from the teachers, because they are the adults in the relationships. He argues that there is a disproportionate responsibility on the adult to determine the quality of the relationship. However, children do not play a passive

role in teacher-child relationships. They vary in physical characteristics, temperament, and behavioral dispositions. These characteristics can play an important role in determining teacher-child relationship quality.

Child Characteristics

Relationships between students and teachers are bi-directional. Teacher and student characteristics interact to help determine student-teacher relationship quality. Just as in parent-child relationships, characteristics of the child and the adult impact teacher-child relationships. Studies have shown that teacher-child interactions can be predicted by both children's demographic characteristics (e.g., Howes et al., 2000; Saft & Pianta, 2001) and interpersonal style (e.g., Birch & Ladd, 1998; Pianta & Steinberg, 1992).

Despite a recent sensitivity to the heterogeneity of students in the classroom, studies continue to show that teachers exhibit differential preference for, expectancies of, and behavior toward students' according to students' group membership. In several studies, students' gender has been found to impact teachers' interactions with students (Howes et al., 2000; Hughes et al., 2001). Teachers tend to report greater closeness and more dependency in their relationships with girls and more conflict with boys (Howes et al., 2000; Kesner, 2000). In comparison to girls, boys tend to have more negative interactions with teachers, are rated as having more interpersonal behavior problems, and tend to have more conflictual relationships with teachers (Donohue, Perry, & Weinstein, 2003; Birch & Ladd, 1997; Stuhlman & Pianta, 2001). In a study of 3rd and 4th grade children's teacher-child relationship quality, Hughes et al. (2001) found that girls obtained higher teacher support and lower teacher conflict scores compared to boys. Hamre and Pianta (2001) found that particularly for boys, kindergarten teacher-child

relationships that were conflictual and dependent were related to poor academic and behavioral outcomes through eighth grade.

Race and ethnicity have also been examined in relation to student-teacher interactions. Saft and Pianta (2001) found that teachers rated their relationships to be closer with children of the same ethnicity. They also reported more conflict in relationships with children whose ethnicity differed from their own. Similar studies have revealed that European American teachers perceive their relationships with all minority children as more dependent than their relationships with European America children (Kesner, 2000). Several studies have shown that teachers tend to rate African American students less favorably on measures of personality, behavior, motivation to learn, and classroom performance (Epstein, March, Conners, & Jackson, 1998; McFadden & Marsh, 1992; Murray, 1996; Sonuga-Barke, Minocha, Taylor, & Sandberg, 1993). Sbarra and Pianta (2001) found that teachers rated African American children as having more behavior problems and fewer competencies than European American children over the first two years of school. These findings are important given that research has shown that there is a correlation between children's behavior problems and teachers' report of the quality of their relationships with students.

Children's interpersonal style and temperament can impact the manner in which teachers interact with them. Several studies have examined how children's behaviors are associated with the quality of teacher-child relationships (e.g. Pianta & Steinberg, 1992). In determining children's behavioral orientations, researchers generally solicit peer and teacher reports of children's interaction style and children are identified as antisocial (aggressive), asocial (withdrawn), or prosocial (Birch & Ladd, 1998). Researchers have

found that children's antisocial behaviors are negatively associated with the quality of teacher-child relationships (Pianta & Steinberg, 1992). For example, aggressive children are more likely to have conflictual teacher-child relationships (Ladd & Burgess, 1999). In a study examining the relation between at-risk students' and teachers' behaviors, Van Acker, Grant, and Henry (1996) found that the interactions of students and teachers differ significantly based on students' risk for aggression. Students in the high-risk group received proportionately more reprimands than students in the mid-risk group.

Some studies suggest that early asocial behavior correlates positively with conflict and dependency and negatively with closeness (Birch & Ladd, 1998; Howes, 2000). Others however, have found that shy behaviors are perceived by teachers as reflecting higher social competence (Blair, 2003). Carey (1998) offered the hypothesis that what matters most is the goodness-of-fit between a child's temperament and the classroom environment. He found that shy children may be most at-risk when caregivers in the childcare setting are not sensitive to their needs. Studies have shown that this does not always occur as teachers are most likely to identify children with overactive needs, and that those with under-active needs are least likely to be detected (Fantuzzo, Bulotsky, McDermott, Mosca, & Lutz, 2003). These studies point to the complex nature of relationships that involve both of the participants, and also the dyad (Auhagen & Hinde, 1997). Although these studies suggest that children's behavioral and temperamental characteristics predict the quality of teacher-child relationships, previously cited studies suggest that it is the quality of the relationships that predict children's maladaptive behaviors (Hamre & Pianta, 2001; Pianta & Stuhlman, 2004). The discrepancy in the

findings of these studies suggest the need for more research to identify how the relationship is affected by and also affects children's behavioral functioning.

As these studies suggest, a variety of characteristics can impact teacher-child relationship quality. However, teacher and child characteristics are not the only influences on relationships in the classroom. According to Bronfenbrenner's theory of bioecological development (Bronfenbrenner, 1977; Bronfenbrenner & Ceci, 1994), individual characteristics and environmental variables interact to influence child development.

School and Classroom Characteristics

Several aspects of the school environment have been documented to be correlated with teacher-child relationship quality. Teachers provide more positive care giving when group sizes and child-adult ratios are smaller and when classroom environments are rated as safe, clean, and physically stimulating (Ghazvini & Mullis, 2002; NICHD ECCRN, 1996). Conversely, Pianta, La Paro, Payne, Cox, and Bradley (2002) found that when fewer staff members were available to work with children, there was less of a child-centered (e.g., tailoring instruction to particular needs) climate in classrooms.

Additionally, programs that allocate resources to staff and give higher wages to teachers show better quality (Olenick, 1989; Scarr, Eisenberg, & Deater-Deckard, 1994; Whitebook, Howes, & Phillips, 1989). In fact, several researchers have found that the most important predictor of teacher-child attachment is staff wages (Scarr et al., 1994; Whitebook et al., 1989). Finally, the quality of children's interactions with teachers is higher in states with higher quality standards (Phillipsen, Burchinal, Howes, & Cryer, 1997; Whitebook, et al., 1989).

Methodological Limitations and Research Directions

Although there is an emerging body of literature that documents the importance of teacher-child relationships for children's social-emotional outcomes, there are several limitations to the extant research. Most of the studies presented have been correlational, with a few researchers using data analytic techniques to assess the relative impact of teacher, student, and classroom characteristics on teacher-child relationship quality. As Duncan, Yeung, Brooks-Gunn and Smith (1998) have suggested, this can be problematic because the estimated effect of various factors may be spurious, caused by the mutual association between these factors, student-teacher relationships, and some unmeasured "causal" factor. It is also difficult in some cases to differentiate whether a variable should be considered an outcome or an independent variable.

For example, although some studies suggest that children's behavioral orientation predicts teacher-child relationship quality (e.g., Birch & Ladd, 1998), others report that it is the quality of teacher-child interactions that predict children's behavioral and emotional competence (e.g., Howes et al., 1994). It may be the case that both findings are true, however, it is difficult to determine their relative impact. There has been some progress in this area, with findings from several longitudinal studies suggesting that teacher-child relationships function in a causal role (e.g., Hamre & Pianta, 2001; Meehan et al., 2003; Pianta & Stuhlman, 2004). These researchers found that after controlling for children's initial problem behaviors, teacher-child relationships significantly predicted children's later social-emotional adjustment. Although the magnitude of the effects of teacher-child relationships on children's outcomes is greater for concurrent ratings of relational quality (Pianta et al., 1997; Pianta & Stuhlman, 2004), research suggests that

teacher-child relationship quality is predictive of longitudinal outcomes. For example, Meehan, Hughes, and Cavell (2003) conducted a 2-year prospective study on the association between the quality of teacher-child relationships and children's levels of aggressive behavior. After controlling for children's Year 1 aggressive behavior, teacher support explained an additional 24 percent of the variance in Year 2 aggression. Similarly, Pianta & Stuhlman (2004) obtained assessments of teacher-child relationships in preschool, kindergarten, and first grade. They found that teacher-child relationship quality was associated with changes in children's externalizing behavior and social competence over the 2 years.

These studies provide some indication of the directionality of the relation between teacher-child relationships and children's behavioral orientation. Future research should entail controlled, longitudinal studies to determine the predictive influence of teacher-child relationships. Additionally, Pianta & Stuhlman (2004) suggest that researchers should experimentally test whether improvements in the teacher-child relationship result in changes in children's social-emotional competence.

It is important for researchers to use multiple methods of data collection (e.g., teacher report, observations, direct assessments) to ensure unbiased, accurate data. There are several observational tools that have been designed to measure overall classroom quality (e.g., ECERS-R; Harms, Clifford, & Cryer, 1998; Arnett Scale; Arnett, 1989). However, few measures exist to collect data on individual teacher-child relationships. Research suggests that teachers may exhibit different patterns of interactions with students in their classrooms (e.g., Hamre & Pianta, 2001; Howes et al., 2000). Therefore, composite ratings of teachers' engagement with students may be misleading, providing

inaccurate information about certain children's experiences in the classroom. Refined observational tools should be created and validated to capture individual children's interactions with teachers in the classroom, and caution should be used in making conclusions about children's classroom experiences based on global measures of quality.

Recently researchers have cautioned against using linear models to examine children's development (Roosa, 2000). They have argued that using regression techniques to predict outcomes tends to oversimplify development and have articulated the need to examine intersections of domains of development (Ayoub & Fischer, 2006; Pianta & Walsh, 1998). Roosa (2000) writes, "despite the statistical or methodological challenges that interactive effects present, the unique contributions of resilience research to our understanding of human development. . .come from its expectations of interactions that lead to positive development. . ." (p. 568). Although it is difficult to use more complex statistical techniques (e.g., structural equation modeling) with smaller data sets to examine pathways to competence, it is imperative that researchers find ways to develop and analyze interactive models of development.

The lack of research on risk, teacher-child relationships, and outcomes of young children living in poverty emphasizes the need for an examination of teacher-child relationships in high-risk populations. It remains unclear whether children at-risk for developing poor social-emotional outcomes who experience high quality teacher-child relationships have fewer problem behaviors than peers who do not have high quality relationships. It is important for researchers to examine teacher-child relationships as a potential protective factor to determine how to best prevent high-risk students from being left behind at an early age, without the necessary academic, social, and emotional skills to

function well in the academic environment. Because Head Start primarily serves children living in poverty, it is an important setting in which to conduct research on the linkage between risk, teacher-child relationships, and developmental outcomes.

Finally, there is emerging evidence that Head Start is having positive impacts on some areas of children's social-emotional outcomes, however, effect sizes are smaller than some had hoped for, and there are still many areas in which Head Start is showing no impact (ACF, OPRE, 2005). Although a major strength of Head Start is the provision of comprehensive services, it is imperative that future research begins to examine what specific aspects of Head Start are *most* beneficial, and for which children. Specific to this discussion, evaluation of Head Start should include an examination of the mechanisms by which children experience program benefits in the social-emotional domain, such as the impact of teacher-child relationships on children's behavioral outcomes.

Directions for Evidence-Based Policy and Practice

Scholars and advocates in the field of education have recently asserted that empirical evidence should inform educational policy and practice (e.g., No Child Left Behind Act, US Department of Education, 2001). Researchers have argued that comprehensive intervention at the time of school entry is one of the most effective methods for preventing problem behaviors and later delinquent behavior (e.g., Walker, Stiller, Severson, Feil, & Golly, 1998; Webster-Stratton, 1997). Walker, Stiller, Severson, Feil, and Golly (1998) contend that an essential component of a school-based intervention is the support of effective teacher-child relationships. For large-scale education policies to change, controlled, high quality research must continue to be

conducted on the concurrent and longitudinal impact of teacher-child relationships on children's academic and social-emotional functioning.

Pianta (1999) suggests that too often school-based interventions are partitioned into various components (e.g., visits to the counselor for children, in-service teacher training, group sessions with "problem children"). He suggests that when these components are then put back together in the classroom, they do not always result in positive outcomes for the child. The bioecological theory of development is based on the idea that the various systems interact within multiple contexts to influence children's development (Bronfenbrenner, 1977). Therefore, school-based interventions should take place in the classroom where students interact with peers and their teachers on a daily basis (Pianta, 1999).

Research should continue to be conducted on what aspects of early schooling are most predictive of children's positive academic and emotional development and should be used to inform educational practice. Scholars have suggested that it is important for school-based prevention efforts to focus on multiple aspects of children's development (e.g., academic, social, emotional) (Pianta & Walsh, 1998). However, intervention efforts largely continue to target one aspect of children's development and ignore the relations among multiple influences on the developing child (Pianta, 1999). Similarly, teacher preparation programs often prepare teachers to become proficient in teaching students reading and math but fail to train teachers on how to positively interact with students and to develop high quality teacher-child relationships. In-service teacher training programs focused on distal indicators of classroom quality may be ineffective in achieving measurable gains for children in the classroom. Pianta (2006) argues that it is

crucial to use classroom observations to assess classroom practices and provide direct, targeted feedback and training for teachers that will positively impact children's experiences in the classroom.

Teacher training should also assist teachers to address potentially inequitable treatment of children within their classrooms. There is some research that suggests that children's demographic characteristics are impacting teachers' perceptions of their relationships with children. Teachers rate their relationships with boys as more conflictual and dependent (Hamre & Pianta, 2001). Additionally, some research suggests that teachers rate their relationships with children of the same ethnicity as closer than with those of a different ethnicity and report more conflict in relationships with students whose ethnicity differed from their own (Saft & Pianta, 2001). Although there has been a recent focus on training teachers in sensitivity and cultural competence, empirical studies need to be designed to examine whether these strategies are impacting classroom practices. If they are not, new training programs based in the classroom should be developed that help teachers to reflect on their potential biases towards students.

Teachers' relationships with students are impacted not only by children's demographic characteristics but also their behavioral characteristics. Research indicates that teachers who exhibit sensitive caregiving can foster positive outcomes in young children who exhibit initial problem behaviors (Rimm-Kaufman et al., 2002). For example, Pianta (1999) suggests that teachers should learn behavior management techniques that do not affect teachers' and children's representations of their relationships. These are important skills that should be fostered in all educators as they have implications for children's social and emotional competency in the classroom.

Teacher training programs would be incomplete without addressing individual teacher characteristics that are associated with educational practice. Researchers should continue to examine teacher characteristics associated with positive teacher-child relationships. More research is needed to determine what specific types of teacher training and education are predictive of positive teacher-child relationships and overall classroom quality. Policy makers should then examine the findings on child outcomes associated with teacher education and training to determine appropriate standards for early childhood teachers' level of education and training. Additionally, more research is needed on the impact of teachers' mental health on their classroom practices.

Although it is important to ensure that all children are experiencing high-quality teacher-child relationships, the lack of research on risk, teacher-child relationships, and outcomes of young children living in poverty emphasizes the need for an examination of teacher-child relationships in high-risk populations. It remains unclear whether children at-risk for developing poor social-emotional outcomes who experience high quality teacher-child relationships have fewer problem behaviors than their peers who do not have high quality relationships. It is important for researchers to examine teacher-child relationships as a potential protective factor to determine how to best prevent high-risk students from being left behind at an early age without the necessary academic, social, and emotional skills to catch up. This research could lead to the development of evidence-based prevention and intervention programs focused on enhancing teacher-child relationships for at-risk children and ultimately foster positive child outcomes.

Conclusion

Children who experience family risk factors may experience poor developmental outcomes and are particularly vulnerable to developing behavior problems (Hamre & Pianta, 2005). Early externalizing behaviors are predictive of poor academic functioning, and persistent delinquent behaviors (Bor & Sanders, 2004; Campbell, 2002).

Researchers have the important task of examining what factors may protect at-risk children from poor developmental outcomes (e.g., externalizing problems). Studies suggest that positive teacher-child relationships are important to children's development of emotion regulation and behavioral and social competence (e.g., Howes et al., 1994; Thompson, 1994). Some research indicates that these relationships are not only important to normative development, but may help young children who are exposed to negative life circumstances experience positive outcomes (e.g., Hamre & Pianta, 2005; Pianta et al., 1997). Given that high-quality teacher-child relationships support children's development, it is important to understand their correlates.

Research suggests that school, classroom, teacher, and child characteristics are associated with teacher-child relationships (e.g., NICHD ECCRN, 1996, 2002; Pianta et al., 2005). It is important to determine what factors are most predictive of high-quality interactions, so that resources can be allocated to enhance children's experiences with teachers. There is recognition in the field of early childhood education that quality classroom experiences matter for children, however, there is still a lack of information on how to improve interactions between students and teachers in the classroom (Pianta, 2006).

Significant progress has been made in recent years in examining how children's relationships with teachers impact their development. However, progress is needed in understanding how teachers influence the pathways from risk to social-emotional competence and overall school readiness. This knowledge could be instrumental in the design and implementation of prevention and intervention programs aimed at improving teacher-child relationships, thereby fostering children's social and emotional well-being.

Chapter III: Methods

This cross-sectional study examined the relationships between family risk, teacher-child relationship quality, and children's problem behaviors; and examined the association of teacher, child, and classroom characteristics with high quality teacher-child relationships and positive teacher-child interactions. Specifically, this research project addressed the following five questions:

1. Are there associations among parental mental health, family functioning and children's externalizing behaviors?

2. Is teacher-child relationship quality related to children's externalizing behaviors?

3. Does teacher-child relationship quality moderate the association between parental mental health and children's externalizing behaviors?

4. Does teacher-child relationship quality moderate the association between family functioning and children's externalizing behaviors?

5. Are teacher, child, and classroom characteristics associated with teacher-child relationship quality and positive interactions?

Research Methods

Rationale for the Methodology

This study employed multiple methods of data collection. It extended previous research by including both teacher-report data and observational measures of teacher-child interactions to operationalize teacher-child relationship quality. Researchers have cited a need for studies examining the determinants, correlates, and consequences of teacher-child relationships (e.g., Pianta, 1999). In this vein, data were collected on teacher, child, and classroom characteristics that may be correlated with teacher-child

relationship quality and interactions. Additionally, this study fills a gap in the literature on children's risks through the collection of extensive data on parent, teacher, and child characteristics that may act as buffers.

This study's cross-sectional design did not allow for the definitive determination of causation of risk and teacher-child relationship quality on children's problem behaviors. However, there is strong empirical evidence suggesting that the included risk factors (i.e., parental mental health and family functioning; see Stormont, 1998, for a review) and teacher-child relationship quality (Howes, 2000; Peisner Feinberg et al., 2001) are longitudinal predictors of children's problem behaviors. In this case, we collected extensive observational data on teacher-child interactions, which would have made a longitudinal study difficult given time and resource constraints.

Additionally, the Head Start centers in which the study was conducted have year-round mixed-age classrooms with children ages 3 to 5. Children remain with the same teacher for all three years in the program. Therefore, to control for problem behaviors prior to Head Start classroom entry, researchers would have had to measure 2-year old children's behavior problems. Using children of only one-age group would have severely restricted the sample, leading to a sample size insufficient to provide adequate power to detect significant effects.

Children who were not in the classroom with the lead teacher for at least four months were excluded, as has been the criterion in previous studies (e.g., Howes & Hamilton, 1992). This helped to ensure that participant children had a sufficient amount of time to develop a relationship with the lead teacher. Additionally, data collection was limited to a four-month period (see Appendix A for data collection schedule), to try to

control for potential differences in teacher-child relationships based on the time of year

that the data were collected.

Pilot Study

An initial pilot study in one classroom with 15 children was conducted. The lead

teacher completed the *Social Skills Rating System* (Gresham & Elliott, 1990) and *Student*

Teacher Relationship Scale (Pianta, 2001) for participant children. Parents were

interviewed and asked questions about demographic information, family resources

(*Family Resource Scale;* Dunst & Leet, 1987*)*, and depressive symptoms (*CESD;*

Radloff, 1977). Additionally, observations of teacher-child interactions were conducted

and coded for quality of interactions between the lead teacher and children in her

classroom (*Child Caregiver Observation System*; Boller, Sprachman, & EHS Research

Consortium, 1998*).* Although the small sample size did not allow for sophisticated data

analytic techniques, preliminary analyses revealed that over 25% of the parents

interviewed reported depressive symptoms in the clinical range.

The pilot data indicated that teachers exhibited variability in their interactions

with students from "mostly negative" (code = 2) to "mostly positive" (code = 4) ($M =$

2.9, $SD = .69$). Results revealed that having a close teacher-child relationship was

associated with cooperative behaviors ($r = .69$, $p < .05$), self-control ($r = .69$, $p < .05$),

and overall social skills ($r = .68$, $p < .05$). These preliminary findings suggested that

teacher-child relationship quality may serve as a protective factor for children at-risk for

developing problem behaviors. Thus, the pilot data provided a foundation on which to

base the larger study.

Participant Recruitment and Selection

Voluntary teacher, parent, and child participation was enlisted through the teachers and family support workers at the Head Start centers. Recruitment of parents entailed the strategic placement of signs throughout the sites. Additionally, eligible children were given a flyer to take home describing the study and requesting parents' participation and permission for their children's participation. Parents were operationally defined as the primary caregiver of the child as has been the practice in previous studies (e.g., Anthony et al., 2005). It is our experience that many Head Start children are cared for by fathers, grandparents, and foster parents. Thus, all of these caregivers from various family configurations were included in the sample. Recent studies suggest that both mothers' and fathers' risks (e.g., mental health problems, marital discord) impact children's social-emotional functioning (e.g., Marchand & Hock, 1998). For example, studies have suggested that maternal and paternal depression is predictive of children's behavior problems (e.g., Carro, Grant, Gotlib, & Compas, 1993; Marchand & Hock, 1998).

If a child lived with both a mother and a father, the caregiver who identified him/herself as the child's primary caregiver was interviewed. Although it would have been ideal to interview both parents, time constraints did not allow for a study of this magnitude. There was a question on the background questionnaire asking, "Who is this child's primary caregiver?" If the individual who picked up or dropped off the child did not identify him/herself as the primary caregiver, an effort was made to contact the child's primary caregiver to set up an interview.

Parents were excluded from the study if the teacher indicated that the parent did not speak or understand English well enough to complete the interview. Although it would have been beneficial to include these parents in the study, it would have been too costly to hire translators to assist with the interviews in the multitude of primary languages spoken (e.g., Spanish, Amharic, Vietnamese, etc.). Five parents were excluded from the study for this reason. Overall, eighty-eight percent of parents who were contacted agreed to participate in the parent interview and allowed their children to be observed in his/her classroom.

One of Head Start's mandates is to serve and provide services for children with special needs. Eleven parents identified their children as having special needs. The most commonly reported special needs were language and speech delays. These children were not excluded from the study even though it could be hypothesized that the relations among family risk, teacher-child relationships, and children's externalizing behaviors might differ for this group depending upon the nature and extent of their disabilities. Post-hoc analyses revealed that there were not significant differences between children who were identified by parents as having disabilities and those who were not on the dependent variables included in the study (See Appendix B for t-test comparisons).

All participants in the study were from families who were living at or below the poverty line as is required for enrollment into this Head Start program. Only children who had been in the classroom with the same lead teacher for four months or more were recruited to participate. Because one of the purposes of the proposed study was to examine the impact of teacher-child relationship quality on children's problem behaviors,

it was important that children had spent enough time in the classroom to develop this relationship.

Sample size determination for adequate power in structural equation modeling depends on the number of variables in the model, the number of parameters in the model, and the quality of the factors in the model. In testing data-model fit as a whole ($df = 61$), a sample of 100 children was determined to provide adequate power to detect a .31 effect size (Hancock, 2006). Researchers who have conducted studies on the impact of teacher-child relationships on children's development have reported similar effect sizes (e.g., Hamre & Pianta, 2005). This is a moderate effect size according to Cohen (1977). McCartney and Rosenthal (2000) cite studies on the small effect sizes in child care quality research to argue that studies with effect sizes that have conventionally been considered small to moderate can still have practical importance.

Participants

Participants in the main study were 100 children, their parents, and the children's lead teachers in 10 classrooms from 5 Head Start centers within a local community-based organization. Children ranged in age from 2.7 to 5.2 years ($M = 3.9$, $SD = 0.6$). There was a slightly smaller proportion of males (46%) than females. The sample was relatively racially/ethnically homogeneous, with the majority of parents identifying children as African American (83%). Most parents reported that their children attended Head Start 5 days a week ($M = 4.9$, $SD = .24$).

Parents were those who identified themselves as the child's primary caregiver. The sample consisted primarily of mothers (65%) and fathers (28%). Average age for parents was 36.8 years ($SD = 9.9$, range $= 17.9 – 76.7$). Nearly half of the parents in the

sample were married (47%), and most of the remaining parents were single (41%). There was a range in parents' level of education from a high school diploma or less (35%) to graduate education (11%). The majority of parents (75%) worked in a job, either full or part time, outside of the home (See Table 1 for complete descriptive information on parents).

Twelve lead teachers from 10 classrooms participated in the study. Center directors identified two classrooms that had co-lead teachers. In these cases, both teachers were interviewed, and child assessments were randomly assigned so that each teacher completed half of the assessments. In these two classrooms, observers assigned qualitative ratings to children's interactions with both teachers in the classroom, and scores were averaged across teachers. All of the teachers were female and ranged in age from 30 to 67 years ($M = 49.3$, $SD = 12.7$). The majority of teachers were African American (86%), and the rest were Latina (17%). There was a range in teachers' level of education. A quarter (25%) of the teachers had a Bachelor's degree, over half (58%) had an Associate's degree in Child Development or Early Childhood, and 17% had taken some college courses but had not yet received a degree (See Table 1 for complete descriptive information on teachers).

Head Start Program Performance Standards (ACF, OPRE, 2006b) mandate that classrooms should have an average group size of 15 – 20 children per class. In this study, classrooms had between 5 - 16 children per class. Classrooms at the low end of the range were in Head Start programs experiencing under enrollment, and therefore, were below the average group size. Head Start Program Performance Standards (ACF, OPRE, 2006b) also require that classrooms be staffed by a teacher and an aide or two teachers. Teachers

in 7 classrooms reported that there was either a co-lead teacher or an assistant teacher who worked with them full-time (35 hours or more) in the classroom. In the remaining three classrooms, two teachers reported having a part-time assistant teacher in the classroom. Only one teacher reported that she worked alone. Teacher-child ratios were calculated according to the Head Start Program Performance Standards (ACF, OPRE, 2006b) and were based on the number of paid professionals in the classrooms per child. Teacher-child ratios ranged from 1:2.5 to 1:9 (M = 1:6.8).

Procedures

My faculty mentor is currently involved in a project on reflective practice with the program administrators and teachers at the Head Start center, and therefore had an already established relationship with the staff at the organization. This partnership has lasted for the past seven years and has included research, training, and consultation efforts. In soliciting information about how we could best aid this Head Start center in accomplishing its goals, the director suggested collecting data on students' problem behaviors. Through the initial pilot phase, we worked with the Head Start partner to develop the most appropriate procedures for answering the relevant research questions, as well as for creating the least amount of burden on teachers and parents. The following paragraphs delineate these procedures.

Training

During the fall of 2006, I trained three research assistants for approximately 10 hours per week over a one-month period. Research assistants were trained to: 1) administer questionnaires to primary caregivers; 2) conduct and code observations of teacher-child interactions; and 3) enter data into SPSS. The research assistants also

reviewed and utilized a detailed field manual (see Appendix C) that included information on appropriate administration of measures, appropriate conduct during classroom observations, and live coding of classroom observations.

The protocol for training research assistants on the observational measure was established following consultation with measurement developers. This training involved several steps. I obtained videotapes of young children in classroom settings. Based on the detailed observation manual for the *Observation Record of the Caregiving Environment* developed by NICHD for the Study of Early Child Care and Youth Development (ORCE; NICHD, ECCRN, 1996), I developed "master codes" for the videotapes. Research assistants were required to reach at least 80% reliability with my codes. Any discrepancies were resolved through discussion, watching, and coding the videos in tandem. Once the research assistants had reached at least 80% reliability using the tapes, each research assistant went separately into the field with me to establish reliability. Individually, each research assistant and I completed a full 2-hour observation cycle. Again, any discrepancies were resolved through discussion. Field observations continued until research assistants had reached at least 80% reliability with me. On-going "booster" sessions were conducted throughout the data collection phase to ensure that inter-rater reliability was sustained.

Consent

IRB consent was obtained for this project (see Appendix D). I met with the Center director and lead teachers at each of the Head Start centers to recruit participants. I explained the purpose and scope of this research and asked teachers if they were willing to participate. Teachers and the Center directors were informed that they would receive

aggregate data for the center on parents' risks, teacher-child relationships, and children's problem behaviors. All twelve teachers who were asked consented in writing to participate in the study (see Teacher Consent Form in Appendix E).

All children in classrooms where teachers consented to participate received a flyer requesting parent and child participation in a study on teacher-child relationships (Appendix F), with an attached child participation permission form (Appendix G). Parents were asked to send the child consent form back to the Head Start Center with their children. Children whose parents did not send back the consent form were contacted during drop-off or pick-up time and asked if they consented to have their children participate in this project. With the assistance of the Center directors, I contacted any parents, who did not drop off or pick up their children, by phone to explain the project and asked them to send the consent form in with their children. If the family did not have a telephone, a note was sent home with the child requesting that the parent come to the center for a brief meeting with me.

Parents who responded affirmatively to the request for their participation in the research project were contacted at the center or by an initial telephone call to schedule a time and day to meet at the Head Start center. The study was described in detail and verbal consent was obtained from the parent. Prior to initiating data collection, written informed consent was requested of the parent (Appendix H). Parents who did not consent to the study were thanked for their time.

Data Collection

Teachers were asked to sign an informed consent form. Lead teachers who consented were visited and asked to schedule a two hour period of time to meet with me

to complete the *Teacher Background Questionnaire* (Appendix I), the *Caregiver-Teacher Report Form 1 ½ - 5* (C-TRF 1 ½ -5; Achenbach & Rescorla, 2000) (Appendix J), and the *Student Teacher Relationship Scale* (Pianta, 2001) (Appendix K) for each student in the classroom. At the end of the interview period, teachers were given $50 for their participation in the study. Teachers who consented were interviewed prior to the classroom observations because we expected teachers' responses to be more objective prior to two weeks of classroom observations.

Teachers were then asked to schedule a two-week block when we could observe in their classrooms. Two weeks before each visit a scheduling packet containing the visit schedule, reminder list, and study information was sent to the teachers. Two days prior to this visit, a reminder call was made to the Center director.

During the two-week visits in each classroom (2 hours per day), I and/or my research assistants completed the *Observational Record of the Caregiving Environment* (NICHD, ECCRN, 1996) (Appendix L) for each child who had permission to participate in the study (one observer per child). All observations were conducted in the morning when the children were engaged in group time and center time.

During the weeks when classroom observations were taking place, parents were also interviewed. If a parent consented to participate in the study, I proceeded with the protocol. The parent interview lasted for approximately 30 minutes. I made an effort to find a quiet, private location at the Head Start center in which to interview the parents. I verbally administered the *Parent Background Questionnaire* (Appendix M), the *Family Environment Scale* (Moos & Moos, 2002) (Appendix N), the *Parenting Stress Index* (PSI; Abidin, 1990) (Appendix O) the *Center for Epidemiological Studies Depression*

Scale (CES-D; Radloff, 1977) (Appendix P), and the *Colorado Childhood Temperament Inventory* (Buss & Plomin, 1984; Rowe & Plomin, 1977) (Appendix Q). At the end of the interview, parents were given $20 for their participation.

<div align="center">*Variables and Measures*</div>

Six sets of variables were examined in this study: 1) Children's externalizing behaviors; 2) Family risk factors; 3) Teacher-child relationships; 4) Teacher characteristics; 5) Child characteristics; and 6) Classroom characteristics. Table 2 delineates the variables and corresponding measures that were used in this investigation, as well as the average administration duration for each measure. All of these measures have been widely used with at-risk populations. Several of them were used in the Head Start Family and Child Experiences Survey (ACF, OPRE, 2000).

Children's Externalizing Behavior Problems.

The Externalizing subscale of the *Caregiver-Teacher Report Form 1 ½ - 5* (C-TRF 1 ½ -5; Achenbach & Rescorla, 2000) was used to measure children's externalizing problems. This subscale, containing 24 items, was designed for use by teachers to rate children's behavioral problems. Aggressive Behavior Problems and Attention Problems are measured with the Externalizing subscale. Teachers are asked to consider the child's behavior "now or within the past 2 months" and score each item as 0 (not true), 1 (somewhat true), or 2 (very true). The test-retest reliability coefficients reported in the manual ranged from .77 - .89 for the problem scales. High coefficient alphas (.97) have been reported using this measure with low-income, minority samples (e.g., Cai, Kaiser, & Hancock, 2004).

The *Observational Record of the Caregiving Environment* (ORCE; NICHD,

ECCRN, 1996), developed for the NICHD Study of Early Child Care, was used to assess

Child Noncompliance. The ORCE provides both frequency counts (behavior scales) and

ratings (qualitative) of a child's behavior and a teacher's interactions with an individual

child. The behavior scale measures the occurrence of specific acts. The qualitative scales

measure the quality of the teacher's behavior towards the child.

The ORCE consists of two 44-minute cycles, each broken into three 10-minute

observation cycles. During each cycle observers make time-sampled recordings of

discrete codes by observing for 30 seconds, and recording for 30 seconds. In total, there

are 30 minutes in which discrete behaviors are sampled across two observation cycles for

a total of 60 minutes in which codes are sampled. Time-sampled codes include measures

of the focus child's activities, teacher's behaviors, and the child's interactions with the

teacher.

The Child Noncompliance composite consists of summing the frequency of times

the child "says no to/refuses" an adult and "acts defiant" towards an adult (after the items

have been standardized with a mean of 0 and standard deviation of 1). The reported

reliability for this composite is low (0.20), but researchers noted that this was because

one of the two components was not observed (NICHD, ECCRN, 1996).

Family Risk Factors

Parents' depression. The *Center for Epidemiological Studies Depression Scale*

(CES-D; Radloff, 1977) was used to assess parents' level of depression. This scale

consists of 20 items and measures how frequently each occurred in the past week.

Response categories range from "Rarely or Never (less than 1 day)" to "Most or All (5-7

days)". Radloff (1977) reported coefficient alphas of .85 for community populations.

Validity and reliability of the measure have been previously demonstrated in low-income

populations (e.g., Thomas & Brantley, 2004).

Parenting stress. The short form of the *Parenting Stress Index* (PSI; Abidin,

1990) was used to assess the level of stress that caregivers' experience in relation to their

parenting role. Parents respond orally on a 5-point Likert scale ranging from "strongly

agree" to "strongly disagree". This measure has a Total Stress Score that assesses

parents' overall level of stress in relation to parenting as well as three subscales. The

Parental Distress subscale measures the distress that a person is experiencing in his/her

role as a parent based on personal factors related to parenting. The Parent-Child

Dysfunctional Interaction subscale assesses the parents' perception that his/her child does

not meet their expectations and that interactions with the child are not helping the parent

to feel competent. The Difficult Child subscale assesses the behavior of the child in

relation to how easy or difficult it is to parent the child. Abidin (1990) reported internal

consistency of .91 for the Total Stress score, .87 for the Parent Distress subscale, .80 for

the Parent-Child Dysfunctional Interaction subscale, and .85 for the Difficult Child

subscale.

Family conflict and cohesion. The Conflict and Cohesion subscales of Form R of

the *Family Environment Scale* (FES; Moos & Moos, 2002) were used to assess parents'

perception of conflict and cohesion within the family. The authors define cohesion as the

degree of commitment, help, and support family members provide for one another.

Conflict is defined as the amount of openly expressed anger and conflict among family

members. The Conflict and Cohesion subscales each consist of 9 questions. Individuals

complete questions with true or false answers and then a template is used to score individuals' responses. The authors report internal consistency on the subscales for Form R ranging from .61 to .78, and test-retest reliability from .68 to .86. They also report that results on this measure are consistent with results on other instruments measuring family functioning as evidence of construct validity.

Partner support. Parents responded to a question asking whether they were currently involved in a relationship on the *Parent Background Questionnaire*. Parents who were in a relationship were asked the following question about partner support, "How supportive is your partner of you in your role as a parent?" If parents were not in a relationship, they were asked how supportive the child's other parent was of them in their role as a parent. Parents rated the level of support on a 5 point Likert-type scale from "Extremely supportive" to "Not at all supportive".

Teacher-Child Relationships

The Total Score and the Closeness, Conflict, and Dependency subscales of the *Student Teacher Relationship Scale* (STRS; Pianta, 2001) were used to measure teachers' perceptions of their relationships with students. The Total Scale measures the degree to which a teacher perceives his or her relationship with a particular student overall as being positive and effective. The Closeness subscale measures the degree to which a teacher experiences affection, warmth, and open communication with a particular student. The Conflict subscale measures the degree to which a teacher perceives his or her relationship with a particular student as negative or conflictual. The Dependency subscale measures the degree to which a teacher perceives a child to be overly dependent. The total 28-item measure uses a 5-point Likert rating scale. Teachers rate the extent to which items apply

to their relationships with individual students with responses ranging from "definitely does not apply" to "definitely applies". The STRS is scored by summing groups of items for each of the subscales, and then using a formula to derive the total score. Test-retest reliabilities are reported as: Closeness, .88; Conflict, .92; Dependency, 76; and Total, .89 (Pianta, 2001). Internal consistencies are reported as: Closeness, .86; Conflict, .92; Dependency, .64; and Total, .89 (Pianta, 2001). The scale has been shown to be psychometrically reliable and valid in heterogeneous samples (e.g., Howes et al., 2000). A mean teacher-child relationship quality score was also calculated for each teacher.

The *Observational Record of the Caregiving Environment* (ORCE; NICHD, ECCRN, 1996) was used to assess children's interactions with the teacher in the classroom. Previous studies have shown that there is variability in the way that teachers interact with children in their classrooms (Pianta et al., 2000). In contrast to global measures of classroom quality (e.g., CLASS; Pianta et al., 2004; ECERS; Harms & Clifford, 1980), the ORCE focuses on teacher's behavior with a specific child.

In addition to the time-sampling activities, observers have several minutes between time-sampling periods to observe and take notes about the classroom environment. At the end of the observation period, the observer uses these notes as well as his/her observations from the sixty 1-minute intervals to make global ratings of the teacher's behavior toward the child. Rating scales for the teacher's behavior toward the child include sensitivity/responsivity, intrusiveness/ overcontrol, stimulation, and detachment/disengagement. The global ratings of teacher characteristics range from not at all characteristic (1) to highly characteristic (4) for all four scales.

Following the procedure outlined by the Early Child Care Research Network (2003a), a composite measure of teacher-child interactions was created by combining the four teacher-child interactions scores (reverse scoring intrusiveness and detachment). The index reflects the child's experience of interaction quality. Reliability for this index has been reported as $\alpha = .90$ (NICHD, ECCRN, 2003a). A mean teacher-child interaction score was also calculated for each teacher.

Researchers have investigated whether observations of teacher-child interactions are stable across time using an adaptation of the ORCE. They found that cross-day correlation ranged from .71-.91 for global ratings and time-sampled codes (NICHD, ECCRN, 2003b). They have concluded that the observation measure reflects stable aspects of the teacher-child interactions.

Teacher Characteristics

Background information. A background questionnaire was developed by adapting questions from the *Lead Teacher Background Information Questionnaire* used in the NICHD Study of Early Child Care (1993) and the Classroom Teacher Interview used in the FACES study (ACF, OPRE, 2000). The lead teacher in each classroom was asked to respond to demographic, professional experience, hourly wage, educational background, training, and classroom characteristics questions. The questions about training followed the procedure used by Burchinal et al. (2002).

Training questions ranged from whether the teacher had received training at the Head Start center to whether she had a graduate degree in Early Childhood Education (ECE). The highest level of training was categorized by whether the teacher had a baccalaureate degree in ECE. If she reported that she did not, then the researchers

determined whether she had completed any college coursework. The summary variable

describing the highest level of formal training has four levels: 1. Baccalaureate degree in

ECE or related field; 2. AA in ECE or Child Development Associate's degree; 3.

Completion of ECE courses at college; 4. Workshops only or no formal training. In this

study, this training variable was highly correlated with teacher's education. Post hoc

analyses revealed similar relations between teacher training and education and other

study variables, therefore teacher training was used for all subsequent analyses.

Child Characteristics

The *Parent Interview* from the Head Start FACES study (ACF, OPRE, 2000) was

adapted for use in this study. Parents reported on the following child-specific information

in the *Parent Background Questionnaire*: relationship to the child; child's gender; child's

ethnicity; child's Head Start attendance; and child's special needs. Parent also reported

on their own demographic and background characteristics including: age; race/ethnicity;

level of education; and employment status.

Temperament. Parents reported on children's emotionality (e.g., "child gets upset

easily") and sociability (e.g., child makes friends easily") using two subscales of the

Colorado Childhood Temperament Inventory (CCTI; Buss & Plomin, 1984; Rowe &

Plomin, 1977). Parents rated aspects of children's temperament on a 5 point Likert-type

scale from "not at all characteristic of my child" to "very characteristic". In previous

studies, alpha coefficients for the subscales have been reported as .80 for emotionality,

and .88 for sociability (Hagekull, 1998; Rowe & Plomin, 1977). This measure, in

particular the emotionality and sociability subscales, has been shown to have both

concurrent and predictive validity with parent report measures of children's behavior problems (e.g., CBCL) (Schmitz et al., 1999).

Classroom Characteristics

Information on group size and teacher-child ratio was obtained from the teacher background questionnaire. Although Head Start Performance Standards (ACF, OPRE, 2006b) have regulations about group-size and teacher-child ratios, there was variability in this study due to under enrollment in some classrooms.

Chapter IV: Results

Data Analytic Approach

This section describes the data analytic approach used in this study to test the

relations among family risk, teacher-child relationships, and children's externalizing

behaviors, and further, to examine the associations between teacher, child, and classroom

characteristics and teacher-child relationship quality. First the data were entered and

cleaned, and assessed for outliers. Second, measures were scored, composites created,

and the reliability of all measures was evaluated. Third, variables were assessed for

multivariate normality using histograms and frequencies, and means and standard

deviations were computed for each variable and composite. Fourth, correlations between

all variables were assessed, and differences in teacher-child relationships based on child,

teacher, and classroom characteristics were evaluated. Fifth, possible covariates were

examined in relation to all variables and composites. In step six, missing data were

imputed, and four structural equation models were tested to evaluate the relations among

family risk, teacher-child relationships, and children's externalizing behaviors, and

further, whether teacher-child relationships moderated the impact of risk on children's

externalizing behaviors. Finally, a series of post-hoc hierarchical linear regressions were

performed to further examine the relations among study variables.

Data Entry, Cleaning, and Examination for Outliers

The data for this study were double entered into SPSS to ensure accuracy, and

then data cleaning was conducted. The data were also examined for outliers (+ or − 3

*SD*s) and other extreme patterns using frequency counts and data plots. All variables

showed sufficient variability, and therefore, further analyses were conducted using all variables.

All independent variables were then assessed for multicollinearity, which occurs when independent variables are unacceptably highly intercorrelated, and the effects of the independent variables cannot be separated (Friedman & Wall, 2005; Wheeler & Tiefelsdorf, 2005). Multicollinearity exists when intercorrelation among independent variables is above .80, the tolerance values are less than .10, and the VIF values are greater than 4.0. In the current study, none of the independent variables used in the regression equations or structural equation models were correlated above .80, had tolerance values less than .10 or VIF values greater than 4.0. In the descriptive analyses and correlation tables, the overall student teacher relationship scale (STRS; Pianta, 2001) and overall externalizing scale (C-TRF 1 ½ -5; Achenbach & Rescorla, 2000) are presented for descriptive purposes, but not used in subsequent analyses, since the subscales that form these composite scales were used.

Data Scoring and Reliability Analyses

All measures were scored using the appropriate techniques outlined in the scoring manuals. Initial analyses included performing internal reliability analyses (i.e. Cronbach's alpha) for each measure, to examine its reliability with the sample (See Table 3). All measures showed acceptable to good levels of reliability with the exception of the observed measure of Child Noncompliance from the *Observational Record of the Caregiving Environment* (NICHD, ECCRN, 1996) ($\alpha = 0.07$) and the two subscales of the *Family Environment Scale* (Moos & Moos, 2002) (cohesion, $\alpha = 0.34$, conflict, $\alpha = 0.19$). The observed Child Noncompliance composite also showed low internal

consistency in the NICHD Study of Early Child Care (1996). The frequency of "acts defiant towards adult", one of the two items in this composite, was low which resulted in a low reliability estimate.

There has been debate over the use of the *Family Environment Scale* (Moos & Moos, 2002) for research purposes because some previous studies have also found low estimates of internal consistency for the subscales, contrary to those reported in the manual (e.g., Boyd, Gullone, Needleman, & Burt, 1997; Roosa & Beals, 1990). However, the scale has been used extensively in research with diverse populations and has been shown to have face and predictive validity, and was therefore used in subsequent analyses. A more extensive discussion about how the low reliability estimates for these subscales may have impacted study results can be found in Chapter 5.

Descriptive Analyses

Six sets of variables were examined in this study: 1) Children's externalizing behaviors; 2) Family risk factors; 3) Teacher-child relationships; 4) Teacher characteristics; 5) Child characteristics; and 6) Classroom characteristics. Means and standard deviations, as well as frequency tables, were computed for each variable and subscale (see Tables 4 – 6).

Externalizing Behaviors

Scores on the overall Externalizing Subscale of the *Caregiver Teacher Report Form 1 ½ - 5* (C-TRF 1 ½ -5; Achenbach & Rescorla, 2000) ranged from 0 to 54 ($M =$ 11.57, $SD =$ 12.85). There was a wide range in Aggressive Behavior Problem scores from 0 to 42 ($M =$ 7.24, $SD =$ 9.41). Scores were negatively skewed with over a fourth of children (27%) being rated by teachers as exhibiting no aggressive behaviors. There was

also a range in Attention Problem scores from 0 to 16 (*M* = 4.34, *SD* = 4.36). Again, scores were negatively skewed, but more normally distributed than Aggressive Behavior scores.

Contrary to previous research, there were no significant differences between boys and girls scores on teachers' report of attention problems, aggression, and overall externalizing behaviors. Compared to normative samples, both boys and girls in this study scored higher on Attention Problems, Aggressive Behavior Problems, and the overall Externalizing Subscale. About 23% of boys scored in the borderline range for externalizing problems, and of those 12.5% scored in the clinical range. A slightly lower percentage of girls (19%) scored in the borderline range for externalizing problems, with 9% scoring in the clinical range.

There was a low frequency of observed Child Noncompliance (composite of "saying no/refusing an adult" and "acting defiant towards and adult") with a mean of less than one instance per two-hour observation (*M* = 0.39, *SD* = 0.87). However, at least one act of noncompliance was observed in about a fifth of the sample (22%). Most of these acts involved a child saying no or refusing an adult rather than acting defiant. There was a significant difference based on gender (*t*(95) = 2.48, *p* = .01), with boys exhibiting more noncompliance (*M* =0 .62, *SD* = 1.13) than girls (*M* =0 .19, *SD* = 0.49).

Family Risk Factors

Parental mental health. Parental depression scores on the *Center for Epidemiological Studies Depression Scale* (CES-D; Radloff, 1977) ranged from 3 – 36 (*M* = 8.29, *SD* = 7.11). Higher total scores reflect higher levels of depressive symptoms. Using the cutoff of 16 that has been used to indicate risk for clinical depression, 14% of

parents in this sample were classified as being at-risk. There was a significant difference in mean levels of depressive symptoms ($t(88) = 2.28$, $p < .05$) reported by mothers ($M = 9.36$, $SD = 8.10$) versus fathers ($M = 5.62$, $SD = 3.14$).

Total Stress Scores on the *Parenting Stress Index* (PSI; Abidin, 1990) ranged from 36 to 103. Abidin (1990) suggests that parents who obtain a Total Stress Score over 90 are experiencing clinically significant levels of stress. Using this cutoff, 17% of parents were within the clinical range. The Parental Distress subscale of the PSI measures the distress that a person is experiencing in his/her role as a parent based on personal factors related to parenting. Scores on this subscale ranged from 12 – 43 ($M = 25.68$, $SD = 7.29$). The Parent-Child Dysfunctional Interaction subscale assesses parents' perceptions that their children do not meet their expectations and that interactions with the child are not helping the parent to feel competent. Scores on this subscale ranged from 12 – 32 ($M = 20.16$, $SD = 5.64$). The Difficult Child subscale assesses the behavior of the child in relation to how easy or difficult it is to parent the child. Scores on this subscale ranged from 12 – 43 ($M = 27.07$, $SD = 6.66$). In contrast to depression scores, there were no significant differences in mothers' versus fathers' reported levels of stress on any of the subscales or the total scale.

Family functioning. Family Cohesion scores ranged from 5 – 9 (*M* = 8.03, *SD* = 1.01), and Conflict scores ranged from 0 – 8 (*M* = 2.22, *SD* = 1.52). The developers of the *Family Environment Scale* (FES; Moos & Moos, 2002) obtained data for normal and distressed families. These scores indicate that parents in the study were similar to normative samples on levels of conflict and cohesion.

On the Parent Background Questionnaire, parents were asked how supportive their partner was of them in their role as a parent (on a scale of 1-5). Overall parents reported high levels of support (*M* = 4.62, *SD* = 0.84).

Teacher-Child Relationships

As expected, there was variability within classrooms in teachers' ratings of their relationships with children in their classrooms. The means and standard deviations of the overall scale and subscales of the *Student Teacher Relationship Scale* (STRS; Pianta, 2001) (see Table 6) were similar to those found in a normative sample as reported by the scale developer (Pianta, 2001). In the manual for the STRS, Pianta (2001) identified conflict scores over the 75th percentile (based on a normative sample) as indicative of the need for teacher support surrounding decreasing conflict with students. Teachers reported conflict over the 75th percentile with 30% of students.

Scores on the *Observational Record of the Caregiving Environment* (NICHD, ECCRN, 1996) composite rating of positive teacher-child interactions ranged from 1.88 – 3.13 (*M* = 2.54, *SD* = .27). Researchers from the NICHD Study of Early Care and Education (2003) suggested that scores between 2 and 3 indicated "fair" quality. Based on this interpretation, 94% of children in this study experienced "fair" quality care.

Teacher, Classroom, and Child Characteristics

There was a range in teachers' level of training in early care and education. Seventeen percent of teachers had not yet received a degree, but had completed college coursework in Early Childhood Education, the majority (66%) had an Associate's degree in Child Development or Early Childhood, and 17% had a Baccalaureate degree in Early Childhood Education. Teachers' experience working in the field of early care and education ranged from 5 – 32 years ($M = 17.21$, $SD = 10.18$). Teacher-child ratios ranged from 1:3 to 1:9 ($M = 1:7$).

As reported in Chapter 3, children ranged in age from 2.7 to 5.2 years ($M = 3.90$, $SD = 0.60$). There was a slightly smaller proportion of males (46%) than females. Children's emotionality scores were normally distributed and ranged from 5 to 22 ($M = 13.97$, $SD = 4.07$). Sociability scores were more positively skewed and ranged from 9 to 23 ($M = 17.96$, $SD = 3.00$).

Bivariate Correlations

Three sets of correlations were performed to examine relations among variables: 1) Family risk factors and externalizing behaviors; 2) Teacher-child relationships and externalizing behaviors; 3) Teacher, classroom, and child characteristics and teacher-child relationships. Pearson product-moment correlations were performed to examine the relations among all continuous variables. Point-biserial correlations between child gender and externalizing behavior variables and teacher-child relationship variables were also calculated.

Family Risk Factors and Externalizing Behaviors

Overall, there were relatively few significant associations between family risk and children's externalizing behaviors (see Tables 7 – 8), with a greater number of significant relations between externalizing behaviors and indicators of family functioning than indicators of parental mental health. Parents' mental health, including scores on the CES-D inventory and scores on the PSI total scale and subscales, was not found to be correlated with teachers' report or observed externalizing behaviors, with one exception. Scores on the Parent-Child Dysfunctional Interaction subscale of the PSI were positively correlated with observed child noncompliance ($r = .27$, $p < .01$).

Family conflict and family cohesion were both correlated with observed child noncompliance in the expected directions ($r = .22$, $p < .05$ and $r = -.25$, $p < .05$) but were not significantly associated with teachers' report of children's externalizing behaviors. In contrast, partner support was negatively correlated with teachers' report of children's aggressive behaviors and overall externalizing problems ($r = -.32$, $p < .01$ and $r = -.26$, $p < .05$) but was not significantly associated with observed child noncompliance.

Teacher-Child Relationships and Externalizing Behaviors

Overall, indicators of teacher-child relationship quality were highly correlated in the expected directions with children's externalizing behaviors (see Table 9). Teacher reported closeness was negatively correlated with teacher report of aggressive behaviors ($r = -.43$, $p < .01$), attention problems ($r = -.34$, $p < .01$), and overall externalizing behaviors ($r = -.43$, $p < .01$). Teacher reported closeness was not associated with observed child noncompliance. Teacher reported conflict was highly positively correlated with teacher report of aggressive behaviors ($r = .69$, $p < .01$), attention problems ($r = .65$,

$p < .01$), and overall externalizing behaviors ($r = .73$, $p < .01$). Conflict was also positively correlated with observed child noncompliance ($r = .32$, $p < .01$). Teacher reported dependency, like conflict, was significantly associated with aggressive behavior ($r = .54$, $p < .01$), attention problems ($r = .40$, $p < .01$), and overall externalizing behaviors ($r = .53$, $p < .01$) but was not significantly associated with observed child noncompliance. Overall teacher-reported relationship quality (total score of the STRS) was negatively correlated with aggressive behavior ($r = -.73$, $p < .01$), attention problems ($r = -.69$, $p < .01$), externalizing problems ($r = -.75$, $p < .01$), and observed child noncompliance ($r = -.29$, $p < .01$). Finally, the positive teacher-child interactions variable was negatively associated with teachers' reports of aggressive behavior ($r = -.33$, $p < .01$), attention problems ($r = -.37$, $p < .01$), and overall externalizing problems ($r = -.40$, $p < .01$) but was not significantly associated with observed child noncompliance.

Teacher, Classroom, and Child Characteristics and Teacher-Child Relationships

Teacher training (categorized as Baccalaureate degree in ECE or related field, AA in ECE or Child Development Associate's degree, completion of ECE courses at college, workshops only or no formal training) was not significantly correlated with any indicators of teacher-child relationship quality. Conversely, teachers' experience in early care and education was significantly negatively correlated with teacher reported relationship conflict ($r = -.58$, $p < .05$).

Teacher-child ratio was not significantly associated with the indicators of teacher-child relationship quality. Child gender and temperament (i.e., emotionality and sociability) were not significantly correlated with teacher-child relationship quality. However, child age was significantly negatively correlated with teacher reported

relationship conflict ($r = -.27$, $p < .05$), and positively correlated with overall teacher reported relationship quality ($r = .25$, $p < .05$).

In sum, there were few significant correlations among family risk variables and children's externalizing behaviors. For parental mental health, the only significant association was found between parent-child dysfunctional interaction and child noncompliance. For family functioning, there were significant associations in the expected directions between family conflict and cohesion and child noncompliance. There was a negative relationship between partner support and aggressive behaviors and overall externalizing problems.

In contrast to the relatively few significant correlations among family risk and children's externalizing problems, there were many significant correlations between teacher-reported and observed indicators of teacher-child relationship quality and both teacher-reported and observed indicators of children's externalizing behaviors. Specifically, teacher-child closeness and positive teacher-child interactions were negatively associated with aggressive behaviors, attention problems, and overall externalizing behaviors, whereas teacher-child conflict and dependency were positively related to these dependent variables. Furthermore, teacher-child conflict was positively correlated with observed child noncompliance.

In a closer examination of the relations among teacher, classroom, and child characteristics and teacher-child relationship quality, teacher experience and child age were found to be significantly associated with quality. Prior to entering variables into a model to test more complex relations, a series of analyses were performed to examine possible covariates based on these preliminary analyses.

Analysis of Covariates

Correlations and t-test were performed to determine if there were group

differences in children's risk variables, teacher-child relationship quality, and problem

behaviors based on child's gender and child's age. Differences based on child's race

were not examined due to low variability (84% African American).

There was a significant difference in observed noncompliance based on gender

($t(95) = 2.48$, $p = .01$) with boys exhibiting more noncompliance ($M =0$ .62, $SD = 1.13$)

than girls ($M =0$ .19, $SD = 0.49$). Children's age was significantly negatively associated

both with externalizing behaviors (attention problems, $r = -.26$, $p < .05$; total

externalizing, $r = -.22$, $p < .05$; child noncompliance, $r = -.20$, $p < .05$) and teacher-child

relationship quality (conflict, $r = -.27$, $p < .05$; total relationship quality $r = .26$, $p < .05$),

with younger children, as compared to older children, exhibiting more externalizing

behaviors and having more conflictual relationships with teachers.

Additionally, because there were significant differences in mother versus father

report of depressive symptoms, relationship of caregiver to the child was initially

included as a covariate. However, t-tests revealed that this control did not have

significant impact on the dependent variables (i.e., attention problems ($t(84) = 1.11$,

$p >.05$) aggressive behavior ($t(79) = .030$, $p > .05$), and child noncompliance ($t(88) =$

.743, $p > .05$), and was therefore not included in further analyses.

Structural Equation Modeling

Structural Equation Modeling grew out of the General Linear Model of which

regression is a part (Garson, 2006). Methodologists have suggested that latent variables

are indicators of underlying factors where the observed indicators are caused by the latent

trait (Thompson & Green, 2006). The risk variables being examined (parent mental health, family functioning) and teacher-child relationship quality can be considered latent such that they are unobserved variables that affect measured variables. The strictly confirmatory approach to Structural Equation Modeling was used to assess the fit of the hypothesized models using a series of goodness-of-fit tests to evaluate whether the pattern of variances and covariances was consistent with the specified structural models (Garson, 2006).

Covariates

When evaluating covariates within a Structural Equation Modeling framework, it is recommended that the covariates be included in the model. Corresponding paths to the endogenous variables can then be evaluated for significance and strength of the loading to determine the covariates' impact. However, including the covariates in the current models would have decreased the ability to assess data model fit with adequate power. Additionally, when evaluating structural equation models with latent interactions, it is not possible to include nominal variables (e.g., child gender). In fact, the program used for the SEM analyses, LISREL, does not allow for the classification of a nominal variable. The only way to have included nominal variables in these analyses would have been to run each model separately for the nominal variable (e.g., child gender). This would have required running each model with approximately half of the sample, again leading to the inability to detect data model fit. For these reasons, the covariates were not included in the SEM models tested. Further discussion of this limitation can be found in Chapter 5.

Model Testing and Specification

Four theoretically derived latent variable models (see Figures 2 – 5) were evaluated to test causal hypotheses about relations among parental risk, teacher-child relationships, and children's externalizing behaviors (See Appendix R for detailed SEM models and Appendix S for correlation matrix of all indicators). Kline (2005) identifies steps commonly used in structural equation modeling including: 1) Specifying the model; 2) Determining whether the model is identified (determining whether it is theoretically possible to derive a unique estimate of parameters in the model); 3) Selecting measures of the variables represented in the model; 4) Using a computer program to estimate the model including evaluating model fit and interpreting the parameter estimates. Estimating the model includes validating the measurement model and fitting the structural model. The measurement model is a confirmatory factor analysis model used to determine whether the data support a theory about the structural relations between latent factors and their measured variables (Garson, 2006). Then, theorized paths between the latent factors are added to determine the fit of the structural model.

Following Kline's (2005) steps, once the models had been specified, it was determined that all four models were overidentified, meaning that there were more observations than free parameters to estimate, allowing for unique estimates of the parameters. Data were collected, entered, and cleaned, and then LISREL Version 8 (Jöreskog & Sörbom, 2003) was used to estimate the model and determine data model fit of the measurement and then structural models.

The model chi-square is usually reported when conducting SEM analyses and indicates badness of fit with higher values suggesting worse fit. However, few

researchers rely solely on this index, and there are no clear guidelines about acceptable

values (Kline, 2005). Hu and Bentler (1999) recommended using joint criteria including

both the Root Mean Square Error of Approximation (RMSEA), and the Standardized

Root Mean Square Residual (SRMR) to determine data model fit. The RMSEA is a

parsimonious fit index that approximates a noncentral chi-square distribution where a

value of zero indicates the best fit. In general, an RMSEA value equal to or less than .05

indicates close approximation of fit, values between .05 and .08 suggest reasonable error

of approximation, and values equal to or greater than .10 indicate poor fit (Kline, 2005).

The SRMR is a measure of the mean absolute value of the covariance residuals. A value

of 0 indicates perfect fit. Values less then .10 typically suggest good data model fit

(Kline, 2005).

Two of the four models were evaluated to determine whether teacher-child

relationship quality moderated the impact of parental mental health and family

functioning on children's externalizing behaviors. Moderation occurs when the

relationship between two variables changes as a result of the influence of a third variable

Moderation is indicated when the interaction of two variables is significantly related to

the dependent variable (Kenny, 2004). Marsh, Wen and Hau (2006) have suggested that

latent variable approaches to testing interactions among variables "provide a much

stronger basis for evaluating the underlying factor structure relating multiple indicators to

their factors, controlling for measurement error, increasing power, and ultimately,

providing more defensible interpretations of the interaction effects" (p. 229).

Testing for interactions between a pair of latent variables involves a series of

steps as outlined by Garson (2006). First factor scores for the latent variables are

computed and saved. Then an interaction latent variable is created based on the crossproducts of the factor scores. Marsh, Wen, and Hau (2006) have recommended selecting the best indicators based on the data-model fit to create matched-product indicators for the interaction. The interaction is then modeled as an additional cause of the endogenous latent variable. If the path coefficient from the interaction variable to the dependent variable is significant, then there is a significant interaction between the two latent variables, and moderation can be assumed.

Three approaches were used to test the two models with latent interactions (Figure 3 and Figure 5): the centered constrained approach (Algina & Moulder, 2001); the partially constrained approach (Wall & Amemiya, 2001); and the unconstrained approach (Marsh, Wen, & Hau, 2004). The three approaches provide different ways of estimating latent interaction variables in SEM models. The constrained approach involves constraining the loadings and variances of the product terms for the latent variables. Using this approach, the indicator variables are centered, and the product of the centered indicators are used to define the indicators of the latent interaction variables. In the models, the number of indicators differed for the first-order effect factors (parental mental health and family functioning versus teacher-child relationship quality). Marsh, Wen, and Hau's (2006) suggestion to select the best indicators based on the data-model fit to create matched-product indicators for the interaction variable was implemented.

The partially constrained approach is typically used when the assumption of data normality is not met, and does not constrain the covariance of the latent interaction with its components to be 0, but still constrains the other parameters. Using the unconstrained approach, no constraints are imposed on the relation between product indicators and the

latent interaction factor. Like the partially constrained approach, the unconstrained approach does not assume data normality. Marsh, Wen, and Hau (2006) note that this approach is easier to implement than the others, however, when the sample size is small and data are non-normal, the precision of this approach is lower than the other two.

Missing Data

Multiple Imputation (MI) was used to account for missing data. The Multiple Imputation methods implemented in LISREL are the Expected Maximization (EM) algorithm and the Markov Chain Monte Carlo (MCMC) method of generating random draws from probability distributions (Du Toit & Mels, 2002). As described by Enders (2006), the EM algorithm involves a two-step iterative process by which missing values are imputed and the covariance matrix and mean vector are estimated. The imputation and estimation process continues until there is almost no difference between covariance matrices. Then, the measurement model is fit to the data.

Sample Size and Power

In general, a sample size of between 100 and 200 is considered a "medium" sample size (Kline, 2005). When conducting post-hoc analyses of SEM models, one can either test the power of individual parameters, or test the power of the model as a whole. In this case, a series of post-hoc power analyses for testing data-model fit as a whole were conducted. These analyses tested how much power the study had to reject the null hypotheses that the models did not fit the data. For these models with a sample size of 100, the estimated power to reject the null hypotheses in favor of acceptable data-model fit was between .20 (Model 1) and .34 (Model 4). The models with larger degrees of

freedom had more power. A further discussion of the power to detect data model fit in this study will be discussed in Chapter 5.

Model 1 – Relations among parental mental health, teacher-child relationship quality, and externalizing behaviors.

After it was determined that the measurement model fit the data, the hypothesized structural paths were added, and the model examining relations among parental mental health, teacher-child relationship quality, and externalizing behaviors was tested for data-model fit. The RMSEA (.06) and SRMR (.08) values indicate adequate data-model fit (see Figure 2). In this model, the path from teacher-child relationship quality to externalizing behaviors was significant, with a path value of -.96. This indicates that a one standard deviation increase in teacher-child relationship quality causes, on average, a .96 standard deviation decrease in externalizing behavior problems, holding all else constant. The path from parental mental health to externalizing behaviors was not significant.

Model 2 – Relation between parental mental health and teacher-child relationship quality interaction and externalizing behaviors.

The model examining relations among teacher-child relationship quality, parental mental health, and the interaction of these two latent variables with externalizing behaviors did not have good data-model fit (see Figure 3). There were two significant path values in this model, however, it is usually recommended that when there is not adequate data-model fit, significant path values not be interpreted as they tend to be biased (Garson, 2006).

Model 3 – Relations among family functioning, teacher-child relationship quality, and

externalizing behaviors.

Once the measurement model was validated, the structural model assessing the

relations among teacher-child relationship quality and family functioning and

externalizing problems was tested. The model had acceptable data model fit (RMSEA =

.07, SRMR = .08). However, the paths from teacher-child relationship quality and family

functioning to externalizing behaviors were not significant (see Figure 4). Additionally,

the standardized path values were greater than 1, which indicated that there was difficulty

in assigning regression weights for the paths. This can occur when the exogenous

(independent) latent variables are too highly correlated, which causes difficulty in

computing separate regression weights for each path (Garcon, 2006). However, in this

model, the two exogenous latent variables were not highly correlated.

Alternatively, path values greater than one can be a result of a Haywood case,

which is when the SEM software comes up with a solution that is not conceptually and

statistically valid. Heywood cases can occur when there is a small sample size, a factor is

only represented by two indicators, or there are outliers in the data (Chen, Bollen, Paxton,

Curran, & Kirby, 2001). The data were tested for outliers, and both the family

functioning and teacher-child relationship quality latent variables had more than two

indicators. However, the small sample size could have resulted in the Heywood case.

Researchers suggest that one possible solution is to change the model by eliminating the

offending indicator and then re-run the analysis (Garson, 2006). In this case, eliminating

an indicator of family functioning would have left only two, which is not recommended

as this can cause high standard errors of estimate (Garson, 2006).

In SEM each latent variable is assigned a metric. Typically, one of the paths from an indicator variable to the latent variable is constrained to 1.0, and becomes the reference variable. The rest of the paths are then estimated. In general, the indicator variable that has the best measurement properties (e.g., reliability) and loads most strongly on the latent variable is chosen as the reference variable. In this case, family cohesion was chosen as the reference variable because it loaded most highly on the family functioning latent variable. Because the use of family cohesion as the reference variable resulted in a Heywood case, a series of steps were undertaken to address this issue. A possible solution when a Heywood case occurs is to try setting a different indicator as the reference variable. In this case, after running the model with family conflict and partner support, respectively, as the reference variable, the Heywood case remained. Therefore, the Heywood case was not resolved.

Model 4 – Relation between family functioning and teacher-child relationship interaction and externalizing behaviors.

The model that added the family functioning and teacher-child relationship interaction variable to the previous model also had acceptable data model fit. In this model, the path from teacher-child relationship quality to externalizing behaviors was significant (see Figure 5). However, as with model 3, the path value from teacher-child relationship quality to externalizing behaviors was greater than one, suggesting that a Heywood case occurred with this model as well. For the same reasons outlined above, the Heywood case remained unresolved.

Post-Hoc Multivariate Analyses

Due to the assumption that the small sample size may have impacted the results of the SEM analyses and the inability to control for covariates, a series of hierarchical multiple regressions were conducted to assess the effect of children's demographic characteristics (i.e., age and gender), parental mental health (i.e., depression and parent-child dysfunctional interaction), family functioning (i.e., cohesion, conflict, and partner support), and teacher-child relationship quality (i.e., closeness, conflict, dependency, and positive teacher-child interactions) on children's externalizing behaviors (i.e., attention problems, aggression, and child noncompliance). Hierarchical regressions were used to evaluate the significance of added variables in uniquely accounting for variance explained in the dependent variables.

Effect sizes for each regression were calculated using the R^2 of each model. In the regressions, the R^2 values ranged from .11 to .60. According to Cohen (1992), an effect size of .20 is considered a small effect size, .50 a medium effect size, and .80 is a large effect size. When calculating the effect sizes for each regression run in the current study, the analyses yielded effect sizes from $f^2 = .03$ to $f^2 = 1.11$, indicating a range from small to large effects. The first research question examining the association between family risk and children's externalizing behaviors yielded small effect sizes of $f^2 = .08$ and $f^2 = .17$, for the influence of parental mental health and family functioning respectively, on child noncompliance. The second research question examining the association between teacher-child relationship quality and externalizing behaviors yielded a small effect size with child noncompliance ($f^2 = .03$), medium effect size with children's attention problems ($f^2 = .75$), and large effect size with aggressive behaviors ($f^2 = 1.11$).

Hierarchical regressions were then run to test whether teacher-child relationship quality significantly moderated the association between family risk and children's externalizing behaviors. Kenny (2004) describes a moderator variable as one that is presumed to change the causal relationship between an independent and dependent variable. In other words, there is an interaction between the moderator and independent variable with respect to their effect on the dependent variable such that the slope for the regression of the dependent variable on the independent variable varies across levels of the moderating variable (Wuensch, 2007). To test a model with an interaction term, a hierarchical linear regression is conducted, entering the independent variable in step 1, the moderator variable in step 2, and the interaction term in step 3. If the interaction term is significant, then the moderator added a significant amount of variance to the model. However, in order to interpret the significant moderation, a series of steps must be conducted.

In this case, the moderating variable, teacher-child relationship quality, was continuous. When conducting an analysis with both a continuous moderator and causal variables, it is necessary to convert the continuous moderator into a categorical variable. In order to do this, Aiken and West (1991) recommend centering the variables and then computing high, medium, and low values of both the independent variable and moderator using the mean as the medium value, one standard deviation above the mean as the high mean, and one standard deviation below as the low mean. Then a graph is created (in this case using ModGraph; Jose, 2004) in order to help interpret patterns of relationships among variables.

The first research question asked whether there were associations among parental mental health, family functioning, and children's externalizing behaviors. To examine the impact of parent mental health on children's externalizing behaviors within a regression framework, three sets of regressions were run, one for each dependent variable: attention problems, aggressive behaviors, and child noncompliance. Children's age and gender were entered as control variables in step 1. In step 2, depression and parent child dysfunctional interaction were entered (see Table 12).

Controlling for children's age and gender, parents' depression and parent child dysfunctional interaction as a set were significantly associated with observed child noncompliance ($R^2 = .17$, $F(4,86) = 4.61$, $p < .01$) for the full model but not with attention problems or aggressive behaviors. Parent child dysfunctional interaction was found to be uniquely associated with child noncompliance ($\beta = .25$, $p < .05$).

To examine the impact of family functioning on children's externalizing behaviors, again three regressions were conducted, one for each dependent variable (see Table 13). The control variables (children's age and gender) were entered in step 1, and in step 2 the family conflict, family cohesion, and partner support variables were entered. As with parental mental health, the family functioning variables as a set were associated with observed child noncompliance ($R^2 = .27$, $F(5,70) = 5.18$, $p < .01$) for the full model but not with attention problems or aggressive behaviors. Results indicated that family cohesion ($\beta = -.28$), $p < .01$) was negatively associated with child noncompliance.

The second research question asked about the effects of teacher-child relationship quality on children's externalizing behaviors. For each of the three regressions (one for each dependent variable), children's age and gender were entered as control variables

into step 1. Teacher-child conflict, closeness, dependency, and positive teacher-child interactions were entered as a set in step 2 (see Table 14).

For the full model, the teacher-child relationship quality variables as a set were associated with attention problems ($R^2 = .53$, $F(6,78) = 14.00$, $p < .01$), aggressive behaviors ($R^2 = .57$, $F(6,74) = 16.48$, $p < .01$) and child noncompliance ($R^2 = .11$, $F(6,81) = 2.81$, $p < .05$). Results indicated that teacher-child conflict ($\beta = .55$, $p < .01$) and positive teacher-child interactions ($\beta = -.17$, $p < .05$) significantly contributed to attention problems. Teacher-child conflict ($\beta = .41$, $p < .01$), closeness ($\beta = -.21$, $p < .05$), and dependency ($\beta = .28$, $p < .01$) were associated with aggressive behaviors. Finally, teacher-child conflict was positively associated with child noncompliance ($\beta = .29$, $p < .05$).

The third research question asked whether teacher-child relationship quality moderated the influence of family risk on children's externalizing behaviors. To answer this question within a regression framework, two interaction variables were created based upon the family risk variables that significantly predicted externalizing behaviors. For the parental mental health variables, parent child dysfunctional interaction was significantly associated with child noncompliance, as was teacher-child conflict. In order to test whether teacher-child conflict moderated the association between parent child dysfunctional interaction and child noncompliance, a dysfunctional interaction by teacher-child conflict variable was created and a regression was run. In step 1, children's age and gender were entered, in step 2, parent child dysfunctional interaction was entered, in step 3, teacher-child conflict was entered, and in step 4, the interaction

variable was entered (see Table 15). The interaction variable did not significantly predict child noncompliance suggesting that there was not a significant moderating effect.

For the family functioning variables, family cohesion significantly predicted child noncompliance, as did teacher-child conflict. Therefore, an interaction variable of family cohesion by teacher-child conflict was created and a regression was run. In step 1, children's age and gender were entered as controls, in step 2, family cohesion was entered, in step 3, teacher-child conflict was entered, and in step 4, the interaction variable was entered (see Table 16). The interaction variable was significantly associated with child noncompliance (B = -2.60, $p < .05$) indicating that teacher-child conflict moderated the association between family cohesion and child noncompliance.

To interpret the moderation, 9 cell means were derived using a statistical program for 3 levels of family cohesion by three levels of teacher-child conflict as described earlier in this chapter and a graph was created (see Figure 6). Statistical interaction occurs when the lines on the graph are not parallel or, in other words, the slopes of the lines vary significantly. In this case, it appears that low teacher-child conflict buffered against the impact of low family cohesion on child noncompliance, whereas high teacher-child conflict exacerbated the impact of low family cohesion on child noncompliance.

Summary of Results

Overall, three out of the four SEM models had adequate data-model fit, indicating that these models were possible representations of the data. However, of those three models, two contained Heywood cases (Model 2 and Model 4), indicating that their mathematical solutions were not viable. Model 1 (see Figure 2) including teacher-child relationship quality and parental mental health had the best data-model fit of the three

models, and was the only model with a viable mathematical solution. In this model, the path from teacher-child relationship quality was significant, but the path from parental mental health to externalizing behaviors was not. The high path value in Model 1 from teacher-child relationship quality to externalizing behaviors suggested a strong relationship between these latent variables. However the lack of a significant path from parental mental health to family functioning suggested that parental mental health did not have a significant impact on children's display of externalizing behaviors. Of the two models testing the moderating role of teacher-child relationship quality on the impact of family risk on externalizing behaviors one model did not fit the data (Model 2) and the other model included a Heywood case (Model 4) making it impossible to interpret. Model 2 did not support the hypothesis that teacher-child relationship quality moderated the impact of parental mental health on externalizing behaviors.

In order to further investigate the relations among family risk and teacher-child relationship quality, a series of post-hoc regression analyses were performed. Overall, the results supported some of the findings from the SEM analyses, but provided more detailed information about relations among specific variables (as opposed to the overall constructs, or latent variables, examined in the SEM models). The first set of regressions in which the three dependent variables (i.e., attention problems, aggressive behaviors, and child noncompliance) were regressed on depression and parent-child dysfunctional interaction revealed that, as a set, parental mental health variables significantly predicted child noncompliance, but not attention problems and aggressive behaviors. The findings were similar for the family functioning variables, suggesting that, as a set, these variables (i.e., family conflict, family cohesion, partner support) significantly predicted only child

noncompliance. Teacher-child relationship quality (i.e., closeness, conflict, cohesion, and positive teacher-child interactions) explained a significant proportion of the variance in children's attention problems, aggressive behaviors, and child noncompliance. Finally, there was some evidence that teacher-child conflict moderated the association between family cohesion and child noncompliance, suggesting that low levels of teacher-child conflict may serve as a buffer against the impact of low levels of family cohesion on child noncompliance, whereas high levels of teacher-child conflict increase the association between low levels of cohesion and child noncompliance.

Chapter V: Discussion

The current study explores the associations among family risk, teacher-child relationship quality, and children's externalizing behaviors displayed in the classroom. This study adds to existing literature by examining whether teacher-child relationship quality can act as a buffer against the impact of family risk on children's externalizing behaviors. This chapter summarizes the key findings of the study, conceptualizing them within the Bioecological Theory, and risk and resilience framework. Each research question and corresponding hypothesis is addressed, and findings are considered in the context of current literature. Research and measurement implications are suggested, and policy implications for the improvement of teacher-child relationships, specifically in the Head Start context, are discussed. Finally limitations of the study are addressed.

Summary

The aims of this study were to examine the relations among family risk, teacher-child relationship quality, and children's externalizing behaviors, and also to determine the correlates of teacher-child relationship quality. Parent-child dysfunctional interactions and indicators of family functioning were found to be modestly associated with observed child noncompliance, and partner support was found to be associated with teacher-reported aggressive behaviors. Indicators of teacher-child relationship quality were found to be strongly associated with teacher-reported externalizing behaviors and modestly associated with observed externalizing behaviors. Teacher-child relationship quality predicted a large portion of the variance in children's externalizing behaviors. Furthermore, teacher-child relationship quality moderated the impact of family cohesion

on child noncompliance. Finally, teacher experience and child age were significantly associated with teacher-child relationship quality.

As the Bioecological Theory would suggest (Bronfenbrenner & Ceci, 1994), children's behavior problems were influenced by children's characteristics (age and gender), family factors, and "reciprocal interactions" between teachers and children. Bronfenbrenner and Ceci (1994) suggested that it is important to examine "proximal processes, and their developmental consequences under different environmental conditions" to help determine child outcomes (p. 570). In this study, teacher-child relationships were studied under varied conditions of family risk. The results provide some evidence that children's relationships with teachers can function as a proximal process, buffering against the impact of family risk on children's externalizing behaviors.

However, the hypotheses regarding risk and resiliency were not completely supported. Luther et al. (2000) cited, as conditions for resilience, the exposure to risk and the achievement of positive outcomes despite vulnerability. This study found that, with some exceptions, parental mental health and family functioning did not act as significant risks for the development of externalizing behaviors. Furthermore, it was hypothesized that teacher-child relationships would protect children from family risk, leading to children's resilience. Although teacher-child relationship quality protected children from the impact of low levels of family cohesion, it did not protect children from parent-child dysfunctional interactions. Additionally, the results showed a strong association between teacher-child conflict and children's externalizing behaviors, suggesting that certain aspects of teacher-child relationships may act as a risk, rather than protective factor, making children more vulnerable to the development of externalizing behaviors.

Finally, this study defined resilience as the absence of behavioral maladjustment, in particular, externalizing behaviors. There is still debate among researchers in the field as to whether resilience should be defined as the absence of maladaptive behaviors or the presence of positive outcomes (e.g., social competence) and success in meeting age appropriate tasks (Luther & Cicchetti, 2000; Masten & Gewirtz, 2006). Perhaps this study would have found more support for the hypothesis that teacher-child relationships promote resilience had this construct been measured using assessments of children's positive outcomes rather than the absence of externalizing behaviors. Nonetheless, the findings provide insight into the complex pattern of relations among family risk, teacher-child relationships, and children's externalizing behaviors.

<p align="center">*Consideration of Key Findings*</p>

Externalizing Behaviors

Results from the descriptive analyses show that about 23% of boys and 19% of girls scored in the borderline range for externalizing behaviors. These scores were higher than those found in a normative sample (C-TRF 1 ½ -5; Achenbach & Rescorla, 2000), however, they are consistent with research suggesting that Head Start children score higher than community samples on measures of behavior problems (Kaiser et al., 2000). Consistent with previous studies suggesting that boys from low SES backgrounds exhibit significantly more externalizing problems than girls (Kaiser et al., 2000), boys exhibited significantly more instances of child noncompliance than girls. However, gender differences were not found in regard to the other externalizing variables (i.e., attention problems, aggressive behaviors). This is somewhat inconsistent with the literature that suggests that boys exhibit higher levels of attention problems and aggressive behaviors

than girls (Mesman et al., 2001; Stacks & Goeff, 2006). However, some researchers have suggested that, before age 4, boys and girls tend to exhibit similar rates of behavior problems (e.g., Keenan & Shaw, 1997; Mesman et al., 2001). The large proportion of children under age 4 in this sample could account for the lack of differences found in teachers' reports of behavior problems. Furthermore, some researchers suggest that gender differences in rates of aggression in preschool are evident when physical aggression and relational aggression are measured separately; boys show higher rates of physical aggression while girls exhibit higher rates of relational aggression (e.g., Russell, Hart, Robinson, & Olson, 2003; Xie, Farmer, & Cairns, 2003). In this study, the teacher-report measure of aggression included items on both physical aggression (e.g., "Gets in many fights") and relational aggression (e.g., "Cruelty, bullying, or meanness to others"). If there had been distinct measures of physical and relational aggression, gender differences may have been identified.

Results showed that younger children, compared with older children, exhibited more teacher-reported attention problems, overall externalizing behaviors, and observed noncompliance. These finding support a developmental perspective on behavioral regulation, suggesting that younger children may be less able to regulate their behavior and comply with classroom demands (Campbell, 2006). For example, Tremblay (2000) suggests that physical aggression is more commonly used by younger children to settle disputes, however, as self-regulatory skills develop, physical aggression becomes less common. Furthermore, some research suggests that noncompliance at a young age may be considered adaptive as toddlers learn to differentiate themselves from others, and develop an awareness of self (Crockenberg & Litman, 1990). Feil, Small, and Forness

(2005) suggest that current measures of young children's behavior problems should be further examined to ensure that they are not targeting non-deviant developmental behaviors, which may result in the over-identification of behavior problems in younger children. However, the history of research on children's externalizing behavior cautions us not to return to a framework in which all externalizing behaviors during the early years are considered typical toddler and preschool behaviors (Campbell et al., 2000).

Observed and teacher-reported externalizing behaviors in children as young as age two can be early precursors to preschool problem behaviors and later psychopathology (Campbell, Pierce, Moore, & Marakovitz, 1996; Keenan, Shaw, Delliquadri, Giovannelli, & Walsh, 1998). For example, Shaw, Gilliom & Giovannelli (2000) conducted a study of 300 low-income boys and found that, of those who were identified as exhibiting clinically significant externalizing behaviors at age 2, 63 percent continued to exhibit externalizing behaviors at age 5. Campbell (1997) suggests that externalizing behaviors are most likely to persist when early behavior problems are frequent and severe, and occur in the context of a high risk family environment.

Family Risk Factors

Parents in the sample had relatively low levels of family risk. About 14% of parents reported depressive symptoms in the clinical range, and 17% of parents reported experiencing clinically significant levels of stress. These rates of depression are lower than those reported in national samples of Early Head Start and Head Start parents. For example, the Early Head Start Research and Evaluation Project Report (ACF, OPRE, 2002) revealed that nearly 1/3 of EHS mothers and 16% of fathers reported clinically significant depressive symptoms when their children were 3-years-old. Similarly, in a

study of Head Start parents (ACF, OPRE, 2000), 25% of parents were classified as being moderately or severely depressed.

The lower rates of depression found in this sample could be due to the interview format for both the depression and stress inventories, leading to possible self-report bias and underreporting of stress and depressive symptoms. Parents may have minimized their reporting of stress and depressive symptoms due to perceived social desirability. The inclusion of fathers in this study clearly impacted the overall rates of clinically depressive symptoms, given that 0% of fathers, compared to 20% of mothers, reported depressive symptoms in the clinical range. It could be hypothesized that fathers were less comfortable being interviewed by a female, and therefore, less likely to report depressive symptoms. Alternatively, mothers and fathers who were less depressed may have been more likely to drop off or pick up their children, and therefore be included in the study.

The low rates of reported stress and depressive symptoms could also have been impacted by other characteristics of this particular sample. For example, 79% of the parents reported that they were involved in a relationship, and of those involved in a relationship, almost all (98%) reported that they were happy in their relationship. Studies suggest that relationship status can have a salient impact on mental health. For example, a study of the relation between partner status and mental health in parents of infants revealed that parents who are not in a romantic relationship compared with married parents, cohabitating parents, and those in a romantic relationship, had the highest rates of depression (DeKlyen, Brooks-Gunn, McLanahan, & Knab, 2006). Specific research on the role of male partners suggests that they can provide support to mothers (Belksy &

Vondra, 1989), which may decrease the likelihood that mothers will experience stress and depression (see Cohen & Wills, 1985, for a review).

Parents reported levels of cohesion and conflict similar to those in a normative rather than distressed sample (Moos & Moos, 2002). These findings suggest, according to the constructs assessed by the conflict and cohesion subscales of the Family Environment Scale (Moos & Moos, 2002), that families provided a high degree of commitment, help, and support to family members, and that there were low levels of expressed anger and conflict among family members. Consistent with previous research suggesting that individuals who report more cohesive family functioning also report receiving supportive behaviors from family member (Sandler & Barrera, 1984; Sarason, Sarason, & Gurung, 1997), parents in this study reported high levels of partner support. Again, this high level of family functioning could be attributed to the large percentage of parents who were involved in a relationship. Moos and Moos (2002) suggested that single parent families, compared with two-parent families, exhibit higher levels of conflict. The cross-sectional nature of this study does not allow for conclusions about directionality of causation as it relates to whether higher levels of family functioning led to lower levels of depressive symptoms and stress, or whether positive mental health led to higher family functioning. However, the results suggest an association between mental health status and family functioning in this sample.

Overall, the descriptive analyses suggest that parents in this sample experienced relatively low levels of family risk including low levels of stress and depression, and high levels of family functioning. These findings are somewhat inconsistent with other studies of Head Start families that have found high levels of family risk in this population (ACF,

OPRE, 2000). Several explanations could account for the low levels of family risk found in this study. These findings could be due to selection bias, however, the overall response rate of 87% suggests that these parents were a fairly representative sample of parents of children attending the included centers. The inclusion of both mothers and fathers in the study could have negatively biased levels of family risk since the higher functioning parent may have been the one to drop off or pick up the child, and therefore would be included in the study. Additionally, conducting the interviews at the Head Start center may have prevented parents from feeling comfortable about sharing personal information with interviewers.

Alternatively, parents in this sample may have actually experienced lower levels of family risk than parents in other Head Start studies. Recent policy changes have allowed for the recruitment of a broader range of participants for the Head Start program including working families and families above the poverty line (see Head Start Reauthorization, GovTrack.us. H.R. 1429--110th Congress, 2007). The Head Start parents who participated in the current study may be reflective of this trend to enroll families at lower risk. The results of this study suggested that a large proportion of parents were involved in a relationship, were happy in their relationship, and felt high levels of partner support. Additionally, 77% of the sample was working either full or part time, which may have eased their levels of economic distress. Although this was a low-income sample, it appears that the parents in this study may have experienced fewer risk factors and were higher functioning than parents in other Head Start samples. After examining rates of family risk in this sample, descriptive analyses on teacher-child relationship quality were conducted.

Teacher Child Relationships

There was variability in teachers' ratings and observations of teacher-child relationship quality within the classrooms. These findings suggest that researchers interested in the child as the unit of analysis should use caution in attributing global, classroom-level estimates of teacher-child relationship quality to all children in a classroom. Overall, teachers reported high levels of closeness and low levels of conflict and dependency in their classrooms. However, 30% of children in the study had teachers who reported levels of conflict in the 75th percentile based on a normative sample (Pianta, 2001). Additionally, the mean positive teacher-child interaction score on the observed measure of teacher-child interactions was lower than that reported in the NICHD Study of Early Child Care (*M* = 2.54 versus *M* = 2.98). Most children in the current sample experienced "fair" quality interactions. These findings are consistent with research suggesting that process quality (partially measured by teacher-child interactions and relationship quality) is lower in classrooms with high concentrations of poverty (LoCasale-Crouch et al., 2007; Pianta et al., 2005), despite evidence that high quality care is particularly important for these children (Hagekull & Bohlin, 1995; Peisner-Feinberg et al., 2001). After examining key study variables descriptively, specific research questions about the associations among family risk, teacher-child relationship quality, and children's externalizing behaviors were investigated.

Family Risk and Externalizing Behaviors

Contrary to previous studies, there were few significant associations between family risk variables and teacher-reported externalizing behaviors. However, a greater number of significant associations was found between family risk variables and observed

externalizing behaviors. In this study, externalizing behaviors were measured using teacher-report and observations of children's behavior in the classroom. There may have been a higher number of significant associations found between family risk variables and *parents'* reports of externalizing behaviors. However, previous studies suggest that, although parent and teacher reports of externalizing behaviors are not highly correlated (Stacks & Goff, 2006; Trapolini, McMahon, & Ungerer, 2007), family risk is a significant predictor of both (ACF, OPRE, 2000; Downy & Coyne, 1990; Koblinsky et al., 2006; Smith et al., 2001). The following section presents a more detailed analysis of the associations found between family risk variables and externalizing behaviors.

  Parental mental health. It was particularly surprising that there was no relation between parental depression and children's externalizing behaviors, given the consistency with which researchers have found this association (see Downey & Coyne, 1990 for a review). It could be that the lack of a significant association was due to the relatively low rates of depression in the sample compared with other studies of low-income parents (e.g., Loeb, Fuller, Kagan, & Carroll, 2004). Some research suggests that maternal depression does not have as great of an impact children's social-emotional functioning when mothers are married, and fathers have no history of psychopathology (e.g., Goodman, Brogan, Lynch, & Fielding, 1993). In this sample, there was a large percentage of married parents. Even in families with one depressed parent, the other parent may have been able to engage in positive parenting practices thereby buffering the impact of depression on children's externalizing behaviors.

  Alternatively, some researchers suggest that the impact of parents' psychological distress on children's problem behaviors is mediated by parenting practices (e.g., Carter,

Garrity-Rokous, Chazen-Cohen, Little, & Briggs-Gowan, 2001; McLoyd, 1990).

Although parenting was not measured in this study, it could be that parents in this sample

who experienced psychological distress were still able to provide positive parenting to

their children. For example, in a parenting intervention designed to decrease children's

problem behaviors, results showed that even in the absence of changes in maternal

depression, increasing positive parenting behaviors led to decreases in children's problem

behaviors (Gardner, Burton, & Klimes, 2006).

Even as research suggests that positive parenting practices can lead to a decrease

in problem behaviors, there is a large body of literature suggesting that early maladaptive

interactions between parents and children are associated with externalizing behaviors

(e.g., Burke, Loeber, & Birmaher, 2002; Hinshaw, 2002). In this study, parent-child

dysfunctional interaction (as reported by parents) was significantly related to observed

noncompliance. Further, the quality of parent-child interactions was more predictive of

children's externalizing behaviors than parents' depressive symptoms. Although an

analysis testing the interaction between parental mental health and parenting practices

was not conducted, it could be hypothesized that depressed parents who engaged in

positive interactions had children with fewer externalizing behaviors, whereas those who

were depressed and had dysfunctional interactions with their children had children who

exhibited more externalizing behaviors. To further test the relation between parental

mental health and children's externalizing behaviors, a structural equation model was

tested.

It was hypothesized that parental mental health would have a direct impact on

children's externalizing behaviors. The model including latent factors of teacher-child

relationships and parental mental health fit the data. However, the path from parental mental health to children's externalizing behaviors was not significant. The indicators of parental mental health may not have adequately captured this construct, as indicated by the measurement error associated with the indicators. Additionally, the lack of a significant path could have been due to the small sample size. Because this model had adequate data-model fit (the best fit out of all of those tested), there is some indication that it is appropriate to include both parental mental health and teacher-child relationship quality in a model predicting children's externalizing behaviors.

Further examination of whether parental mental health predicted children's externalizing behaviors revealed that, after controlling for children's age and gender, the parental mental health variables as a set significantly predicted 7% of the variance in child noncompliance, with parent child dysfunctional interaction being the only significant predictor. These results suggest that stress associated with parents' perceptions of interactions with their children may impact children's externalizing behaviors. This finding supports research suggesting that parent-child interactions may be an important predictor of children's behavior problems (e.g., Burke et al., 2002; Hinshaw, 2002). Although parent-child interactions were not directly examined in the current study, parents' perceptions of their interactions with children were predictive of externalizing behaviors. This suggests that the efficacy that parents feel in relation to their interactions with children may be an important correlate of problem behaviors. Recent research supports this hypothesis. For example, Olson, Ceballo, and Park (2002) found that mothers of children with behavior problems reported feeling a lower sense of

self-efficacy in handling child care and emotional stressors and more frequent use of disciplinary practices.

Furthermore, attachment researchers have suggested that the security of a child's relationship with an adult provides the foundation for children's social emotional development (Ainsworth, 1992; Bowlby, 1982). Children form internal working models of their social world based on the quality of their relationships with their primary caregivers (Bowlby, 1982, Main, Kaplan, & Cassidy, 1985) that guide their representations of future relationships (Weinfeld, Sroufe, Egeland, & Carlson, 1999). If children experience dysfunctional interactions within their primary attachment, it is likely that their internal working model of relationships is one that includes conflict. In a review of early attachment relationships, Thompson (2000) cited research suggesting that children evoke responses from others that are consistent with their working models of themselves and others within the context of relationships. If a child has experienced dysfunctional interactions with a parent, it may be more likely that he or she will exhibit noncompliance in the classroom in order to evoke similar dysfunctional interactions with a teacher in the classroom. In this study, parent-child attachment was not assessed, however, the relation between parent-child dysfunctional interaction and child noncompliance suggests that parent-child interactions may impact children's internal representations of attachment figures, which in turn influence their classroom behavior.

Family functioning. In this study, there was some support for findings suggesting that behavior problems are positively related to family adversity. Research suggests that, compared with normative families, families of children with behavior problems have lower levels of cohesion and higher levels of conflict (Fox et al., 2002; Harland et al.,

2002; Lucia & Breslau, 2006; Marshall et al., 2001). For example, Lucia and Breslau (2006) found that family cohesion longitudinally predicted mother and teacher reports of children's internalizing behaviors and attention problems. Similarly, in a study investigating mothers' perceptions of family climate, mothers of children with behavior problems, compared with mothers of normal children, reported more conflict and less cohesion in their families (Slee, 1996). In the current study, family conflict and cohesion were correlated with observed child noncompliance in the expected directions, and partner support was negatively correlated with teacher reported aggression and overall externalizing behaviors. These findings support the larger literature suggesting that children living in environments with high levels of conflict and low levels of cohesion are at risk for developing behavior problems (e.g., Criss, Pettit, Bates, Dodge, & Lapp, 2002; Lucia & Breslau, 2006; Jones Harden et al., 2000; Koblinsky et al., 2006). To further test the direct relationship between family functioning and externalizing behaviors in this sample, a structural equation model was tested.

It was hypothesized that family functioning would have a direct impact on children's externalizing behaviors. The model with family functioning and teacher-child relationships fit the data, but none of the paths in the model were significant. Furthermore, there was a Heywood case, which made it impossible to interpret the model. The Heywood case was probably a result of the small sample size. Additionally, the poor reliability of the cohesion and conflict indicators of the family functioning latent variable led to large error variances associated with these indicators. If one exogenous variable is measured with error, this can impact the path coefficients of all exogenous variables in the model (Kline, 2005). The poor reliability of the cohesion and conflict variables, and

the measurement error associated with them, suggest that they may not be the best indicators of family functioning.

However, as found in previous studies (e.g., Fox et al., 2002; Harland et al., 2002; Lucia & Breslau, 2006; Marshall et al., 2001), the significant associations of the conflict and cohesion subscales with indicators of externalizing behaviors suggest that these variables may have some concurrent validity. Thus, further analyses were conducted to determine whether the family functioning variables predicted children's attention problems, aggressive behaviors, and observed noncompliance. As with the parental mental health variables, the family functioning variables as a set significantly impacted child noncompliance. After controlling for children's age and gender, family functioning accounted for 15% of the variance in child noncompliance, with family cohesion being the significant predictor. These results suggest that a lack of cohesion, rather than conflict itself, may lead to externalizing behaviors. Although causality may not be assumed from these analyses, previous longitudinal studies suggest that young children experiencing high levels of family adversity exhibit later behavior problems (e.g., Ramos, Guerin, Gottfried, Bathurst, & Oliver, 2005) supporting the finding that family disengagement may lead to externalizing behaviors. Although the conflict and cohesion subscales did not have good reliability in this study, findings supported previous studies suggesting that they are valid measures of family functioning and are associated with externalizing behaviors (e.g., Fox et al., 2002; Harland et al., 2002).

Teacher Child Relationships and Externalizing Behaviors

After examining the relations among family risk and externalizing behaviors, the associations between teacher-child relationship quality and externalizing behaviors were

studied. Results support previous findings suggesting that indicators of teacher-child relationship quality are associated with children's externalizing behaviors (e.g., Pianta & Nimetz, 1991; Pianta & Stuhlman, 2004; Rimm-Kaufman et al., 2005). The effect sizes for the associations between both observed and teacher reported relationship quality and observed and teacher reported externalizing behaviors were moderate to large, according to Cohen's (1992) estimates, suggesting that teacher-child relationship quality has a salient impact on children's externalizing behaviors in the classroom. Teacher-reported conflict appeared to be most highly correlated with teacher-reported and observed externalizing behaviors suggesting that this may be the most important indicator of teacher-child relationship quality in predicting concurrent externalizing behaviors.

It is important to note that there were significant associations across reporters. Teacher-reported relationship quality was negatively associated with observed child noncompliance. Similarly, the observed teacher-child interactions variable was negatively correlated with teacher-reported externalizing behaviors. These findings support the use of multiple informants to collect data on both teacher-child relationship quality and externalizing behaviors in order to reduce reporter bias, and also fully measure each construct. Teachers have a unique perspective on their relationship with children and children's behavior in the classroom given that they spend a large portion of each day with them. However, some studies suggest that teachers' reports of children's behavior may be biased, and contain sources of variances that are unrelated to children's competencies (e.g., Mashburn & Pianta, 2006). Direct observations of teacher-child relationships and children's social-emotional functioning may suffer from less bias. However, they only represent a snapshot in time rather than a child's daily behavior or

interactions over time. A major contribution of the current study was that it documented the relation between observed and teacher-reported relationship quality with observed and teacher reported behavior problems. To further investigate the direct path between teacher-child relationship quality and children's externalizing behaviors a series of structural equation models were tested.

It was hypothesized that teacher-child relationship quality would have a direct effect on children's externalizing behaviors. In the one model that fit the data, the path from teacher-child relationship quality to externalizing behaviors was significant. Although the cross-sectional data do not allow for conclusions about causation, these results suggest that teacher-child relationship quality has a robust effect on children's externalizing behaviors with high quality teacher-child relationships (e.g., high levels of closeness and positive interactions, low levels of conflict and dependency) inversely related to externalizing behaviors. Further analyses were performed to investigate the relation between teacher-child relationships and specific externalizing behaviors.

After controlling for children's age and gender, the teacher-child relationship quality variables, as a set, significantly predicted 43% of the variance in attention problems, 50% of the variance in aggressive behaviors, and 3% of the variance in child noncompliance. Teacher-child conflict and observed positive teacher-child interactions were significant predictors of attention problems; conflict, closeness, and dependency were predictors of aggressive behavior. Only conflict was a significant predictor of child noncompliance. These findings provide support for previous evidence suggesting that teacher-child relationships play a critical role in influencing children's behavioral functioning (Crosnoe et al., 2004; Hughes, Cavell, & Jackson, 1999; Pianta & Nimetz,

1991; Rimm Kaufman et al., 2005). Positive teacher-child interactions were negatively related to attention problems, and teacher-child closeness was inversely related to aggressive behaviors, which is consistent with previous research on the impact of supportive relationships and children's social-emotional functioning (e.g., Burchinal et al., 2002; Pianta et al., 1995; Pianta & Stuhlman, 2004).

The strongest and most consistent findings were those related to teacher-child conflict. They suggest that teacher-child conflict may play a role in the development of children's externalizing behaviors. Conflict was the only significant predictor of all three indicators of externalizing behaviors. Previous research suggests that children who have high levels of conflict in relationships with teachers are less engaged in the classroom (Ladd, Birch, & Buhs, 1999), and that teacher-child conflict in kindergarten predicts a significant proportion of the variance in later adjustment (Birch & Ladd, 1998; Hamre & Pianta, 2001). Overall, these findings suggest that teacher-child relationships exert a strong influence on low-income children's concurrent externalizing behaviors. Although these data were cross-sectional, they provide limited evidence that positive teacher-child relationships may prevent children from developing attention problems and aggressive behaviors. Furthermore, negative teacher-child relationships characterized by high levels of conflict may lead to externalizing behaviors or intensify already existing social-emotional difficulties.

It is worth noting that the teacher-child relationship quality explained a much lower proportion of the variance in observed child noncompliance compared with teacher-reported externalizing behaviors. Although the observation data provided a snapshot of child noncompliance in the classroom, it was collected over a limited interval

of time (2 hours/child). In contrast, the teachers in the study reported on children's behavior problems over time, which may make their assessment of externalizing behaviors more valid than the observation data.

An alternative hypothesis is that, because child noncompliance is a low-incidence phenomenon, children who exhibit this behavior may represent those with the most extreme behavior problems. In this study, family risk predicted a larger proportion of the variance in child noncompliance than teacher-child relationship quality. It could be that family risk, compared with teacher-child relationship quality, is a better predictor of externalizing behaviors in children who are the worst offenders. This hypothesis is partially supported by Moffitt et al. (Moffitt, 1993; Moffitt et al., 1996; Moffitt et al., 2002) who found that those who exhibited early-onset, life-course persistent antisocial behaviors were usually children who were raised in high-risk environments (e.g., inadequate parenting, disrupted family bonds, poverty). It remains unclear whether the low percentage of explained variance was due to the observation measure being a less valid assessment of externalizing behaviors or a more sensitive measure of children with extreme behavior problems. In sum, teacher-child relationship quality was a significant predictor of both teacher-reported and observed externalizing behaviors, although it explained a much greater percentage of the variance in teacher-reported behaviors.

Again, because of the cross-sectional nature of this study, these findings preclude making statements about causation. This study cannot conclude that teacher-child relationship quality causes children's behavior problems. It could be suggested that the high proportion of explained variance in teacher-reported externalizing behaviors is accounted for by shared variance due to same reporter bias. It could be that children with

behavior problems were more difficult for teachers to manage, caused more classroom disruptions, and had developed a style of interacting with adults that caused teachers to develop more negative relationships with them. Alternatively, teachers who perceive their relationships to be conflictual with students may engage in fewer interactions with them, provide less help with behavioral regulation, and fail to scaffold their emotional competence. It may be the case that there is a complex pattern of interactions where both child problem behaviors and teacher-child relationship quality are both predictive of children's outcomes. However, recent studies suggest that improving teacher-child relationship quality leads to improvements in children's behavior problems (e.g., Hamre & Pianta, 2005), thereby serving an important protective role against early risk.

Teacher Child Relationships as a Moderator of the Impact of Family Risk on Externalizing Behaviors

There is some evidence that teacher-child relationship quality can act as a buffer for children at-risk for developing behavior problems (e.g., Birch & Ladd, 1997; Hamre & Pianta, 2005; Pianta & Steinberg, 1992; Pianta et al., 1997). For example, Hamre and Pianta (2005) conducted a secondary analysis of data from the NICHD Study of Early Child Care. They identified children as "at-risk" at ages 5 and 6 based on demographic characteristics (low maternal education) and the display of problems (i.e., behavioral, attention, academic, social) reported by kindergarten teachers. Students placed in first grade classrooms offering strong instructional and emotional support had achievement scores and student-teacher relationship quality equal to their low risk peers. Alternatively, at-risk students in less supportive classrooms had lower achievement scores and more conflictual teacher-child relationships. However, the researchers noted that overall, this

sample was not high-risk. In a similar study, Rimm-Kaufman et al. (2002) found that socially bold children who had more sensitive teachers showed fewer negative and off-task behaviors and were more self-reliant. In contrast, the current study examined whether teacher-child relationship quality acted as a buffer against family risk, particularly for low-income young children. Although Hamre and Pianta (2005) identified at-risk children based on low maternal education, they did not examine other family risk factors (e.g., mental health and family functioning) from which teacher-child relationship quality may act as a protective factor. Additionally, the current study employed both teacher report and observations of both teacher-child relationship quality and children's externalizing behaviors.

To examine whether teacher-child relationship quality moderated the impact of family risk on children's externalizing behaviors, two models with latent interaction terms were tested. The model including the parental mental health by teacher-child relationship quality latent variable did not fit the data. The model including the family functioning by teacher-child relationship quality latent variable did fit the data, however, there was a Heywood case, which made it unwise to interpret the model.

Due to the relatively small sample size in testing the complex interaction models using structural equation modeling, individual moderator variables were tested using hierarchical linear regressions. There was not a significant moderating effect of teacher-child conflict on the relation between parent child dysfunctional interaction and child noncompliance. However, there was a significant moderating effect of teacher-child conflict on the relation between family cohesion and child noncompliance suggesting that low teacher-child conflict protected children from the impact of low family cohesion on

child noncompliance, and high teacher-child conflict intensified the impact of low family cohesion on child noncompliance. Although this was the only significant interaction, it provides important insight into the way that children's interactions with their teachers may help to ameliorate or exacerbate the risk of poor social-emotional outcomes.

This study contributes to the existing literature on the moderating role of teacher-child relationships by examining family risk in relation to problem behaviors in a sample of low-income preschool children. Studies (e.g., Pianta et al., 1997) suggest that high quality teacher-child relationships can play a protective role for children at-risk. However, risk has been narrowly defined, usually as early attention problems or externalizing behaviors (e.g., Hamre & Pianta, 2005; Rimm Kaufman et al., 2002). Research suggests that family factors (e.g., poor family functioning) can also place children at-risk for developing behavior problems (e.g., Criss et al., 2002; Lucia & Breslau, 2006) and in fact, Hamre and Pianta (2005) asserted that prior to school entry, it is primarily family factors that place children at-risk. In this study, teacher-child conflict moderated the impact of family cohesion on child noncompliance. The findings provide limited evidence that teacher-child relationship quality may buffer against the impact of poor family functioning on children's behavior problems, and suggest that high levels of teacher-child conflict may put children at greater risk for developing externalizing behaviors. Specifically, these findings suggest that placing children who experience low levels of family cohesion in classrooms with low levels of conflict may protect them from developing problem behaviors. Consistent with this view are studies showing that, in the absence of a supportive parent-child relationship, teachers can function as an attachment figure (Goosen & van Ijzendoorn, 1990) and impact children's social-emotional

functioning (e.g., Burchinal et al., 2002; Pianta et al., 1995; Pianta & Stuhlman, 2004).

Specifically, secure teacher-child attachment relationships may partially compensate for

insecure mother-child attachment relationships and lead to children's social competence,

prosocial behavior, and positive emotionality (Mitchell-Copeland et al., 1997).

Furthermore, studies suggest that high quality child care is even more important for

children at-risk (e.g., Peisner-Feinberg et al., 2001) and that teacher-child relationships

high in closeness and low in conflict can reduce the effects of low maternal education on

children's behavior problems (e.g., Hamre & Pianta, 2005).

Alternatively, if at-risk children experience high levels of teacher-child conflict,

they may be more likely to develop externalizing behaviors or existing problem behaviors

may be worsened. Although researchers have not examined family risk in particular,

studies do suggest that behaviorally at-risk children placed in less supportive classrooms

tend to experience poor outcomes (e.g., Hamre & Pianta, 2005; Rimm Kaufman et al.,

2002). After determining that teacher-child relationships may play an important role in

the development or continuation of children's behavior problems, correlates of teacher-

child relationship quality were examined.

Associations Among Teacher, Classroom, and Child Characteristics and Teacher-Child

Relationships

There have been mixed findings regarding the association between teachers'

education and training and teacher-child relationship quality. In this study, teachers'

education and training was not significantly associated with teacher-child relationship

quality. These results are consistent with a recent meta-analysis of seven major studies of

early care and education, which found that overall, there was no impact of educational

attainment on classroom quality (Early et al., 2007). Early et al. (2007) suggested that recent mandates designed to increase teachers' level of education will be insufficient to improve classroom quality and that professional development activities should be aimed at improving teachers' interactions with children in the classroom. Furthermore, it may be inadequate to measure the quantity of education and training that teachers receive without also examining the quality of these experiences. In contrast to teacher training, teacher experience was negatively correlated with mean levels of teacher-child conflict.

Several studies support the finding that teacher experience is related to aspects of classroom quality (NICHD, ECCRN, 2005; Pianta et al., 2005). For example, one study found that teachers with more years of experience were rated as more responsive and stimulating in their interactions with children (Pianta et al., 2005). It will be important to determine why teachers with more experience are better able to develop positive relationships with children. It could be that with experience teachers gain more self-efficacy and learn better strategies for behavior management, which reduces conflict in the classroom. Researchers should examine the process through which more experienced teachers develop positive relationships with children so that the skills that these teachers use, can be taught to less experienced teachers.

Unlike some previous studies (NICHD ECCRN, 1996), teacher-child ratio was not found to be associated with teacher-child relationship quality. This could be due to the relatively low variability in the teacher-child ratios in this study, or to the fact that group size did not exceed the recommended standards for Head Start classrooms. Although not significant, the negative relationship between teacher-child ratio and closeness does suggest some support for research suggesting that when there are fewer

adults available to work with children, there may be less of a child-centered climate in the classroom (e.g., Pianta et al., 2002).

In contrast to previous studies (e.g., Birch & Ladd, 1998; Howes, 2000) teacher-child relationship quality was not associated with child temperament (i.e., emotionality and sociability). This could be because parents, not teachers, reported on children's temperament. Previous research has shown low levels of agreement between parents and teachers on temperament measures (Goldsmith, Reiser-Danner, & Briggs, 1991; Presley & Martine, 1994). These findings suggest that it may be important to obtain teachers' assessments of children's temperament to accurately assess the relation between children's emotionality and sociability in the classroom and teacher-child relationship quality.

There was also no significant correlation found between child gender and teacher-child relationship quality. This finding may be partially explained by the lack of significant differences, based on gender, on teacher-reported externalizing behaviors. Previous studies that have shown significant differences in teachers-child relationship quality have also found gender differences in behavior problems (e.g., Birch & Ladd, 1998; Hamre & Pianta, 2001). An alternative hypothesis is that gender differences in teacher-child relationship quality do not begin to emerge until children get older. Socialization research suggests that parents begin to more clearly define gender roles as children get older (Block, 1979; Huston & Alverez, 1990). Furthermore, gender differences in problem behaviors don't emerge until around age 4 (Keenan & Shaw, 1997). The relatively young age of some of the children in this sample may have

accounted for the lack of association between gender and teacher-child relationship quality.

In the present study, child age showed a small but significant association with teacher-child relationship quality. Although not originally a study variable, child age was added post hoc, given the range in ages of children in the sample. Older children had teachers who reported less conflict and more positive relationships. Teachers also reported older children as having fewer externalizing behaviors than younger children. Campbell (2006) has suggested that early childhood, particularly ages 2-5, is a time when children are learning to regulate their emotions and control their behaviors. The fact that younger children exhibited significantly more externalizing behaviors than older children is not surprising given that they may have less developed regulatory skills than the older children in the sample (Campbell, 2006).

Campbell (1995) notes that during preschool it is difficult to distinguish between children who exhibit transient problem behaviors versus those whose behaviors become stable and persistent. However, studies suggest that 50% of children who exhibit behavior problems in preschool continue to be identified with these problems in elementary school (Campbell, 1995). Given research suggesting that conflictual teacher-child relationships can exacerbate existing behavior problems (Hamre & Pianta, 2005), and that early teacher-child relationship quality is predictive of later outcomes (e.g., Birch & Ladd, 1998; Hamre & Pianta, 2001), it is notable and somewhat disconcerting that teachers reported more conflict in their relationships with younger children. Although younger children in this sample may have exhibited higher levels of externalizing behaviors as a

result of normative developmental change, the high rates of conflictual relationships with these children may lead to more serious problems.

Implications

Research

The results of this study have implications for further research examining factors that place young children at-risk for developing behavior problems and how teacher-child relationships can protect them. Although there was not consistent evidence that family risk factors were associated with children's externalizing behaviors, the results suggest that parent-child dysfunctional interaction, and family conflict and cohesion were associated with child noncompliance. Future research should examine whether these risk factors are mediated by parenting processes. Perhaps these risk factors indirectly influence externalizing behaviors through their impact on parenting. Additionally, future research should further examine the role of partner support in relation to protecting against the impact of risk on children's outcomes. In this sample, a large proportion of parents were involved in a relationship and reported high levels of partner support. Researchers should investigate whether children can be protected from the impact of parental depression and stress as long as there is one parent who is not experiencing mental health difficulties.

Future research should also expand the scope of risk factors examined in relation to children's externalizing behaviors and the protective role of teacher-child relationships. This study only included parental mental health and family functioning, however, Rubin et al. (2003) suggest that there are three categories of risk associated with young children's problem behaviors: (a) forces internal to the child, (b) socialization

forces, and (c) external forces. Perhaps some of these categories of risk may have a more salient impact than others, and may be more likely to interact with teacher-child relationship quality to predict externalizing behaviors. For example, there is some research to suggest that teacher-child relationship quality can serve as a buffer against rejecting parenting (Hughes et al., 1999). Researchers should examine which early risk factors are most likely to lead to externalizing behaviors and whether teacher-child relationship quality may serve as a protective factor against some categories of risk but not others.

Externalizing behaviors were the only child outcome included in this study. Future research should focus on the protective role of teacher-child relationship quality on both internalizing and externalizing behaviors as well as other areas of children's social-emotional development (e.g., emotional regulation, social competence). Although research supports an association between teacher-child relationship quality and all areas of children's social-emotional development (e.g., Denham & Burton, 1996; Howes et al., 1994; Pianta & Stuhlman, 2004), it remains unclear whether teacher-child relationships can promote competency in some areas but not others. The lack of psychometrically valid assessments that measure more positive areas of young children's social emotional development (e.g., emotion regulation) makes it difficult to assess children's functioning in these areas, and also the impact of teacher-child relationships on their development. Researchers should continue to try to develop appropriate measures to assess all aspects of children's social emotional functioning, not just their maladaptive behaviors (e.g., internalizing and externalizing behaviors).

Furthermore, with a new policy emphasis on preparing young children to be ready for school entry (e.g., No Child Left Behind Act, US Department of Education, 2001), future research should examine the impact of teacher-child relationship quality on not only social and emotional but also academic outcomes. There is some evidence that positive teacher-child relationships promote academic achievement in the classroom (Howes & Smith, 1995; Meyer, Waldrop, Hastings, & Linn, 1993; Peisner-Feinberg et al., 2001). For example, pre-school teacher-child relationships have been found to be unique predictors of academic outcomes in early elementary school (Hamre & Pianta, 2001), and close teacher-child relationships are associated with school engagement, classroom participation, and academic competence (Birch & Ladd, 1998). However, more research is needed in this area with a particular focus on children at-risk. It will be important to investigate whether teachers can protect at-risk children from developing behavior problems and experiencing academic failure. Researchers should examine the impact of teacher-child relationships on the whole child, including both academic and social emotional outcomes, in an effort to investigate whether teacher-child relationship quality is associated with high-risk children's school success.

An additional area that warrants further research is children's appraisal of their relationships with teachers. A merit of this study was the use of a multi-rater, multi-method approach. Many studies have used only teacher reports of relationships with students in the classroom as well as teacher reports of children's behavior problems (e.g., Hamre & Pianta, 2001). This study used observations and teacher reports of relationships with children and externalizing behaviors. However, this study did not assess children's assessment of their relationships with teachers. Recently, researchers have begun to

assess how children's assessment of their relationships with teachers is related to their developmental outcomes (e.g., Decker, Dona, Christenson, 2007; Murray & Greenberg, 2001). Decker, Dona, and Christenson (2007) found that increases in student-reported relationship quality were related to increases in positive social, behavioral, and engagement outcomes for children. However, these studies included elementary-aged children. It will be important for researchers to develop measurement techniques to assess younger children's representations of their relationships with teachers, as students' perspectives of their relationships with teachers may be equally as important as teachers' perspectives. Auhagen and Hinde (1997) assert that a relationship involves not only the participants but also a new unit, the dyad. Most studies on teacher-child relationships measure quality based on the experience of only one participant, the teacher, and do not gather any information from the child, or about the dyadic interactions of the two participants.

Furthermore, it will be important for researchers to continue to examine whether current teacher-report and observation measures adequately represent and measure teacher-child relationship quality. The study of teacher-child relationships, particularly with young children, is grounded in attachment theory (Davis, 2003). Historically, closeness, conflict, and dependency have been the constructs measured in assessing teacher-child relationship quality. Perhaps early childhood teacher-child relationship researchers have too narrowly defined what constitutes quality. It will be important for future researchers to continue to reference studies on parenting to determine whether there are important constructs or components of teacher-child relationship quality that our current assessments are not capturing. For example, some parenting researchers

distinguish parenting beliefs from parenting practices, which are then distinguished from overall parenting styles (e.g., Darling & Steinberg, 1993; Smetana & Daddis, 2002). Each of these lines of research has provided important information about how aspects of parenting interact to influence child outcomes (e.g., Linver, Brooks-Gunn, & Kohen, 2002; McGroder, 2000; Thompson, Hollis, & Richards, 2003).

Additionally, researchers have used different approaches to studying teacher-child relationship quality based on the age of children studied. Early childhood researchers tend to use an attachment perspective while adolescent researchers use a motivation perspective (Davis, 2003). Although the function of teacher-child relationships may change as children get older, it may be important to consider both perspectives to adequately capture both the emotional and instructional quality of these relationships across time, and their relation to children's outcomes.

Further, it will be important to gather information about children's functioning from multiple informants across contexts. Parents' perceptions of children's externalizing behaviors were not assessed nor were observations conducted in contexts outside of the classroom. Although research suggests that teachers' reports of children's behavior problems, compared to parents' reports, are better predictors of later delinquent behavior (e.g., Bank, Duncan, Patterson, & Reid, 1993; Walker & Fabre, 1987), it will be important in future research to examine both teacher and parent reports of externalizing behaviors. There is limited evidence that teacher-child relationship quality is related to changes in mothers' reports of behavior problems (Pianta & Stuhlman, 2004). However, it is important for future research to continue to examine the stability of problem

behaviors across contexts and to determine whether the impact of teacher-child relationship quality is limited to the classroom.

Teacher experience and child age were the only individual characteristics included in the study found to be associated with teacher-child relationship quality. Future research should expand the scope of possible correlates of quality to include teachers' depression and stress. Although some research has been conducted in this area (e.g., Hamre & Pianta, 2004; Yoon, 2002), it remains sparse. There is some evidence that depressed teachers provide less sensitive and responsive caregiving and exhibit more negative behaviors with children (Hamre & Pianta, 2004). Teacher stress has also been linked to an increased likelihood of preschool expulsion (Gilliam & Shahar, 2006). In a sample of 185 preschool classrooms, Gilliam and Shahar (2006) found that the percentage of teachers who had expelled at least one child in the last year was four times higher for teachers who reported high versus low levels of job stress. It will be important to continue to examine whether teachers' psychological risks are associated with the quality of their relationships with students. If so, support systems for reducing teacher stress and enhancing teachers' mental health should be instituted in early childhood education settings.

Measurement

This research provided further evidence that teacher-child relationship quality is strongly associated with children's externalizing behaviors in the classroom. However, the cross-sectional nature of the study did not allow for conclusions about causation. Future research should entail controlled, longitudinal studies to determine the predictive influence of teacher-child relationships. Additionally, future research should examine

whether high-quality teacher-child relationships may be particularly important for children who are identified as experiencing behavior problems prior to classroom entry.

The results of this study suggest that it is important for researchers to use multiple methods of data collection (e.g., teacher report, observations) to ensure unbiased, accurate data. There are several observational tools that have been designed to measure overall classroom quality (e.g., ECERS-R; Harms, Clifford, & Cryer, 1998; Arnett Scale; Arnett, 1989). However, few measures exist to collect data on individual teacher-child interactions. This study supported previous research suggesting that teachers exhibit different patterns of interactions with students in their classrooms (e.g., Hamre & Pianta, 2001; Howes et al., 2000). Therefore, composite ratings of teachers' engagement with students may be misleading, providing inaccurate information about certain children's experiences in the classroom. Refined observational tools should be created and validated to capture individual children's interactions with teachers in the classroom and caution should be used in making conclusions about children's classroom experiences based on global measures of classroom quality.

Structural equation modeling was used in this study to test causal relationships between latent variables. This data analytic technique is more powerful than regression, in that it allows for the modeling of interactions while taking into account measurement error, and allows researchers to test overall models instead of relationships among individual variables (Garson, 2006). The complexity of the models included in this study were limited by the small sample size, but future researchers should use this and other techniques that allow for the modeling of relations among variables with larger sample sizes to analyze interactive models of development. Without a dynamic understanding of

how children develop positive outcomes in the presence of adversity, it will be impossible to create a model of risk and resiliency to guide prevention and intervention efforts.

Policy

Head Start is a large-scale federally funded program that has the potential to positively impact large numbers of high-risk children. There is some indication that Head Start has been effective in preventing problem behaviors in young children (ACF, OPRE, 2005). Although progress is being made, there continues to be a need for improvement in the implementation of services for children at-risk for developing problem behaviors. Specifically, the results of this study suggest that providing training on young children's development and supporting and strengthening teacher-child relationships in the classroom may enhance the impact of Head Start on children's social emotional competence.

This study adds to a growing body of evidence that high-quality teacher-child relationships can lead to positive social emotional development (e.g., Birch & Ladd, 1997; Howes et al., 1994; Pianta & Stuhlman, 2004; Pianta et al. 2005). Although the majority of children in this sample experienced high quality teacher-child relationships, a third of the children had teachers who reported high levels of conflict with them. This finding is disconcerting given emerging evidence that conflictual early teacher-child relationships predict later behavior problems (e.g., Pianta et al., 1995).

Researchers have argued that comprehensive intervention in early childhood is one of the most effective methods for preventing problem behaviors and later delinquent behavior (e.g., Walker et al., 1998; Webster-Stratton, 1997). Results from this study

suggested that teachers' interactions with children in the classroom were fair, at best, and that teachers reported high levels of conflict with over a third of participant children. An important aspect of a school-based intervention is the support of high-quality teacher-child relationships. Head Start teachers need support, supervision, and training to interact more appropriately with all children, particularly with those at risk for developing behavior problems. In this vein, Head Start's mental health consultation program should be strengthened so that teachers have regular access to and support from mental health consultants in identifying and appropriately responding to children with behavior problems.

Teacher preparation programs often prepare teachers to become proficient in teaching students reading and math, but fail to train teachers on how to positively interact with students and how to develop high quality teacher-child relationships. In-service teacher training programs focused on distal indicators of classroom quality may be ineffective in achieving measurable gains for children in the classroom. Pianta (2006) argues that it is crucial to use classroom observations to assess classroom practices and provide direct, targeted feedback and training for teachers that will positively impact children's experiences in the classroom. A critical component to training programs will involve providing individualized on-going monitoring, feedback, and reflective supervision to teachers, instead of only offering group based trainings in the form of classes or workshops.

Head Start program performance standards (ACF, OPRE, 2006b) mandate pre-service and in-service training opportunities for program staff and volunteers. Mandated staff development programs provide an opportunity for all Head Start teachers to be

trained in positive teacher-child interactions, particularly techniques to use with children who are exhibiting behavior problems. It is critical that teachers are trained on how to communicate and interact with students in ways that foster positive development (Pianta & Walsh, 1998). The results of this study showed that about a third of the children in the sample had teachers who reported high levels of conflict in their relationships. Auhagen and Hinde (1997) write, "the course of a relationship often depends critically on the way in which conflicts are handled. . ." (p. 75). It may be particularly important for training programs to identify teachers who are experiencing conflictual relationships with children and focus on mechanisms and strategies that teachers can use to avoid conflict with children in their classrooms.

For example, Pianta (1999) suggests that teachers should learn behavior management techniques that do not affect teachers' and children's representations of their relationships. According to attachment theory, children develop expectations and beliefs about other relationships (i.e., internal representations) within the attachment relationship (Bowlby, 1982). It is important that teachers' behavior management techniques do not discourage children's expectations of positive interactions with teachers. Interventions implemented by teachers and other professionals within Head Start classrooms have been documented to enhance children's social-emotional competence and behavioral functioning (e.g., Promoting Alternative Thinking Strategies (PATHS); Domitrovich, Cortes, & Greenberg, 2007). Evidence of the effectiveness of such interventions provide support for a more large scale adoption of training programs that foster teachers' ability to support children's social-emotional growth in the classroom.

Furthermore, teachers need more training to better understand children's behavior from a developmental perspective. This results of this study suggested that teachers reported that younger children exhibited more externalizing behaviors than older children. Campbell (2002) has suggested that caregivers often characterize young children's behaviors as abnormal because of a lack of knowledge of normative age-appropriate behavior. For example, research suggests defiance and aggression, particularly at ages 2-3, may reflect young children's attempts to assert autonomy and test limits (e.g., Campbell, 1990; Crockenberg & Litman, 1990). With a better understanding of age-appropriate behaviors, teacher may have a framework within which to classify children's behavior as normative, versus indicative of more serious behavior problems.

In sum, the evidence presented in this paper argues for the development of policies and practices that are designed to promote Head Start children's social-emotional competence. Specifically, Head Start programs should focus on the enhancement of teacher-child relationships as a means to promote positive behavioral functioning, particularly for children exposed to multiple risks. Building on the evidence, the following practice recommendations are offered:

1. Screening for family risk factors and children's behavioral problems at enrollment in Head Start, with appropriate referral and follow-up.

2. Teacher training and ongoing feedback regarding the identification of young children's behavior problems.

3. Extensive support, observation, and feedback for teachers regarding their interactions and relationships with children, particularly those exhibiting behavior problems.

4. Teacher training and consultation on the use of behavior management techniques within the context of positive relationships with children.

5. Program adoption of evidence-based classroom interventions designed to reduce behavior problems in young children which incorporate strategies to enhance teacher-child relationships.

Limitations of the Current Study

There were several limitations in the current study that merit discussion. The data analytic limitations of the study are mostly a result of the sample size. Although a survey by MacCallum and Austin (2000) revealed that out of 500 applications of structural equation modeling published in journals from 1993 to 1997, 20% used samples of less than 100, small sample sizes (e.g., fewer than 100) make technical problems more likely (Kline, 2005). Additionally, in this study, the sample size allowed for only limited power to detect data-model fit and may have impacted overall data-model fit as well as significance of path estimates. Although the SRMR goodness-of-fit index has been found to be relatively unaffected by sample size (Hu & Benter, 1999), the RMSEA tends to be inflated with small sample sizes (Marsh, Balla, & Hau, 1996), leading to the rejection of a model that may have, with a larger sample, had adequate data-model fit. The sample size also limited the number of variables that could be included in the model and prevented a multi-group analysis, leading to the inability to determine the impact of covariates within the SEM framework. Given the modest size and non-representative sample, the results of this study should not be generalized to all Head Start children.

The small sample size may have also contributed to the Heywood cases in two out of the four models. As outlined in Chapter 4, a Heywood case has occurred when there is

a solution to the model that is not conceptually or statistically valid. Efforts to eliminate the Heywood case were unsuccessful, and therefore results of two of the models could not be evaluated. The Heywood cases may have been eliminated with a larger sample size or more than three indicators for the family functioning latent variable.

In this study, individual categories of risk (parental mental health and family functioning) were used to predict children's externalizing behaviors and assess the moderating effect of teacher-child relationship quality. It could be that a cumulative risk model would have better predicted children's externalizing behaviors and further would have allowed for an examination of whether teacher-child relationship quality varied as a function of risk status (e.g., high versus low). The cumulative risk model assumes that it is the number of risk factors, rather than the types or weighting of the factors, that impacts children's developmental outcomes (Rutter, 1979). In a recent study, Wachs (2000) suggested that no single risk factor is sufficient to explain developmental outcomes, but that the study of combinations of risk factors can produce sufficient explanatory power.

Structural Equation Modeling was chosen as the most appropriate data analytic technique for this study based on the research questions and sample size. However, the use of multilevel modeling (e.g. hierarchical linear modeling) has been suggested when behavior of individuals within organizations are studied (Davidson, Kwak, Seo, & Choi, 2002). This technique was not used in this study because the sample of individuals and organizations was not sufficient to be assured of model convergence. In addition, smaller samples lack sufficient power to detect interactions (Raudenbush & Bryk, 2002). The

failure to use multilevel modeling did not allow the accounting of the nested design of the data.

This study design did not allow for conclusions about definitive causation of risk and teacher-child relationship quality on children's problem behaviors. The direction of causality between risk and teacher-child relationship quality and children's behavior problems remains an empirical question. Do children who exhibit more aggression, for example, cause parents to experience more stress and depression and cause problems in family functioning instead of family risk leading to externalizing behaviors? Similarly, do aggressive children facilitate interactions with teachers that include high levels of conflict and low levels of closeness as opposed to high quality teacher-child relationships leading to fewer externalizing behaviors? An examination of these questions would require a longitudinal design controlling for children's initial problem behaviors that measured how changes in risk and teacher-child relationship quality were related to changes in externalizing behaviors. However, there is strong empirical evidence suggesting that the included risk factors (parental mental health and family functioning; see Stormont, 1998, for a review) and teacher-child relationship quality (e.g. Howes, 2000; Peisner Feinberg et al., 2001) are longitudinal predictors of children's problem behaviors.

The high correlations in this study between teacher-reported relationship quality and externalizing behaviors may lead to the interpretation that they are two measures of the same construct. However, Pianta and Stuhlman (2004) refute this criticism citing research on the long-term predictive validity of early teacher-child relationship quality on children's later behavior problems. This study also found that there was an association

between teacher-reported and observed relationship quality and externalizing behaviors, supporting the idea that teachers can be accurate reporters of both.

Finally, data on the overall classroom context were not collected. The ecological theory suggests that it is important to examine contextual variables as well as proximal processes in predicting child outcomes. The focus of this study was on the proximal processes, teacher-child relationships, rather than the classroom contextual factors. It is important to understand children's behavior problems within the context of the classroom structure, demands, and learning opportunities. Goldstein (1995) has suggested that problem behaviors occur when there is a mismatch between classroom demands and a child's social emotional capacities (e.g., self-regulation, attention skills, etc.).

For example, instructional practices have been found to be associated with teacher-child relationships, and subsequently, children's behavior problems. Love, Ryder, and Faddis (1992) reported that classrooms rated as being more developmentally appropriate had teachers who were less detached in their interactions with students. Another similar study suggested that one of the best predictors of sensitive teacher-child interactions is teachers' used of planned activities (Ghazvini & Mullis, 2002). Child-centered, developmentally appropriate practices involving tailoring instruction to particular needs, using experiential approaches to learning, and emphasizing the development of positive social interactions have been found to predict higher overall social competence (Donohue, Perry, & Weinstein, 2003; Pianta et al., 2002). Although some researchers have begun studying the complex interactions among classroom contextual influences, teacher-child interactions, and problem behaviors (e.g., Bulotsky-Shearer, Fantuzzo, & McDermott, 2008) more research is needed that includes both

contextual and proximal classroom predictors of children's social emotional development.

Conclusion

The current study adds to a growing body of research that supports the integral role that teachers play in facilitating young children's development. A major contribution of this study was the finding that teacher-child relationship quality is strongly associated with children's externalizing behaviors. Although previous research has suggested that a high level of closeness in teacher-child relationships is related to positive behavioral outcomes for children (e.g., Howes et al., 1994; Pianta & Nimetz, 1991), the results of this study indicate that it may be equally, if not more important, to prevent conflictual teacher-child relationships, to reduce externalizing behaviors.

In this study, teachers with less experience reported higher levels of conflict with children, suggesting a need for experienced teachers in early childhood classrooms. Additionally, younger children in this sample experienced more conflict in their relationships than older children. This finding is troubling given that research suggests that children's early relationships play an important role in helping children develop a style of interacting that can persist throughout early childhood into elementary school (Howes, 2000). It is critical that teachers attend to the needs of young children.

Although parents in this study reported relative low levels of family risk, there was still an association between family risk and externalizing behaviors. Young children in low-income, high-risk families experience disproportionately high rates of externalizing behavior problems (Adams et al., 1994). These behaviors tend to be stable and are associated with later delinquency. Increasing attention to the association between

teacher-child relationships and children's behavior problems has revealed that early childhood educators have an important influence on children's behavioral trajectories, particularly with high-risk children (e.g., Hamre & Pianta, 2005).

Although this study found only limited evidence that teacher-child relationship quality can be a protective factor for children at-risk, some research indicates that these relationships are not only important to normative development but may help young children who are exposed to negative life circumstances experience positive outcomes (e.g., Hamre & Pianta, 2005; Pianta et al., 1997). It will be important for future researchers to examine teacher-child relationships and children's problem behaviors over time, to evaluate the moderating impact of teacher-child relationship quality on children's trajectories of psychopathology. There has been progress in recent years in examining how children's relationships with teachers impact their development. However, progress is needed in understanding how teachers influence the pathways from risk to social-emotional competence and overall school readiness.

Knowledge about the role of teachers in promoting children's social-emotional competence could be instrumental in the design and implementation of preventive interventions in the classroom. Such interventions should be aimed at improving teacher-child relationships and enhancing interactions with children. Additionally, research informed pre-service and in-service training programs should be developed for teachers that focus on how to build positive relationships with children in the classroom, particularly with children who are experiencing emotional and behavioral difficulties. This study adds to the growing body of evidence that improving teacher-child

relationships has the potential to foster the well-being of all children and may be critical

to ensuring positive social emotional development for the most vulnerable children.

TABLES

Table 1

Child, Parent, and Teacher Demographic Information

Variables	*M(SD)/%*
Child	
Child Ethnicity	
European American, non-Latino	2%
Black or African American, non-Latino	83%
Latino	10%
Asian	2%
Other (Native Hawaiian, Pacific Islander, American Indian, Alaska Native, more than one race)	3%
Child Gender (% Male)	46%
Child Temperament	
Emotionality	13.97 (4.07)
Sociability	17.96 (3.00)
Parent	
Parent Relationship to Child*	
Mother	65%
Father	29%
Grandmother (or other femal relative)	4%
Foster Mother	1%
Parent Education*	
Less than high school	13%
High School diploma	22%

Vocational Technical Program/ Some college	39%
Bachelor's degree or above	25%
Parent Relationship Status	
Single	41%
Married	47%
Separated/Divorced	9%
Widowed	3%
Employment Status*	
Not in labor force/Looking for work	24%
Less than 35 hours a week	20%
35+ hours per week	55%
Teacher	
Teacher Ethnicity	
Black or African American, non-Latino	83%
Latino	17%
Teacher Education/Training	
Completion of ECE courses at college	17%
AA in ECE or Child Development	66%
Baccalaureate degree in ECE or related field	17%
Years of Experience in Early Care and Education	5 – 32 years ($M = 17$, $SD = 10$)
Hourly Wage	$12 - $20 ($M = 16$, $SD = 2$)

* Numbers may not sum to 100% due to rounding.

Table 2

Variables, Constructs, and Measures Used

Variable	Construct	Measures	Time to Complete
Children's Problem Behaviors			
	Externalizing Behaviors	C-TRF 1 ½ - 5[t]	5 min/child
Parents' Mental Health			
	Depression	CES-D[p]	5 minutes
	Parenting Stress	PSI[p]	10 minutes
Family Functioning			
	Family Conflict	Family Environment Scale[p]	10 minutes
	Family Cohesion	Family Environment Scale[p]	
	Partner Support	Parent Background Questionnaire[p]	5 minutes
Teacher-Child Relationship Quality			
	Closeness	STRS[t]	5 min/child
	Conflict	STRS[t]	
	Dependency	STRS[t]	
	Positive T-C Interactions	ORCE[o]	2 hours/child
Teacher Characteristics			
	Training and Education	Teacher Background Questionnaire[t]	5 minutes
Child Characteristics			
	Gender	Parent Background Questionniare[p]	
	Emotionality	CCTI[p]	2 minutes
	Sociability	CCTI[p]	
Classroom Characteristics			
	Teacher-Child Ratio	Teacher Background Questionnaire[t]	

[p] Parent Report Measure. [t] Teacher Report Measure. [o] Observational Measure.

Table 3

Cronbach's Alpha for Scales and Subscales

Variables	N	α
Children's Externalizing Behaviors		
Aggressive Behavior Problems (C-TRF)	88	0.95
Attention Problems (C-TRF)	93	0.89
Externalizing Behavior Problems (C-TRF)	87	0.96
Child Noncompliance (ORCE)	97	0.07
Parental Mental Health		
Parental Depression (CES-D)	96	0.81
Parental Distress (PSI)	96	0.81
Parent-Child Dysfuntional Interaction (PSI)	94	0.81
Difficult Child (PSI)	94	0.77
Total Stress (PSI)	93	0.90
Family Functioning		
Family Conflict (FES)	98	0.40
Family Cohesion (FES)	98	0.10
Teacher Child Relationships		
Closeness (STRS)	93	0.70
Conflict (STRS)	93	0.92
Dependency (STRS)	96	0.68
Total (STRS)	92	0.64
Positive Teacher-Child Interactions (ORCE)	96	0.83

Table 4

Children's Externalizing Behaviors Descriptive Information

Variables	*M*(*SD*)/%
Teacher-Reported Externalizing Behaviors	
Aggressive Behavior Problems (C-TRF)	7.24 (9.41)
Attention Problems (C-TRF)	4.34 (4.36)
Externalizing Behavior Problems (C-TRF)	11.57 (12.85)
Observed Externalizing Behaviors	
Child Noncompliance (ORCE)	0.39 (0.87)

Table 5

Family Risk Factors Descriptive Information

Variables	*M*(*SD*)/%
Parental Mental Health	
Parental Depression (CES-D)	8.29 (7.11)
Parental Distress (PSI)	25.68 (7.29)
Parent-Child Dysfuntional Interaction (PSI)	20.16 (5.64)
Difficult Child (PSI)	27.07 (6.66)
Total Stress (PSI)	72.89 (16.80)
Family Functioning	
Family Conflict (FES)	8.03 (1.00)
Family Cohesion (FES)	6.34 (0.97)
Partner Support (Parent Background Questionnaire)	4.32 (0.84)

Table 7

Bivariate Correlations Between Parents' Mental Health and Children's Externalizing Behaviors

	Parental Depress[p]	Parental Distress[p]	P-C Dys. Interaction[p]	Difficult Child[p]	Total Stress[p]	Aggressive Behavior[t]	Attention Problems[t]	Extern Problems[t]	Child Noncom[o]
Parental Depression	------	.35**	.18	.29**	.33**	.14	.04	.11	.14
Parental Distress		------	.60**	.53**	.86**	.03	-.11	-.03	.12
P-C Dys. Interaction			------	.64**	.85**	.16	-.01	.11	.27*
Difficult Child				------	.85**	.15	.03	.11	.03
Total Stress					------	.13	-.04	.07	.16
Aggressive Behavior						-------	.67**	.97**	.27*
Attention Problems							-------	.84**	.40**
Externalizing Problems								-------	.34**
Child Noncompliance								.	------

[p] Parent Report Measure. [t] Teacher Report Measure. [o] Observational Measure.
*$p \leq .05$, **$p \leq .01$

Table 8

Bivariate Correlations Between Family Functioning and Children's Externalizing Behaviors

	Family Conflict[p]	Family Cohesion[p]	Partner Support[p]	Aggress Behavior[t]	Attention Problems[t]	Extern. Problems[t]	Child Noncom[o]
Family Conflict	------	-.34**	.16	.11	.09	.12	.22*
Family Cohesion		------	-.17	-.11	-.02	-.10	-.25*
Partner Support			------	-.32**	-.07	-.26*	-.10
Aggress Behavior				-------	.67**	.97**	.27*
Attention Problems					-------	.84**	.40**
Extern. Problems						------	.34**
Child Noncomp							------

[p] Parent Report Measure. [t] Teacher Report Measure. [o] Observational Measure.
*$p \leq .05$, **$p \leq .01$

Table 9

Bivariate Correlations Between Teacher-Child Relationships and Children's Externalizing Behaviors

	Closeness[t]	Conflict[t]	Dependenc[t]	Relationshi Quality[t]	Positive T-C Interact[o]	Aggressive Behavior[t]	Attention Problems[t]	Externaliz Problems[t]	Child Noncomp[o]
Closeness	------	-.37**	-.26**	.70**	-.06	-.43**	-.34**	-.43**	-.12
Conflict		------	.59**	-.89**	-.29**	.69**	.65**	.73**	.32**
Dependenc			------	-.73**	-.20	.54**	.40**	.53**	.16
Relationshi Quality				------	.20	-.73**	-.63**	-.75**	-.29**
Positive T-C Interact					------	-.36**	-.37**	-.40**	-.14
Aggress Behavior						------	.64**	.97**	.27**
Attention Problems							------	.84**	.40**
Extern. Problems								------	.34**
Child Noncomp									------

[t] Teacher Report Measure. [o] Observational Measure.
*$p \leq .05$, **$p \leq .01$

Table 10

Bivariate Correlations Between Teacher and Classroom Characteristics, and Teacher-Child Relationships

	Training[t]	Experience[t]	T-C Ratio[t]	Close[t]	Conflict[t]	Depend[t]	Relationship Quality[t]	Positive T-C Interact[o]
Training	------	-.17	.07	-.08	.25	.12	-.25	-.16
Experience		------	.66*	-.08	-.58*	-.40	.42	.17
T-C Ratio			------	-.40	-.27	-.23	.10	-.17
Closeness				------	-.49	-.59*	.73**	-.13
Conflict					------	.70*	-.92**	-.35
Dependency						------	-.88**	-.30
Relationship Quality							------	.27
Positive T-C Interactions								------

[t] Teacher Report Measure. [o] Observational Measure.
*$p \leq .05$, **$p \leq .01$

Table 11

Intercorrelations Between Child Characteristics and Teacher-Child Relationships

	Child Age[p]	Child Gender[p]	Emotional[p]	Sociability[p]	Closeness[t]	Conflict[t]	Dependency[t]	Relationship Quality[t]	Positive T-C Interactions[o]
Child Age	------	.001	-.15	.24*	.16	-.27*	-.16	.25*	.04
Child Gender		------	.04	.13	.19	-.11	.05	.15	.07
Emotional			------	-.18	-.03	.07	.01	-.06	-.05
Sociability				------	.19	-.09	-.07	.15	-.13
Closeness					-------	-.37**	-.28**	.70**	-.06
Conflict						------	.59**	-.88**	-.29**
Dependency							------	-.73**	-.20
Relation Quality								------	.20
Positive T-C Interact									------

[p] Parent Report Measure. [t] Teacher Report Measure. [o] Observational Measure.
*$p \leq .05$, **$p \leq .01$

Table 12

Parents' Depression and Parent-Child Dysfunctional Interaction as Predictors of Externalizing Behaviors

	Externalizing Behaviors								
	Attention Problems			*Aggressive Behaviors*			*Child Noncompliance*		
	β	SE	ΔR^2	β	SE	ΔR^2	β	SE	ΔR^2
Step 1			.08*			.05			.10*
Child Age	-.22*	.73		-.16	1.60		-.21*	.14	
Child Gender[†]	-.18	.91		-.17	1.91		-.25*	.18	
Step 2			.00			.03			.07*
Child Age	-.22*	.74		-.16	1.60		-.22*	.14	
Child Gender[†]	-.18	.93		-.14	1.93		-.23*	.18	
Depression	.00	.06		.09	.13		.06	.01	
Parent Child Dysfunctional Interaction	-.01	.09		.13	.18		.25*	.02	

*$p \leq .05$, **$p \leq .001$ [†] male = 0 female = 1

Table 13

Family Conflict, Family Cohesion, and Partner Support as Predictors of Externalizing Behaviors

	Externalizing Behaviors								
	Attention Problems			*Aggressive Behaviors*			*Child Noncompliance*		
	β	SE	ΔR^2	β	SE	ΔR^2	β	SE	ΔR^2
Step 1			.06			.03			.12*
Child Age	-.20	.81		-.13	2.06		-.22*	.14	
Child Gender[†]	-.15	1.03		-.12	2.50		-.28*	.18	
Step 2			.04			.12 (p = .08)			.15*
Child Age	-.21	.83		-.13	2.02		-.29*	.14	
Child Gender[†]	-.13	1.04		-.09	2.42		-.28*	.17	
Family Conflict	.21	.38		.11	.87		.18 (p = .10)	.06	
Family Cohesion	.05	.54		-.03	1.26		-.28*	.09	
Partner Support	-.05	.67		-.29*	1.55		.03	.11	

*$p \leq .05$, **$p \leq .001$ [†] male = 0 female = 1

Table 14

Teacher-Child Closeness, Conflict, Dependency, and Positive Teacher-Child Interactions as Predictors of Externalizing Behaviors

	Attention Problems			Aggressive Behaviors			Child Noncompliance		
	β	SE	ΔR^2	β	SE	ΔR^2	β	SE	ΔR^2
Step 1			.10*			.07 (*p* = .06)			.08*
Child Age	-.28	.73		-.23*	1.59		-.21*	.15	
Child Gender[†]	-.13	.91		-.12	1.92		-.22*	.19	
Step 2			.43**			.50**			.03
Child Age	-.10	.57		-.02	1.17		-.14	.15	
Child Gender[†]	-.06	.69		-.07	1.36		-.20	.19	
Conflict	.55**	.06		.41**	.12		.29*	.02	
Closeness	-.10	.07		-.21*	.13		.07	.02	
Dependency	.04	.10		.28*	.19		.01	.03	
Positive Teacher-Child Interactions	-.17*	.06		-.10	.11		-.01	.02	

*p ≤ .05, **p ≤ .001 [†] male = 0 female = 1

Table 15

Parent Child Dysfunctional Interaction x Teacher-Child Conflict as a Predictor of Child Noncompliance

	Child Noncompliance		
	β	SE	ΔR^2
Step 1			.11*
Child Age	-.21*	.15	
Child Gender[†]	-.25*	.19	
Step 2			.06*
Child Age	-.22*	.14	
Child Gender[†]	-.23*	.18	
PC Dys Int	.24*	.02	
Step 3			.05*
Child Age	-.16	.15	
Child Gender[†]	-.21*	.18	
PC Dys Int	.21*	.02	
Conflict	.23*	.01	
Step 4			.00
Child Age	-.16	.15	
Child Gender[†]	-.20*	.18	
PC Dys Int	.04	.06	
Conflict	.01	.05	
PC Dys Int x Conflict	.31	.00	

$*p \leq .05$, $**p \leq .001$ [†] male = 0 female = 1

Table 16

Family Cohesion x Teacher-Child Conflict as a Predictor of Child Noncompliance

	β	SE	ΔR^2
	Child Noncompliance		
Step 1			.11*
Child Age	-.20*	.14	
Child Gender[†]	-.25*	.18	
Step 2			.07*
Child Age	-.23*	.14	
Child Gender[†]	-.25*	.17	
Family Cohesion	-.27*	.08	
Step 3			.06*
Child Age	-.16	.14	
Child Gender[†]	-.22*	.17	
Family Cohesion	-.28*	.08	
Conflict	.26*	.01	
Step 4			.05*
Child Age	-.13	.14	
Child Gender[†]	-.19*	.17	
Family Cohesion	.44	.27	
Conflict	2.31*	.09	
Cohesion x Conflict	-2.20*	.01	

*$p \le .05$, **$p \le .001$ [†] male = 0 female = 1

FIGURES

Figure 1. Conceptual model of teacher-child relationship quality moderating impact of primary caregiver's mental health and family functioning on problem behaviors.
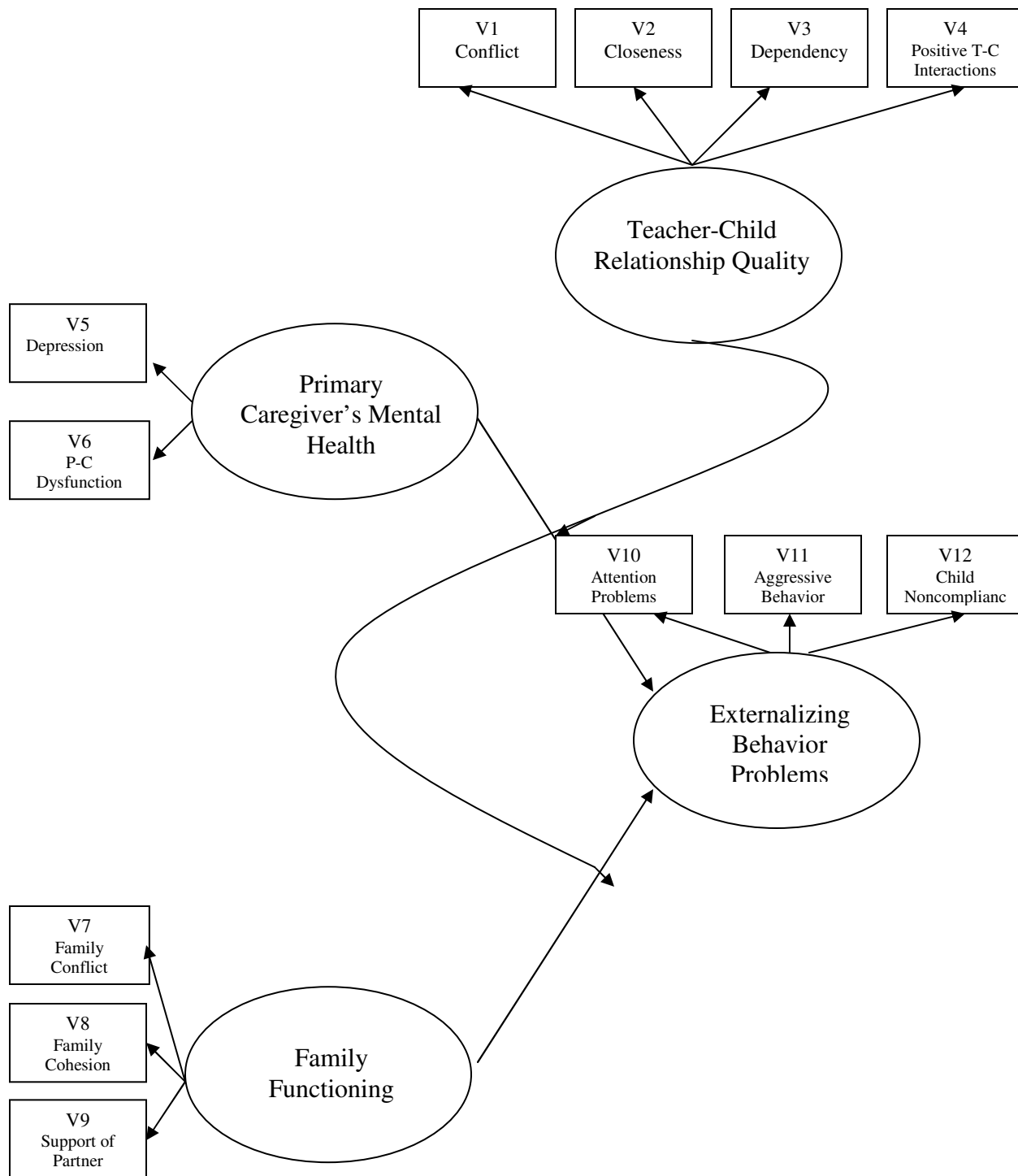
Figure 2. Structural equation model including teacher-child relationship quality and parental mental health as predictors of externalizing behavior problems.

Note: Bolded path is significant.
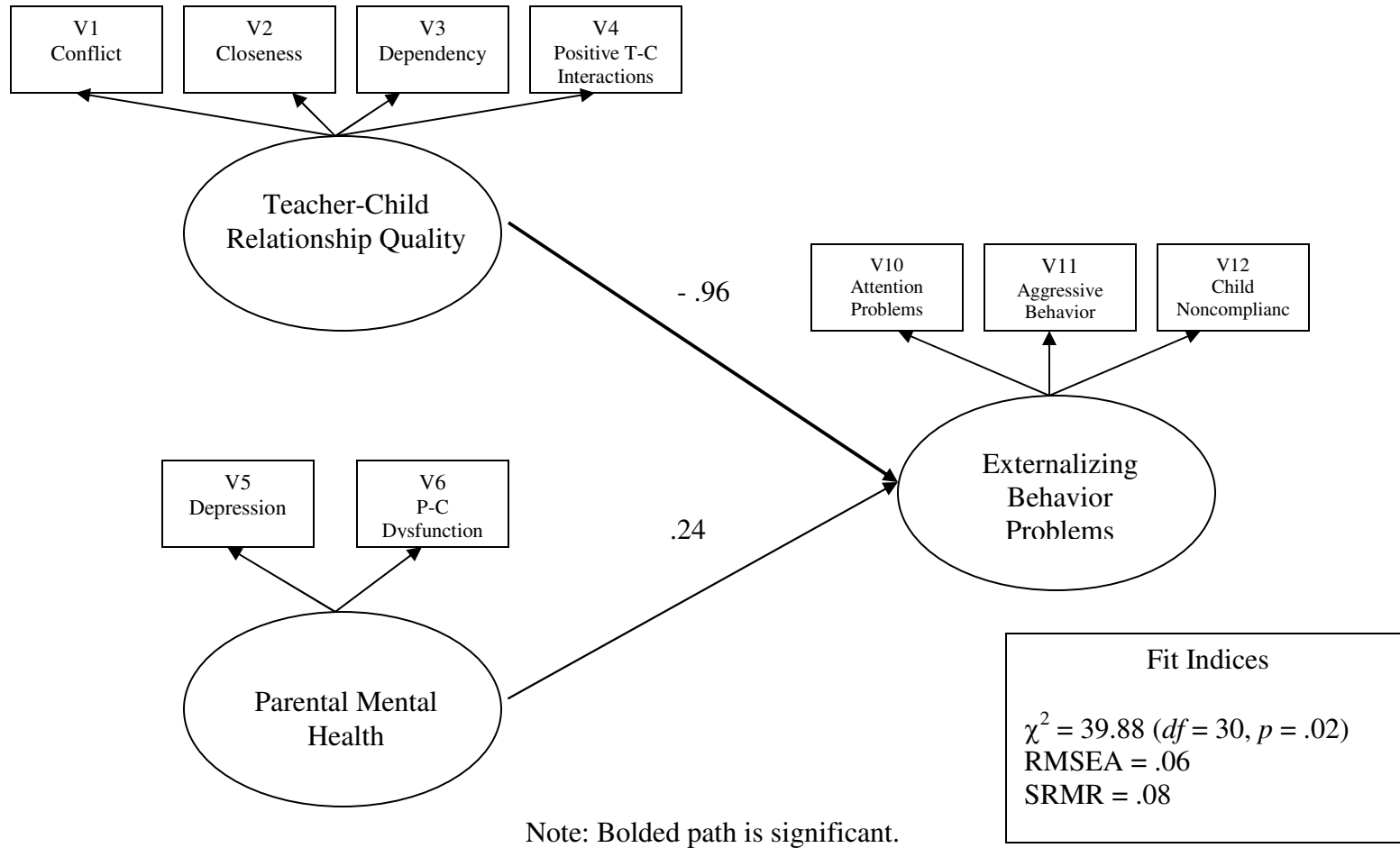
Figure 3. Structural equation model including teacher-child relationship quality, parental mental health, and teacher-child relationship quality x parental mental health as predictors of externalizing behavior problems.
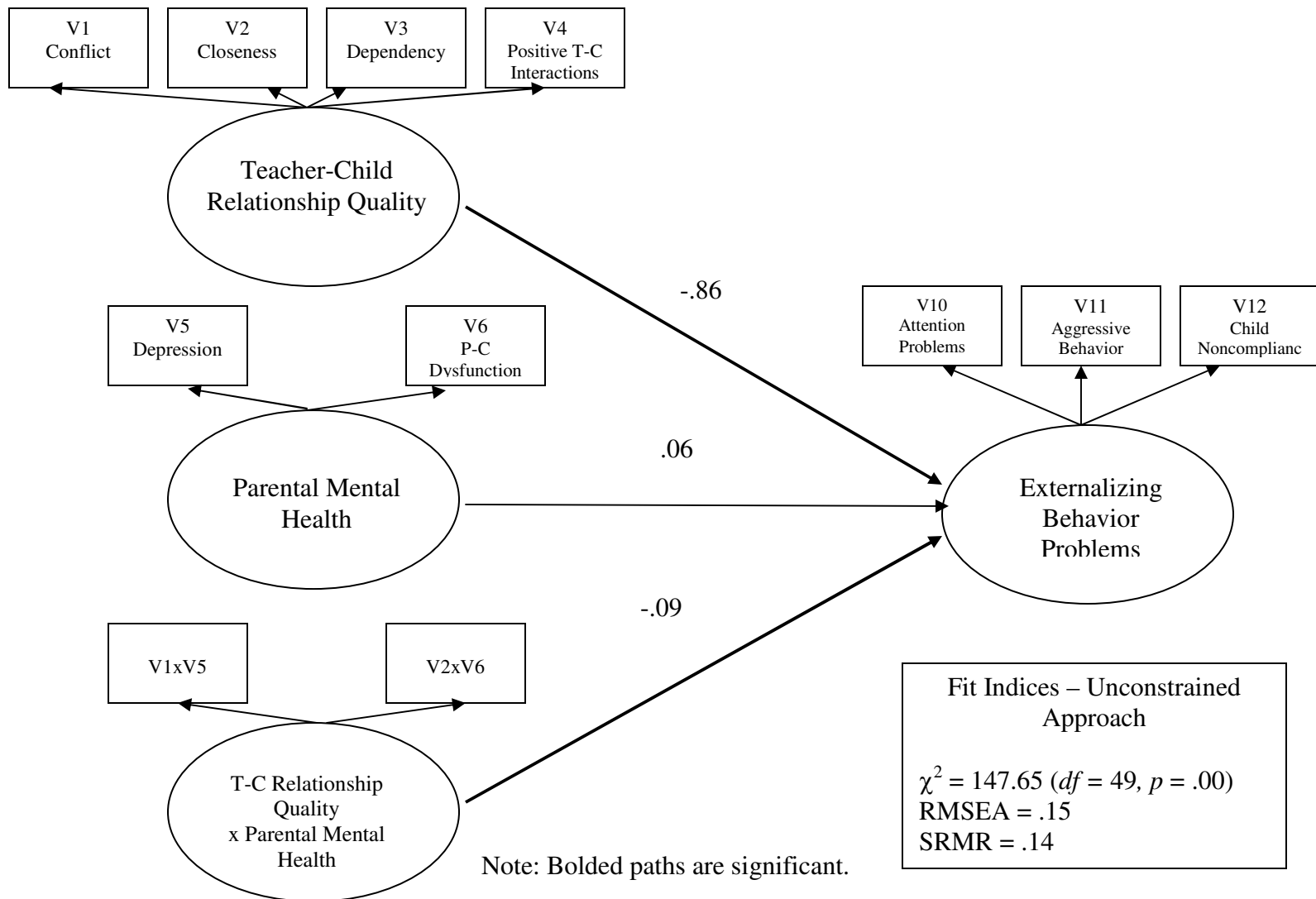
Figure 4. Structural equation model including teacher-child relationship quality and family functioning as predictors of externalizing behavior problems.
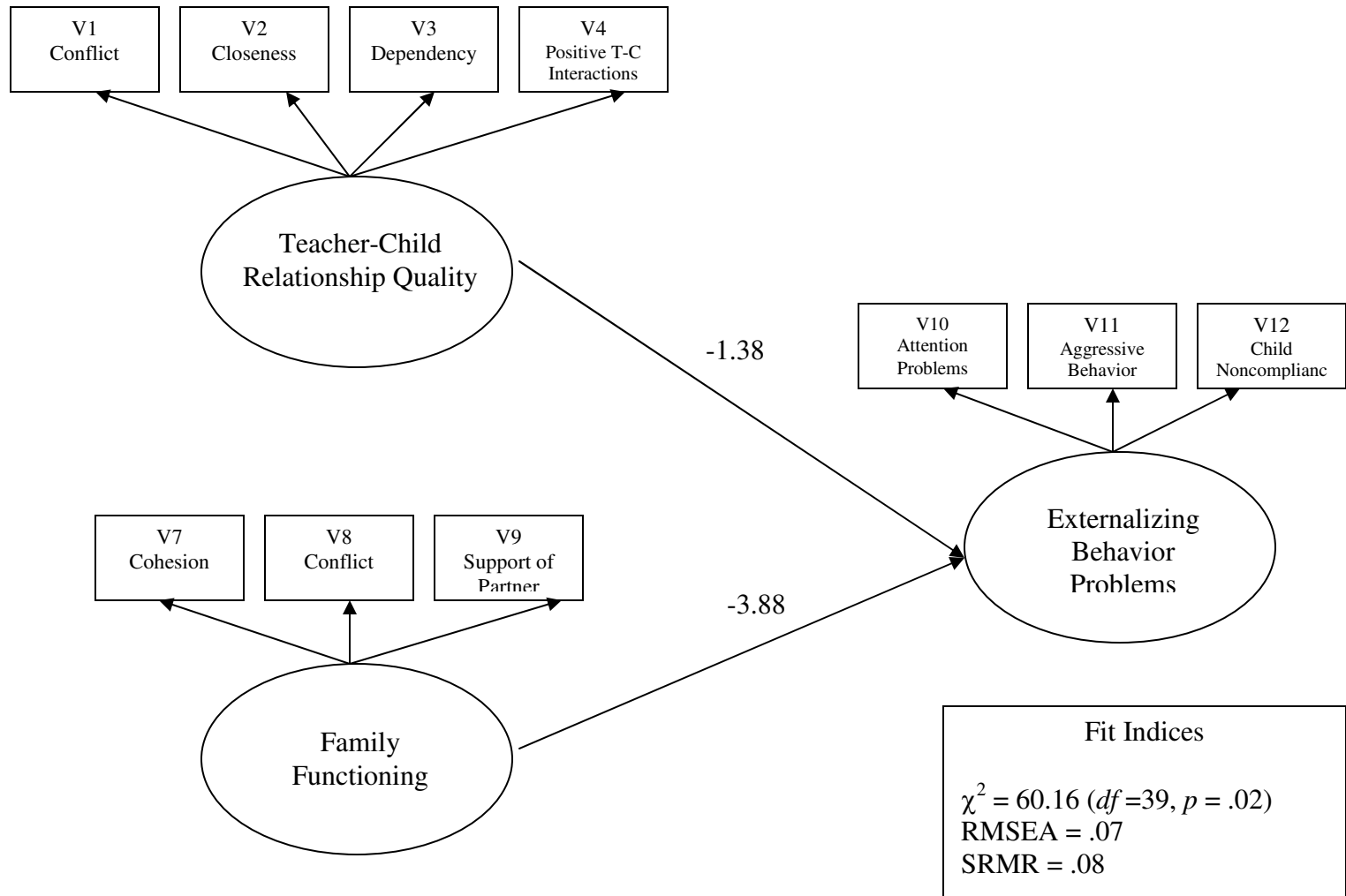
Figure 5. Structural equation model including teacher-child relationship quality, family functioning, and teacher-child relationship quality x family functioning as predictors of externalizing behavior problems.
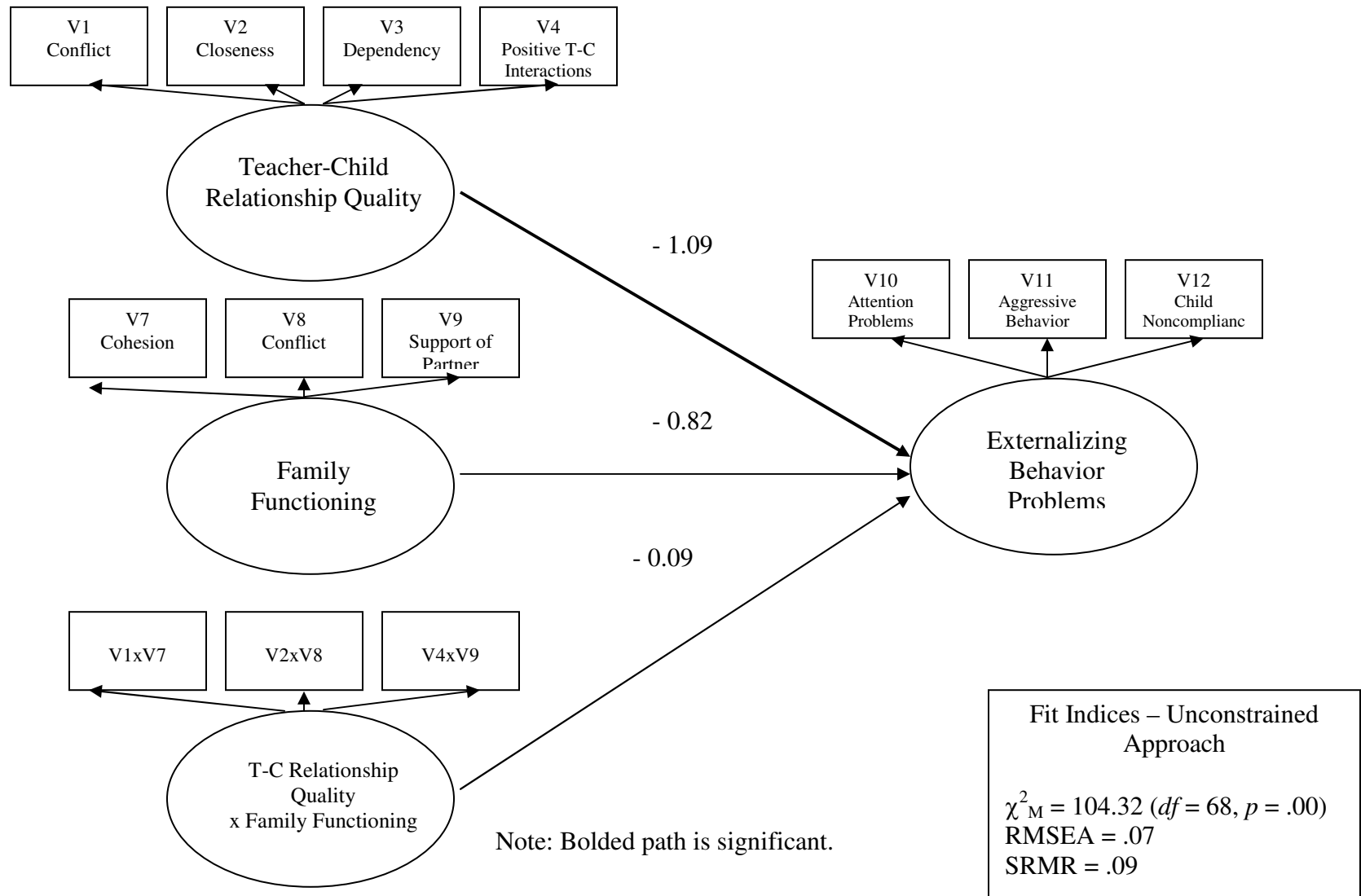
Figure 6. The effect of family cohesion on child noncompliance by teacher-child conflict.

The Effect of Family Cohesion on Child Noncompliance by Teacher-Child Conflict
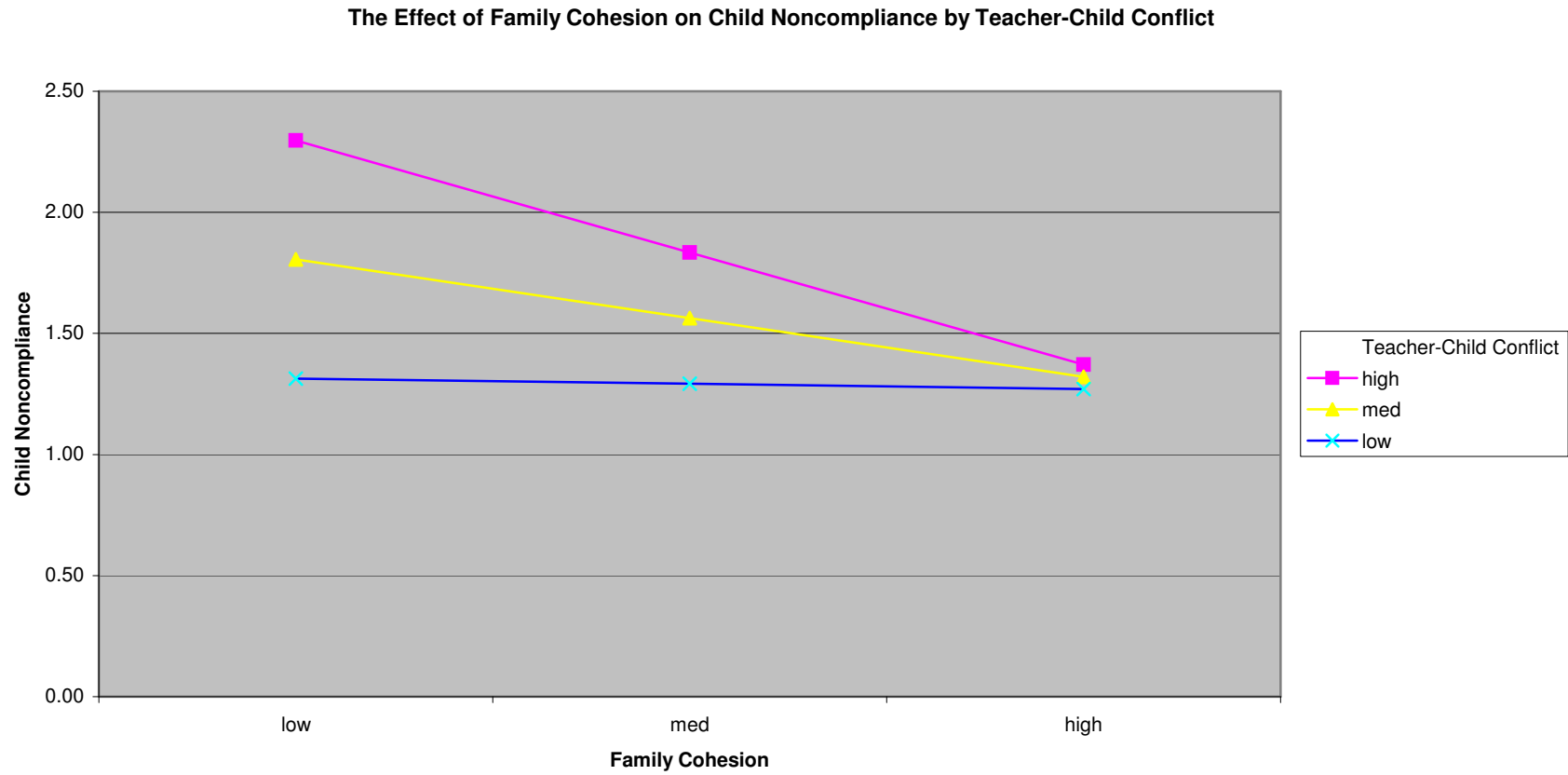
APPENDIX A

Data Collection Schedule

12 Week Data Collection Plan (Weeks 1 - 8)

TASKS	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Parent Interviews			1 interview x 5 days x 4 researchers a day = 20 possible	1 interview x 5 days x 4 researchers a day = 20 possible	1 interviews x 5 days x 4 researchers a day = 20 possible	1 interview x 5 days x 5 researchers a day = 20 possible	1 interview x 5 days x 4 researchers a day = 20 possible	1 interview x 5 days x 4 researchers a day = 20 possible
Teacher Interviews	1 interview a day x 5 days x 4 researchers = 20 possible	1 interview a day x 5 days x 4 researchers = 20 possible						
Classroom Observations			1 observation a day x 5 days x 4 researchers = 20 possible	1 observation a day x 5 days x 4 researchers = 20 possible	1 observation a day x 5 days x 4 researchers = 20 possible	1 observation a day x 5 days x 4 researchers = 20 possible	1 observation a day x 5 days x 4 researchers = 20 possible	1 observation a day x 5 days x 4 researchers = 20 possible

12 Week Data Collection Plan (Weeks 9-12)

TASKS	Week 9	Week 10	Week 11	Week 12		TOTAL POSSIBLE		
Parent Interviews	1 interview x 5 days x 4 researchers a day = 20 possible	1 interview x 5 days x 4 researchers a day = 20 possible	1 interview x 5 days x 4 researchers a day = 20 possible	1 interview x 5 days x 4 researchers a day = 20 possible	=	200 Possible Interviews		
Teacher Interviews					=	40 Possible Interviews		
Classroom Observations	1 observation a day x 5 days x 4 researchers = 20 possible	1 observation a day x 5 days x 4 researchers = 20 possible	1 observation a day x 5 days x 4 researchers = 20 possible	1 observation a day x 5 days x 4 researchers = 20 possible	=	200 Possible Observations		

APPENDIX B

T-tests Comparing Children With and Without Disabilities

Table B1

Independent Samples T-Tests Comparing Children With and Without Disabilities

	Externalizing Behaviors								
	Attention Problems			Aggressive Behaviors			Child Noncompliance		
	M	*t*	*p*	*M*	*t*	*p*	*M*	*t*	*p*
		t(90) = -1.56	.15		t(85) = -1.50	.17		t(94) = -1.83	.10
Children with Disabilities	7.10			12.7			1.18		
Children without Disabilities	4.01			6.5			.26		

APPENDIX C

Field Manual

Teacher-Child Relationships Study (TCRS)

*Examining relations among children's risks, relationships,
and externalizing behaviors in Head Start*

Brenda Jones Harden, PhD and Jessica Vick
University of Maryland at College Park

Study Overview

Welcome to the Teacher-Child Relationships Study (TCRS). This manual is designed to meet the needs of center directors, teachers, and interviews/assessors.

This project was developed in response to Head Start's commitment to ensuring that children from disadvantaged backgrounds enter school with the social and emotional foundations necessary to be successful. The overarching goal of this research effort is to explore how the interaction between teacher-child relationships and family risk factors impact children's externalizing behaviors. In this vein, 4 sets of factors will be examined: 1) family risk; 2) teacher-child relationship quality; 3) teachers' training and education; and 4) children's externalizing behaviors.

One-hundred children from 10 classrooms of the United Planning Organization in Washington, DC will be assessed regarding their externalizing behaviors. Children's primary caregivers will participate in an interview at the Head Start center addressing their perceived family functioning, and mental health. Teachers will be interviewed about their educational background and training, their perception of their relationships with their students, and their assessment of their students' externalizing behaviors. Finally, teacher-child interactions in the classroom will be observed and coded.

The purpose of this study is to examine how teacher-child relationships can help protect Head Start children from family risk. The proposed study is designed to examine whether teacher-child relationships moderate the impact of risk on children's externalizing behaviors. In other words, are positive teacher-child relationships more important for children who are at higher risk? A major goal of the study is to partner with Head Start programs in an effort to inform their approach to training teachers to foster self regulatory skills in young children.

Your role as a center director, teacher, or interviewer/assessor is critical to this study. Therefore, it is important that you become familiar with the study itself. I am hoping that this manual will provide you with valuable information.

Background and Purposes

The prevalence of externalizing behaviors in the general population of preschool children is estimated to be between 7 – 25% (Webster – Stratton, 1997). Head Start children fall at the high end of the range with studies suggesting that 25% of Head Start children exhibit internalizing and externalizing behaviors (Kaiser, Hancock, Cai, Foster, & Heater, 2000). Compared to a community sample, significantly more 4-year old children enrolled in Head Start were reported by mothers as having behavior problems in the clinical or subclinical range (Kaiser et al., 2000) and demonstrated higher levels of physical aggression (Kupersmidt, Bryant, and Willoughby, 2000).

Head Start children may be more likely to exhibit behavior problems due to the high risk environments in which they live. Risk factors such as family adversity (Nadeau, Tessier, Boivin, Lefebvre, & Robaey, 2003), economic instability (Fuller et al., 2002), parents' poor mental health (Leadbeater, Bishop, & Raver, 1996), and exposure to family violence (Litrownik, Newton, Hunter, Enlish, & Everson, 2003) have all been shown to be associated with externalizing behaviors.

Children reared in high-risk environments can have positive developmental outcomes despite the challenges that they face. Head Start represents an ideal venue to examine strategies to promote the optimal development of children at-risk for externalizing behaviors. Although progress is being made, there continues to be a need for improvement in the implementation of services for children at-risk for developing externalizing behaviors. **Program developers interested in improving Head Start's commitment to helping children develop social and emotional competence must determine how to protect children from the impact of social and ecological risk. That is, they must determine which risk and protective factors are most critical and feasible to target for fostering children's social emotional development.**

The proposed study is designed to examine whether teacher-child relationships moderate the impact of risk on children's externalizing behaviors. In other words, are positive teacher-child relationships more important for children who are at higher risk? A major goal of the study is to partner with Head Start programs in an effort to inform their approach to training teachers to foster self regulatory skills in young children. It is anticipated that this effort will contribute to children's concurrent and future social emotional competence. There is evidence that quality teacher-child interactions can lead to positive developmental outcomes for high-risk children (Hagekull & Bohlin, 1995; Peisner-Feinberg et al., 2001; Pianta, Nimetz, & Bennett, 1997). However it remains unclear whether quality teacher-child relationships can serve as a protective factor for children with family risk. There is a need for a comprehensive analysis of the interactions between risk and teacher-child relationships in predicting children's externalizing behaviors in Head Start children.

Specifically, this study has the following four objectives:

1. To examine how family risk factors are related to children's externalizing behaviors.
2. To investigate the association between teacher-child relationship quality and children's externalizing behaviors.
3. To examine the relationships between family risk, teacher-child relationships, and children's externalizing behaviors by developing and testing a theory based latent variable model predicting children's externalizing behaviors.
4. To develop a partnership with Head Start to determine how researchers and practitioners can work together to enhance teacher-child relationships as a means of promoting optimal social emotional outcomes and alleviating externalizing behaviors in participant children.

2.1 Sponsorship of the Teacher Child Relationship Study

This study is being sponsored by the Administration for Children, Youth and Families (ACYF) and the Department of Health and Human Services (DHHS). Brenda Jones Harden, PhD, and Jessica Vick are conducting this study. The United Planning Organization is supporting this study and is playing an active role in providing information about the study to the Head Start centers.

The Student-Teacher Relationships Study is a short term study and will last for 4 months in the spring of 2007. Children selected for the study must be in Head Start, and must have been in a classroom with the same lead teacher for at least 4 months. All children with parental permission who meet this criteria will be included in the study.

2.2 Overview of data collection

During spring 2007, we will be collecting the following data:

- **Parent Interview:** Parent interviews are conducted with the parents/primary caregivers of every child in the study. Parents will be interviewed at the Head Start centers during drop-off and pick-up for 20 minutes.
- **Teacher Surveys:** Teachers will be interviewed and will complete self-administered questionnaires. The interview and completion of the surveys will take place at the Head Start centers and will take approximated 2.5 hours to complete.
- **Observations:** Each child with parental permission will be observed in the classroom for 2 hours. Observations will take place during the morning. Observers will spend 2 weeks in each classroom.

2.3 The Role of the Center Directors, Teachers, and Interviewers/Assessors

In many ways, the success of this project hinges on your assistance and cooperation. As a team, we will try to recruit as many families as possible to participate in this project. Interviewers will have the central role in data collection and the word "you" throughout the manual is directed to the Interviewers/Assessors.

The interviewers/assessors collect the data for the study in a manner that is as error free and bias free as possible. This, in turn, will allow me to write about the results of the study with confidence that the results accurately represent the population studied. As an interviewer/assessor, you will:

- Conduct parent interviews with parents of all children in the study, obtaining informed consent for *both* the child's and the parent's participation in the study.
- Conduct teacher interviews
- Conduct observations of teacher-child interactions
- Maintain accurate records

Procedures

3.1 Training

Research assistants will be trained in January of 2007. Training will be conducted by the graduate student investigator and faculty mentor. Training of the research assistants will consist of appropriate administration of measures included in the protocol, appropriate conduct during classroom observations, and live coding of classroom observations. The research assistants will be trained to code classroom interactions and student observations until their coding is at 80% reliability with the graduate student investigator. On-going "booster" sessions will be conducted throughout the data collection phase to ensure that inter-rater reliability is sustained. The research assistants will: (1) administer questionnaires to primary caregivers; (2) administer questionnaires to teachers; (3) conduct and code observations of teacher-child interactions; (5) enter data into SPSS.

3.2 Consent

The researchers will meet with the Center Director and lead teachers at each of the Head Start centers to recruit participants. The graduate student researcher will explain the purpose and scope of this research and ask teachers if they are willing to participate. Teachers and the Center Directors will be informed that they will receive aggregate data for the center on parents' risks, teacher-child relationships, and children's externalizing behaviors. Teachers who are willing to participate will be asked to sign an informed consent form.

All children in classrooms where teachers have consented to participate will receive a flyer requesting parent and child participation in a study on teacher-child relationships, and a consent form for their child's participation. Parents will be asked to send the child consent form back to the Head Start Center with their children. Children whose parents do not send back the consent form will be contacted during drop-off or pick-up time and asked if they consent to have their children participate in this project. With the assistance of the center directors, the graduate student investigator will contact any parents who do not drop off or pick up their children by phone to explain the project and ask them to send the consent form in with their children. If the family does not have a telephone, a note will be sent home with the child requesting that the parent come into the center for a brief meeting with the graduate student investigator.

Parents who respond affirmatively to the request for their participation in the research project will be contacted at the center or by an initial telephone call to schedule a time and day to meet at the Head Start center. The study will be described in detail and verbal consent will be obtained from the parent. Prior to initiating data collection, written informed consent will be requested of the parent. Parents who do not consent to the study will be thanked for their time.

3.3 Parent Interviews

Parent interviews require a quiet location, free from distractions, where privacy can be ensured. The Parent Interview is conduct in English. As an interviewer/assessor, your role is crucial to the success of this study. You will be the individual who is conducting the Parent Interview. Parents will receive $20 when the interview is complete. Specifically, your responsibilities include:

- Obtaining informed consent from parents
- Verifying the eligibility of the parent/primary caregiver as the child's primary caregiver
- Conducting the Parent Interview and verifying its completeness
- Maintaining confidentiality and security of all STRS materials
- Distributing parent incentives and obtaining signed receipts upon completion of the interview
- Updating Jessica on all information related to your data collection
- Thoroughly editing all interviews before turning them over to Jessica

3.4 Teacher Interviews

Teacher interviews also require a quiet location, free from distractions. It will be ideal to conduct the interview in a location other than the classroom. The Teacher Interview is conducted in English. While you are interviewing the teacher, Jessica will be conducting activities with students in the classroom. The interview will last approximately 2.5 hours. Teachers will receive $50 once the interview has been completed. Specifically, your responsibilities include:

- Obtaining consent from teachers
- Conducting the teacher interview and verifying its completeness
- Ensuring that teachers complete the Student Teacher Relationship Scale and the Teacher Caregiver Report Form for *every* child who has been in the classroom for 4 months or more
- Maintaining confidentiality of all STRS materials
- Distributing teacher incentives and obtaining signed receipts upon completion of the interview
- Updating Jessica on all information related to your data collection
- Thoroughly editing all interviews before turning them over to Jessica

3.5 Observations

Two hour observations of student-teacher interactions will be conducted for every child who has permission to participate in the study. It is important to check with Jessica to determine whether or not a child has parental consent for participation. You will conduct one observation per day in the morning. Specifically, your responsibilities include:

- Conducting the observation and verifying the completeness of your records
- Maintaining confidentiality of all materials
- Updating Jessica on all information related to your data collection
- Thoroughly editing all observation notes before turning them over to Jessica

Data Collection

This manual provides examples and descriptions of materials to use to enlist cooperation of children, primary caregivers, and teachers. It also includes examples and descriptions of materials to collect and record data.

It is your responsibility to make sure that you always have a sufficient supply of all materials necessary to complete your assignments. Each day, before starting your work, you should check over your materials. If you do not take time to ensure that you have all needed materials, you could waste time returning to get materials needed.

For your safety and to secure any survey materials in your car, make sure that your car is locked whenever you are in the field, whether you are in your car or not. All survey materials must be secured at all times. You will be responsible for accounting for materials that are entrusted to you, including completed surveys, and even those that are not used.

It is important that you become very familiar with these materials during your training so that you will know where to find specific answers to questions once you are working.

4.1 Data collection materials

Consent and Permission Forms for Parents or Primary Caregivers
The consent letter explains the study and requires a parent or primary caregiver signature for agreement to participate in the study. The parent interview and child observation may NOT be conducted until the forms are signed by the parent or primary caregiver. The white copy is kept for Jessica's records and the yellow copy is given to the parent/primary caregiver.

Parent Interviews

If a parent consents to participate in the study, the graduate student investigator will proceed with the protocol. The parent interview folders provide the questions and the space for recording responses with data related to background information, family functioning, and parent's health. You will verbally administer the *Parent Background Questionnaire*, the *Family Environment Scale* (Moos & Moos, 2002), the *Parenting Stress Index* (PSI; Abidin, 1990) and the *Center for Epidemiological Studies Depression Scale* (CES-D; Radloff, 1977).

Parent Interview Receipts
Following the completion of the Parent Interview, the parent/primary caregiver will be awarded a cash incentive. When the incentive is distributed, obtain a signed receipt from the recipient.

Teacher Interviews

Lead teachers who respond to the request for their participation in the research project will be visited and asked to schedule a two and a half hour period of time to meet with you to complete the *Teacher Background Questionnaire*, the *Caregiver-Teacher Report Forms 1 ½ - 5* (C-TRF 1 ½ -5; Achenbach & Rescorla, 2000) and the *Student Teacher Relationship Scales* (Pianta, 2001).

The *Teacher Background Questionnaire* should be administered verbally, but the *Caregiver-Teacher Report Forms* and *Student Teacher Relationship Scales* can be completed independently by the teacher. However, you should stay with the teacher and ensure that he/she has completed these two measures for every child who has been in his/her classroom for at least 4 months.

Teacher Interview Receipts

At the end of the interview, teachers will receive a cash incentive. When the incentive is distributed, obtain a signed receipt from the recipient.

Observations

Two week visits in each classroom (2.5 hours per day) will consist of the graduate student investigator and research assistants completing the *Observational Record of the Caregiving Environment* (NICHD, ECCRN, 1996) for each child who has permission to participate in the study (one observation per child). All observations will be conducted in the morning when the children are engaging in group time and center time.

4.2 Data Collection Instruments

Variable	Construct	Measures	Time Expected to Complete
Children's Externalizing behaviors			
	Externalizing Behaviors	C-TRF 1 ½ - 5[t]	5 min/child
Parents' Mental Health			
	Depression	CES-D[p]	5 minutes
	Parenting Stress	PSI[p]	10 minutes
Family Functioning			
	Family Conflict	Family Environment Scale[p]	10 minutes
	Family Cohesion	Family Environment Scale[p]	
Teacher-Child Relationship Quality			
	Closeness	STRS[t]	5 min/child
	Conflict	STRS[t]	
	Positive Interactions	ORCE[o]	2 hours/child
Teacher Characteristics			
	Training and Education	Teacher Background Questionnaire[t]	5 minutes
Child Characteristics			
	Gender	Parent Background Questionniare[p]	5 minutes
Classroom Characteristics			
	Group Size	Teacher Background Questionnaire[t]	

[p] Parent Report Measure
[t] Teacher Report Measure
[o] Observational Measure

Confidentiality

We pledge to participants that we will preserve and protect the standards of confidentiality. Participants must be convinced of the legitimacy and value of our study, and must trust that their responses will be treated in the strictest of confidence. We want participants to answer freely with the confidence that no one outside the project will hear about their responses. Proper handling and storage of all materials are critical to ensure against loss, breach of security or participant confidentiality. Be careful not to discuss any aspects of the data gathered while on center grounds or in public locations.

If the participants have questions about who will see the data, assure that that only the project staff will see the information, and *no information will be reported back to the Head Start center, except in aggregate form.* Do not discuss any specific details of the data collected with any of the school staff. Keep materials with you at all times. Never leave materials lying around for people to see. This includes blank interviews and forms.

Professional Conduct

Professional conduct is extremely important. It is important that you establish a good rapport with center directors, teachers, parents, and children at each center. This can best be achieved through professional, friendly, and respectful interactions. Please dress in business-type attire, however, you do not have to be "over-dressed". Determine what the dress code is for the center, and follow it. Please do not eat, drink, or chew gum while at the centers.

Please try to be sensitive to the needs of the participants in the study by following these guidelines:

- **Flexibility**: Follow the rules of etiquette that you observe from school staff and parents so that you put them at ease with your presence. However, do not violate the protocol of the study.
- **Trust:** Time, respect, consistency, and follow-through are important in developing a relationship that includes trust.
- **Recognition of Priorities**: Although the priority is to complete the study in an efficient and timely fashion, we need to realize that we are guests, and participation is voluntary.

APPENDIX D

IRB Consent

UNIVERSITY OF
MARYLAND
INSTITUTIONAL REVIEW BOARD

February 21, 2007

MEMORANDUM
Renewal Application Approval Notification

To:	Dr. Brenda Jones Harden Jessica Vick Department of Human Development
From:	Roslyn Edson, M.S., CIP, IRB Manager University of Maryland, College Park
Re:	**IRB Application Number:** 06-0081 **Project Title:** "Teacher-Child Interactions in Head Start"
Approval Date:	February 19, 2007
Expiration Date:	March 14, 2008
Type of Application:	Renewal
Type of Research:	Non-exempt
Type of Review For Application:	Expedited

The University of Maryland, College Park Institutional Review Board (IRB) approved your IRB application. The research was approved in accordance with 45 CFR 46, the Federal Policy for the Protection of Human Subjects, and the University's IRB policies and procedures. Please reference the above-cited IRB application number in any future communications with our office regarding this research.

Recruitment/Consent: For research requiring written informed consent, the IRB-approved and stamped informed consent document is enclosed. The IRB approval expiration date has been stamped on the informed consent document. Please keep copies of the consent forms used for this research for three years after the completion of the research.

Continuing Review: If you want to continue to collect data from human subjects or to analyze private, identifiable data collected from human subjects after the approval expiration date indicated above, you must submit a renewal application to the IRB Office at least 30 days before the approval expiration date.

Modifications: Any changes to the approved protocol must be approved by the IRB before the change is implemented, except when a change is necessary to eliminate apparent immediate hazards to the subjects. If you would like to modify the approved protocol, please submit an addendum request to the IRB Office. The instructions for submitting an addendum request are posted on the IRB website at:
http://www.umresearch.umd.edu/IRB/irb_Addendum%20Protocol.htm. (Continued)

APPENDIX E

Teacher Consent Form

TEACHER CONSENT FORM

Project Title	*Examining relations among risks, teacher-child relationships, and problem behaviors in Head Start*
Why is this research being done?	*This is a research project being conducted by Dr. Brenda Jones Harden at the University of Maryland, College Park. We are inviting you to participate in this research because you are the teacher of a child currently enrolled in Head Start. The purpose of this research is to help Head Start provide the most appropriate services for parents and children.*
What will I be asked to do?	*The procedure involves one two-hour session, during which you will be interviewed about yourself and your students. You will be asked questions about your education and training. During the interview about your students, you will be asked to assess each of your students' problem behaviors. You will also be asked some questions about your relationship with each student in the classroom.* *In addition, the procedure involves a two-hour and fifteen-minute observation of each student in your classroom who has permission to participate in this study.* *The interview will take place at the Head Start center, and the observations will take place in your classroom.*
What about confidentiality?	*We will do our best to keep your personal information confidential. To help protect your confidentiality: (1) your name will not be included on the surveys or other collected data; (2) a code will be placed on the survey and other collected data; (3) the researcher will only be able to link your survey to your identity (through the use of an identification key); and (4) only the researcher will have access to the identification key. If we write a report or article about this research project, your identity will be protected to the maximum extent possible.* *Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law. In accordance with legal requirements and/or professional standards, we will disclose to the appropriate individuals and/or authorities information that comes to our attention concerning child abuse or neglect or potential harm to you or others.*
What are the risks of this research?	*There may be a chance that someone will learn information about you, although the research team will try extremely hard not to let this happen.*

Project Title	*Examining relations among risks, teacher-child relationships, and problem behaviors in Head Start*
What are the benefits of this research?	*This research is not designed to help you personally, but the results may help the investigator learn more about the needs of Head Start families, and the relationships between Head Start students and teachers. We hope that, in the future, we can create training programs designed to foster positive relationships between Head Start students and teachers.*
Do I have to be in this research? Can I stop participating at any time?	*Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.*
What if I have questions?	*This research is being conducted by Dr. Brenda Jones Harden, and Jessica Vick at the University of Maryland, College Park. If you have any questions about the research study itself, please contact Brenda Jones Harden at: The University of Maryland, 3304 Benjamin Building, College Park, MD 20742, 301-405-2580.* *If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:* **Institutional Review Board Office, University of Maryland, College Park, Maryland, 20742;** **(e-mail) irb@deans.umd.edu; (telephone) 301-405-0678** *This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.*

Statement of Age of Subject and Consent	*Your signature indicates that:*
	    you are at least 18 years of age;
	    the research has been explained to you;
	    your questions have been answered; and
	    you freely and voluntarily choose to participate in this research project.

TEACHER'S NAME (please print): _____

TEACHER'S SIGNATURE: _____ DATE: ____/____/___

APPENDIX F

Study Information Sheet

ATTENTION PARENTS

The United Planning Organization and the University of Maryland are doing a project on teacher-student relationships. The purpose of the project is to help Head Start provide the best education and services possible for your children.

You can help us by doing the following 2 things:

1. Please send in the attached consent form with your child. Please sign the form, and check whether or not you give him/her permission to participate in this project.

2. Please see Jessica Vick when you drop off or pick up your child. If you agree to participate, you will be asked a short series of questions about yourself.

YOU WILL RECEIVE $20 FOR YOUR TIME.

If you have any questions about the project, please call Jessica Vick at **301-405-3860**
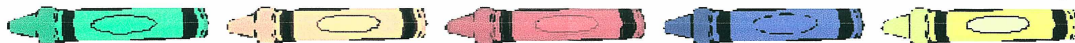
APPENDIX G

Parent Permission Form

<u>CAREGIVER PERMISSION FORM</u>

Project Title	*Examining relations among risks, teacher-child relationships, and problem behaviors in Head Start*
Why is this research being done?	*This is a research project being conducted by Dr. Brenda Jones Harden at the University of Maryland, College Park. We are inviting you to participate in this research because you are the caregiver of a child currently enrolled in Head Start. The purpose of this research is to help Head Start provide the most appropriate services for parents and children.*
What will your child be asked to do?	*The procedure involves one session, during which your child will be observed in the classroom. The total time of the observation is two-hours and fifteen- minutes. The observations will take place in your child's classroom at the United Planning Organization center. We will try to make sure that we do not disrupt your child's normal classroom activities.*
What about confidentiality?	*We will do our best to keep your child's personal information confidential. To help protect your child's confidentiality: (1) your child's name will not be included on any collected data; (2) a code will be placed on collected data; (3) the researcher will be able to link your child's observation information to your child's identity(through the use of an identification key); and (4) only the researcher will have access to the identification key. If we write a report or article about this research project, your child's identity will be protected to the maximum extent possible.* *Your child's information may be shared with representatives of the University of Maryland, College Park or governmental authorities if he/she is in danger or if we are required to do so by law. In accordance with legal requirements and/or professional standards, we will disclose to the appropriate individuals and/or authorities information that comes to our attention concerning child abuse or neglect or potential harm to your child.*
What are the risks of this research?	*There may be a chance that someone will learn information about your child, although the research team will try extremely hard not to let this happen.*
What are the benefits of this research?	*This research is not designed to help you or your child personally, but the results may help the investigator learn more about the needs of Head Start children, and how to provide the most effective Head Start services. We hope that, in the future, other people might benefit from this study through the creation of improved Head Start services.*

Project Title	*Examining relations among risks, teacher-child relationships, and problem behaviors in Head Start*
Does my child have to be in this research? **Can my child stop participating at any time?**	*Your child's participation in this research is completely voluntary. You may choose not to allow your child to take part at all. If your child decides to participate in this research, he/she may stop participating at any time.* *If you decide not to allow your child to participate in this study or if your child stops participating at any time, you nor your child will not be penalized or lose any benefits to which you or your child otherwise qualify.*
What if I have questions?	*This research is being conducted by Dr. Brenda Jones Harden, and Jessica Vick at the University of Maryland, College Park. If you have any questions about the research study itself, please contact Brenda Jones Harden at: The University of Maryland, 3304 Benjamin Building, College Park, MD 20742, 301-405-2580.* *If you have questions about your child's rights as a research participant or wish to report a research-related injury, please contact:* **Institutional Review Board Office, University of Maryland, College Park, Maryland, 20742; (e-mail) irb@deans.umd.edu; (telephone) 301-405-0678** *This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.*

Statement of Age of Subject and Consent	*Your signature indicates that:*
	    you are at least 18 years of age;,
	    the research has been explained to you;
	    your questions have been answered; and
	    you freely and voluntarily choose for your child to participate in this research project.

CAREGIVER'S NAME (please print): _____

RELATION TO CHILD:_____

CHILD'S NAME (please print): _____

CAREGIVER'S SIGNATURE: _____ DATE: ____/____/____

APPENDIX H

Parent Consent Form

CAREGIVER CONSENT FORM

Project Title	*Examining relations among risks, teacher-child relationships, and problem behaviors in Head Start*
Why is this research being done?	*This is a research project being conducted by Dr. Brenda Jones Harden at the University of Maryland, College Park. We are inviting you to participate in this research because you are the caregiver of a child currently enrolled in Head Start. The purpose of this research is to help Head Start provide the most appropriate services for parents and children.*
What will I be asked to do?	*The procedure involves one session, during which you will interviewed about yourself and your child. First, you will be asked to give some background information about yourself and your family. Then you will be asked some questions about your feelings. You will also be asked whether you give permission for your child to participate in this project by allowing him/her to be observed regarding his/her interactions in the classroom.* *The total time for your participation will be one half hour. The research will take place at the United Planning Organization center.*
What about confidentiality?	*We will do our best to keep your personal information confidential. To help protect your confidentiality: (1) your name will not be included on the surveys or other collected data; (2) a code will be placed on the survey and other collected data; (3) the researcher will only be able to link your survey to your identity (through the use of an identification key); and (4) only the researcher will have access to the identification key. If we write a report or article about this research project, your identity will be protected to the maximum extent possible.* *Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law. In accordance with legal requirements and/or professional standards, we will disclose to the appropriate individuals and/or authorities information that comes to our attention concerning child abuse or neglect or potential harm to you or others.*
What are the risks of this research?	*There may be a chance that someone will learn information about you, although the research team will try extremely hard not to let this happen.*
What are the benefits of this research?	*This research is not designed to help you personally, but the results may help the investigator learn more about the needs of Head Start families, and how to provide the most effective Head Start services. We hope that, in the future, other people might benefit from this study through the creation of improved Head Start services.*

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APPENDIX I

Teacher Background Questionnaire

Teacher-Child Relationships Project

Teacher Background Questionnaire

The Teacher-Child Relationships Project studies children in Head Start. The purpose of the study is to learn how teacher-child relationships can help protect children from developing problem behaviors (e.g., aggression, acting out, etc.). I will ask you questions about your background. Information from this study will be used to help Head Start improve its understanding of teacher-child relationships.

I will ask you questions and will write down your answers. You may stop me at any time, and you may go back to earlier questions to change your answer. No one else from the Head Start program will see or hear your answers. The things that you tell me are very important, so please be as complete as possible. The interview will last about 30 minutes, and then I will ask you to complete some questionnaires about the students in your class. Do you have any questions?

At the end of the interview, I would like to schedule a two week block when I can come to observe the students in your class who have permission to participate in this project.

Interviewee Job Title: <u>Head Start Lead Teacher_____</u>

Interviewee Name: _____

Date: _____/_____/_____
       mo   day   yr

Interviewer Name: _____

Center #:_____

I.   DEMOGRAPHIC INFORMATION

I.A.1.   Gender (*DO NOT ASK, JUST CIRCLE)*

                    Male……………………………………………………………01
                    Female…………………………………………………………02

I.A.2.   How old are you?

                                                                              _____
                                                                               years

I.A.3.   How would you describe your racial or ethnic background?

            a.   Black/African American………………………………… 01
            b.   Asian/Asian American…………………………………02
            c.   White/Caucasian………………………………………….03
            d.   Latino/Latina…………………………………………….. 04
            e.   Biracial…………………………………………………05
            f.   Other:_____

II.   EMPLOYMENT AND EDUCATIONAL BACKGROUND

I'd like to start by asking you some questions about your professional background and
your job with Head Start.

II.A.   EMPLOYMENT

II.A.1.a.   How long have you been ***employed by this Head Start program***?
                (*ROUND RESPONSE TO NEAREST # OF YEARS*)

                                                                              _____
                                                                               years

II.A.1.b.   How many hours per week do you work here at the center (on
                average?) (*ROUND RESPONSE TO NEAREST # OF HOURS*)

                                                                              _____
                                                                               hours

II.A.1.c.   What is your hourly wage?

                                                                              _____
                                                                               dollars

            IF CAREGIVER DOES NOT KNOW HOURLY WAGE, ASK FOR

            <u>Wage</u>   <u>Hours worked</u>
            weekly   _____   _____

            biweekly   _____   _____

            monthly   _____   _____

            annually   _____   _____

II.A.1.d.   In total, how many years have you worked with ***any Head Start program***?

(ROUND RESPONSE TO NEAREST # OF YEARS)

_____
years

II.A.1.e.   What ***positions/job titles*** do you have with Head Start ***now, how long*** have you held each position? (ROU*ND TO NEAREST NUMBER OF HEAD START YEARS)*

RESPONSIBILITIES/JOB TITLES   **# YEARS IN THIS POSITION**

Head Start Lead Teacher_____   _____

_____   _____

_____   _____

II.A.2.a.   Before you started working with Head Start, did you have any work experience with ***early childhood education, child care, health, or family support programs***?
(WORKING MEANS 8 HOURS OR MORE A WEEK INCLUDING PAID AND NON-PAID EXPERIENCE)

No…………………………………………………… 01 *** III.B.1.**

Yes…………………………………………………... 02

II.A.2.b.   How many years experience did you have with such programs before you joined Head Start? (*ROUND RESPONSE TO NEAREST # OF YEARS*)

_____
years

II.A.2.c.   How many years, then, have you actually been working in the field of early education/child care since you started?

_____
years

II.B.   EDUCATIONAL BACKGROUND

II.B.1.   What is the last or highest grade of school you have completed?
*(DO NOT READ LIST. CIRCLE ONLY **ONE** RESPONSE)*

No formal schooling……………. 01

Elementary School

Less than 6th grade……………… 02
Grades 6-8………………………. 03

High School

9th grade…………………………. 04
10th grade………………………… 05
11th grade………………………… 06
12th grade………………………… 07

Adult HS or GED classes………... 08

Vocational, Trade, or Business School After High School Graduation/GED

Less than one year…………………… 10
One – two years……………………… 11
Two years or more…………………… 12

College After High School Graduation/GED

1 year……………………………… 13
2 years……………………………… 14
3 years……………………………… 15
4 years……………………………… 16
Graduate school years………………… 17

Other *(SPECIFY)*

_____………. 18

II.B.2.   What diplomas, certificates, or degrees do you have? *(CIRCLE ALL THAT APPLY. PROBE FOR HIGH SCHOOL DIPLOMA, GED, AND CDA)*.

II.B.3
IN WHAT FIELDS ARE YOUR DEGREES?

a.   High school diploma………… 01
aa.   GED certificate……………… 02
b.   Associates degree…………… 03
bb.   CDA (Child Dev. Associate)... 04
c.   Nursing degree……………… 05
d.   Bachelor's Degree…………… 06 * **II.B.3**
e.   Graduate degree……………... 07 * **II.B.3**
f.   Other (SPECIFY)_____ 08

_____/_____
degree   field

_____/_____
degree   field

II.B.4.   Do you have any (other) job-related licenses or certificates?

No……………………………………………………………. 01
CPR……………………………………………………….. 02
Social Work………………………………………………. 03
Registered Nurse…………………………………………… 04
Teaching Certificate or License (Other than CDA)……………… 05

Other:_____…………... 06

II.B.5.   Are you currently working on a degree, certificate or license?

No………………………………………………….. 01
Yes…………………………………………………… 02

II.B.6.   What is your current level of specialized training in child development/ early childhood education/child care? (CIRCLE ALL APPLICABLE)

       a.   No specialized training……………………………………………… 01
       b.   Course work in high school…………………………………………… 02
       c.   In-service training at the center……………………………………….. 03
       d.   Workshops and conferences……………………………………….... 04
       e.   Some vocational training, adult education, correspondence or community courses in ECE/CD……………………………………………….. 05
       f.   Some college level courses in ECE/CD (including those taken as part of a degree in nursing, psychology, social work, elementary education, special education)…………………………………………………..06
       g.   CDA………………………………………………………………..07
       h.   Masters degree in ECE/CD…………………………………………...08
       i.   Doctoral degree in ECE/CD…………………………………………..09

II.B.7.   Are you currently a member of any professional association?

       No………………………………………………………….. 01
       Yes…………………………………………………………. 02

II.C.   IN-SERVICE TRAINING

The next questions are about training that your Head Start program has provided or made available to you in the past year. If you have a record of your training activities, you may find it useful to refer to it

FOR EACH OF THESE TOPICS, ABOUT HOW MANY HOURS OF TRAINING HAVE YOU HAD.

(*READ LIST AND RECORD # HOURS FOR EACH TOPIC*)	*# HOURS RECEIVED*
a. Child development	_____
b. Educational programming	_____
c. Child assessment and evaluation	_____
d. Children's health issues	_____
e. Family health issues	_____
f. Mental health issues	_____
g. Bilingual education	_____
h. Multicultural sensitivity	_____
I. Domestic/family violence	_____
j. Child abuse and neglect	_____
k. Substance abuse	_____
l. Family needs assessment and evaluation	_____
m. Providing services for children with special needs	_____
n. Providing case management services to families	_____
o. Working with other agencies to assist families	_____
p. Involving parents in program activities	_____
q. Behavior management	_____

III.　CLASSROOM CHARACTERISTICS

III. A.　CURRICULUM

III.A.1.　Is a specific curriculum or combination of curricula used in your program?

No…………………………………………………………. 01 * **II.B.**
Yes………………………………………………………… 02

III.A.2.　If your curriculum has a name, what is it?
(*MARK YES OR NO FOR EACH*)　　　　　　　　　No　　　Yes
_____

a. High Scope………………………………………………… 01　　02
b. A Statewide Head Start Curriculum……………………… 01　　02
c. The Creative Curriculum………………………………….. 01　　02
d. Other _____

III.A.3.　How strictly do you follow/adhere to/implement this curriculum?

No……………………………………………………….. 01
Yes……………………………………………………… 02

III.B.　TEACHER-CHILD RATIO

III.B.1.　What is the total number of children who are enrolled in your class?

_____
children

III.B.2.　How many teachers (including yourself) work full-time in the classroom?

_____
teachers

III.B.3.　Are there any other teachers who work in the classroom (e.g., part time?)?

No…………………………………………………………. 01 * **III.B.4.**
Yes………………………………………………………… 02

II.B.3. a.　　How many hours a week?　　_____
Hours

III.B.4.　On *an average day* how many children are *absent* from your class?

a.　　None…………………………………………………..01
b.　　One or two……………………………………………..02
c.　　Three to four…………………………………………..03
d.　　Five to six……………………………………………..04
e.　　Seven or more…………………………………………… 05

III.B.5.   About how many ***individual children*** are ***consistently absent*** from your class(es). *(DO NOT READ LIST. CIRCLE ONE.)*

    a.   None…………………………………………………………..01
    b.   One or two………………………………………………….02
    c.   Three or four…………………………………………… 03
    d.   Five or more………………………………………….. 04

Now that I've asked you some questions about yourself, I am going to ask you to complete some questionnaires about your students' behaviors and your relationships with your students. It may be helpful for you to have a class list in front of you.

APPENDIX J

Caregiver-Teacher Report Form 1½-5

CAREGIVER-TEACHER REPORT FORM FOR AGES 1½-5

Please print

For office use only
ID #

CHILD'S FULL NAME	First	Middle	Last

PARENTS' USUAL TYPE OF WORK, even if not working now. *Please be specific — for example, auto mechanic, high school teacher, homemaker, laborer, lathe operator, shoe salesman, army sergeant.*

CHILD'S GENDER	CHILD'S AGE	CHILD'S ETHNIC GROUP OR RACE
☐ Boy ☐ Girl		

FATHER'S TYPE OF WORK _____

MOTHER'S TYPE OF WORK _____

TODAY'S DATE	CHILD'S BIRTHDATE
Mo.____Day____Year____	Mo.____Day____Year____

THIS FORM FILLED OUT BY: (print your full name)

Please fill out this form to reflect *your* view of the child's behavior even if other people might not agree. Feel free to write additional comments beside each item and in the space provided on page 2. *Be sure to answer all items.*

Name & address of school or care facility: _____

Your role at the school or care facility:
☐ primarily educational (teacher)   ☐ primarily care (caregiver)
Your training for this position: _____

Your experience in child care or early education: _____ years.

I. What kind of a facility is it? (Please be specific, e.g., home day care, day care center, nursery school, preschool, school readiness class, Early Childhood Special Education, Headstart, Kindergarten, etc.) _____

II. What is the average number of children in the child's group or class? _____ children in the child's group or class.

III. How many hours per week does this child spend at the facility? _____ hours per week.

IV. For how many months have you known this child? _____ months.

V. How well do you know him/her?   1. ☐ Not well   2. ☐ Moderately well   3. ☐ Very well

VI. Has he/she ever been referred for a special education program or special services?
☐ Don't know   0. ☐ No   1. ☐ Yes - what kind and when?

Below is a list of items that describe children. For each item that describes the child *now or within the past 2 months*, please circle the *2* if the item is *very true or often true* of the child. Circle the *1* if the item is *somewhat or sometimes true* of the child. If the item is *not true* of the child, circle the *0*. Please answer all items as well as you can, even if some do not seem to apply to the child.

0 = Not True (as far as you know)   1 = Somewhat or Sometimes True   2 = Very True or Often True

0	1	2	1. Can't concentrate, can't pay attention for long	0	1	2	18. Angry moods
0	1	2	2. Can't sit still, restless, or hyperactive	0	1	2	19. Fails to carry out assigned tasks
0	1	2	3. Can't stand waiting; wants everything now	0	1	2	20. Fidgets
0	1	2	4. Cruel to animals	0	1	2	21. Physically attacks people
0	1	2	5. Defiant	0	1	2	22. Poorly coordinated or clumsy
0	1	2	6. Demands must be met immediately	0	1	2	23. Punishment doesn't change his/her behavior
0	1	2	7. Destroys his/her own things	0	1	2	24. Quickly shifts from one activity to another
0	1	2	8. Destroys property belonging to others	0	1	2	25. Inattentive, easily distracted
0	1	2	9. Disobedient	0	1	2	26. Screams a lot
0	1	2	10. Cruelty, bullying, or meanness to others	0	1	2	27. Selfish or won't share
0	1	2	11. Difficulty following directions	0	1	2	28. Not liked by other children
0	1	2	12. Doesn't seem to feel guilty after misbehaving	0	1	2	29. Stubborn, sullen, or irritable
0	1	2	13. Disturbs other children	0	1	2	30. Teases a lot
0	1	2	14. Easily frustrated	0	1	2	31. Temper tantrums or hot temper
0	1	2	15. Gets in many fights	0	1	2	32. Uncooperative
0	1	2	16. Hits others	0	1	2	33. Wanders away
0	1	2	17. Hurts animals without meaning to	0	1	2	34. Wants a lot of attention

APPENDIX K

Student Teacher Relationship Scale

Student Teacher Relationship Scale
Robert C. Pianta
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Teacher's name _____ Gender: M F Ethnicity_____
Date_____/_____/____
Child's name_____Grade: M F
Ethnicity_____Age_____

1 Definitely does not apply	2 Does not apply	3 Neutral, not sure	4 Applies somewhat			5 Definitely applies

1. I share an affectionate, warm relationship with this child.	1	2	3	4	5	
2. This child and I always seem to be struggling with each other.	1	2	3	4	5	
3. If upset, this child will seek comfort from me.	1	2	3	4	5	
4. This child is uncomfortable with physical affection or touch from me.	1	2	3	4	5	
5. This child values his/her relationship with me.	1	2	3	4	5	
6. This child appears hurt or embarrassed when I correct him/her.	1	2	3	4	5	
7. When I praise this child, he/she beams with pride.	1	2	3	4	5	
8. This child reacts strongly to separation from me.	1	2	3	4	5	
9. This child spontaneously shares information about himself/herself.	1	2	3	4	5	
10. This child is overly dependent on me.	1	2	3	4	5	
11. This child easily becomes angry with me.	1	2	3	4	5	
12. This child tries to please me.	1	2	3	4	5	
13. This child feels that I treat him/her unfairly.	1	2	3	4	5	
14. This child asks for my help when he/she really does not need help.	1	2	3	4	5	
15. It is easy to be in tune with what this child is feeling.	1	2	3	4	5	
16. This child sees me as a source of punishment and criticism.	1	2	3	4	5	
17. This child expresses hurt or jealousy when I spend time with other children.	1	2	3	4	5	
18. This child remains angry or is resistant after being disciplined.	1	2	3	4	5	
19. When this child is misbehaving, he/she responds well to my look or tone of voice.	1	2	3	4	5	
20. Dealing with this child drains my energy.	1	2	3	4	5	
21. I've noticed this child copying my behavior or ways of doing things.	1	2	3	4	5	
22. When this child is in a bad mood, I know we're in for a long and difficult day.	1	2	3	4	5	

23. This child's feeling toward me can be unpredictable or can change suddenly.	1	2	3	4	5
24. Despite my best efforts, I'm uncomfortable with how this child and I get along.	1	2	3	4	5
25. This child wines or cries when he/she wants something from me.	1	2	3	4	5
26. This child is sneaky or manipulative with me.	1	2	3	4	5
27. This child openly shares his/her feelings and experiences with me.	1	2	3	4	5
28. My interactions with this child make me feel effective and confident	1	2	3	4	5

APPENDIX L

Observational Record of the Caregiving Environment

**OBSERVATIONAL RATINGS OF THE CAREGIVING
ENVIRONMENT (ORCE) 54 Months**

CHILD ID NUMBER

0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

ORCE CYCLE   1
                     2

DATE

Month		Day		Year 199__
0	0	0	0	5
1	1	1	1	6
	2	2	2	
	3	3	3	
	4		4	
	5		5	
	6		6	
	7		7	
	8		8	
	9		9	

CENTER/ARRANGEMENT ID/SITE PLACEHOLDER ID

0	0	0	0	0	0	0		0	0
1	1	1	1	1	1	1		1	1
2	2	2	2	2	2	2		2	2
3	3	3	3	3	3	3		3	3
4	4	4	4	4	4	4		4	4
5	5	5	5	5	5	5		5	5
6	6	6	6	6	6	6		6	6
7	7	7	7	7	7	7		7	7
8	8	8	8	8	8	8		8	8
9	9	9	9	9	9	9		9	9

INTERVIEWER/OBSERVER ID

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

OBSERVATION CYCLE

TIME OF START
(Use 24 hr. clock)

0	0	0	0
1	1	1	1
2	2	2	2
	3	3	3
	4	4	4
	5	5	5
	6		6
	7		7
	8		8
	9		9

AVAILABLE ADULTS

NUMBER OF CAREGIVERS		NUMBER OF OTHER ADULTS	
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

AVAILABLE CHILDREN

< 2 yrs		2-<3.5 yrs		3.5-5.5 yrs		> 5.5-12 yrs	
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

ASLEEP CHILDREN

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

THE ORCE BEHAVIOR SCALES AT 4 1/2

PEOPLE PRESENT

Caregiver available	10	9	8	7	6	5	4	3	2	1
Other caregiver/adult available	10	9	8	7	6	5	4	3	2	1

ADULT LANGUAGE/MANAGEMENT

Reads aloud to child/ren	10	9	8	7	6	5	4	3	2	1
Encourages or praises	10	9	8	7	6	5	4	3	2	1
Answers child's question	10	9	8	7	6	5	4	3	2	1
Offers choice	10	9	8	7	6	5	4	3	2	1
Asks question	10	9	8	7	6	5	4	3	2	1
Negative management	10	9	8	7	6	5	4	3	2	1
Gives direction	10	9	8	7	6	5	4	3	2	1
Adult other talk	10	9	8	7	6	5	4	3	2	1

STIMULATION BY ADULT

Teaches social rule	10	9	8	7	6	5	4	3	2	1
Teaches academic skill	10	9	8	7	6	5	4	3	2	1
Facilitates learning	10	9	8	7	6	5	4	3	2	1
Playful exchange	10	9	8	7	6	5	4	3	2	1

CHILD'S BEHAVIOR

Asks adult a question	10	9	8	7	6	5	4	3	2	1
Child other talk	10	9	8	7	6	5	4	3	2	1
Prosocial	10	9	8	7	6	5	4	3	2	1
Complies with adult	10	9	8	7	6	5	4	3	2	1
Says "no"/refuses to adult	10	9	8	7	6	5	4	3	2	1
Acts defiant to adult	10	9	8	7	6	5	4	3	2	1

POSITIVE/NEUTRAL PEER ACTIVITIES (5 seconds)

Cooperative play	10	9	8	7	6	5	4	3	2	1
Boisterous play	10	9	8	7	6	5	4	3	2	1
Other positive/neutral interaction	10	9	8	7	6	5	4	3	2	1
Parallel play	10	9	8	7	6	5	4	3	2	1

NEGATIVE PEER ACTIVITIES

Peer negative behavior	10	9	8	7	6	5	4	3	2	1
Child physical aggression	10	9	8	7	6	5	4	3	2	1
Child verbal aggression	10	9	8	7	6	5	4	3	2	1
Child negative act (nonaggressive)	10	9	8	7	6	5	4	3	2	1

CHILD ALONE (5 seconds)

Solitary activity	10	9	8	7	6	5	4	3	2	1
Watching/unoccupied/transition	10	9	8	7	6	5	4	3	2	1
Watching TV	10	9	8	7	6	5	4	3	2	1

NOTES

This 10-minute scale was:	1	indoors
	2	outdoors
	3	indoors and outdoors

ORCE QUALITATIVE NOTES
1 = Not at all; 2 = Minimally; 3 = Moderately; 4 = Highly characteristic

Caregiver Ratings
Sensitivity/responsivity (1-4)

Intrusiveness/overcontrol (1-4)

Detachment/disengagement (1-4)

Stimulation of cognitive development (1-4)

Child Ratings
Self-reliance (1-4)

Aggression/angry affect (1-4)

Attention (1-4)

Positive affect/mood (1-4)

Activity (1-2)

Social withdrawal from peers (1-2/NA)

Setting Ratings
Chaos (1-4)

Overcontrol (1-4)

Positive Emotional Climate (1-4)

Negative Emotional Climate (1-4)

The NICHD Study of Early Child Care
Form 56H Revision 07/06/95

THE ORCE BEHAVIOR SCALES AT 4 1/2

PEOPLE PRESENT

Caregiver available	20	19	18	17	16	15	14	13	12	11
Other caregiver/adult available	20	19	18	17	16	15	14	13	12	11

ADULT LANGUAGE/MANAGEMENT

Reads aloud to child/ren	20	19	18	17	16	15	14	13	12	11
Encourages or praises	20	19	18	17	16	15	14	13	12	11
Answers child's question	20	19	18	17	16	15	14	13	12	11
Offers choice	20	19	18	17	16	15	14	13	12	11
Asks question	20	19	18	17	16	15	14	13	12	11
Negative management	20	19	18	17	16	15	14	13	12	11
Gives direction	20	19	18	17	16	15	14	13	12	11
Adult other talk	20	19	18	17	16	15	14	13	12	11

STIMULATION BY ADULT

Teaches social rule	20	19	18	17	16	15	14	13	12	11
Teaches academic skill	20	19	18	17	16	15	14	13	12	11
Facilitates learning	20	19	18	17	16	15	14	13	12	11
Playful exchange	20	19	18	17	16	15	14	13	12	11

CHILD'S BEHAVIOR

Asks adult a question	20	19	18	17	16	15	14	13	12	11
Child other talk	20	19	18	17	16	15	14	13	12	11
Prosocial	20	19	18	17	16	15	14	13	12	11
Complies with adult	20	19	18	17	16	15	14	13	12	11
Says "no"/refuses to adult	20	19	18	17	16	15	14	13	12	11
Acts defiant to adult	20	19	18	17	16	15	14	13	12	11

POSITIVE/NEUTRAL PEER ACTIVITIES (5 seconds)

Cooperative play	20	19	18	17	16	15	14	13	12	11
Boisterous play	20	19	18	17	16	15	14	13	12	11
Other positive/neutral interaction	20	19	18	17	16	15	14	13	12	11
Parallel play	20	19	18	17	16	15	14	13	12	11

NEGATIVE PEER ACTIVITIES

Peer negative behavior	20	19	18	17	16	15	14	13	12	11
Child physical aggression	20	19	18	17	16	15	14	13	12	11
Child verbal aggression	20	19	18	17	16	15	14	13	12	11
Child negative act (nonaggressive)	20	19	18	17	16	15	14	13	12	11

CHILD ALONE (5 seconds)

Solitary activity	20	19	18	17	16	15	14	13	12	11
Watching/unoccupied/transition	20	19	18	17	16	15	14	13	12	11
Watching TV	20	19	18	17	16	15	14	13	12	11

NOTES

This 10-minute scale was:

1 indoors
2 outdoors
3 indoors and outdoors

ORCE QUALITATIVE NOTES

1 = Not at all; 2 = Minimally; 3 = Moderately; 4 = Highly characteristic

Caregiver Ratings

Sensitivity/responsivity (1-4)

Intrusiveness/overcontrol (1-4)

Detachment/disengagement (1-4)

Stimulation of cognitive development (1-4)

Child Ratings

Self-reliance (1-4)

Aggression/angry affect (1-4)

Attention (1-4)

Positive affect/mood (1-4)

Activity (1-2)

Social withdrawal from peers (1-2/NA)

Setting Ratings

Chaos (1-4)

Overcontrol (1-4)

Positive Emotional Climate (1-4)

Negative Emotional Climate (1-4)

THE ORCE BEHAVIOR SCALES AT 4 1/2

PEOPLE PRESENT

Caregiver available	30	29	28	27	26	25	24	23	22	21
Other caregiver/adult available	30	29	28	27	26	25	24	23	22	21

ADULT LANGUAGE/MANAGEMENT

Reads aloud to child/ren	30	29	28	27	26	25	24	23	22	21
Encourages or praises	30	29	28	27	26	25	24	23	22	21
Answers child's question	30	29	28	27	26	25	24	23	22	21
Offers choice	30	29	28	27	26	25	24	23	22	21
Asks question	30	29	28	27	26	25	24	23	22	21
Negative management	30	29	28	27	26	25	24	23	22	21
Gives direction	30	29	28	27	26	25	24	23	22	21
Adult other talk	30	29	28	27	26	25	24	23	22	21

STIMULATION BY ADULT

Teaches social rule	30	29	28	27	26	25	24	23	22	21
Teaches academic skill	30	29	28	27	26	25	24	23	22	21
Facilitates learning	30	29	28	27	26	25	24	23	22	21
Playful exchange	30	29	28	27	26	25	24	23	22	21

CHILD'S BEHAVIOR

Asks adult a question	30	29	28	27	26	25	24	23	22	21
Child other talk	30	29	28	27	26	25	24	23	22	21
Prosocial	30	29	28	27	26	25	24	23	22	21
Complies with adult	30	29	28	27	26	25	24	23	22	21
Says "no"/refuses to adult	30	29	28	27	26	25	24	23	22	21
Acts defiant to adult	30	29	28	27	26	25	24	23	22	21

POSITIVE/NEUTRAL PEER ACTIVITIES (5 seconds)

Cooperative play	30	29	28	27	26	25	24	23	22	21
Boisterous play	30	29	28	27	26	25	24	23	22	21
Other positive/neutral interaction	30	29	28	27	26	25	24	23	22	21
Parallel play	30	29	28	27	26	25	24	23	22	21

NEGATIVE PEER ACTIVITIES

Peer negative behavior	30	29	28	27	26	25	24	23	22	21
Child physical aggression	30	29	28	27	26	25	24	23	22	21
Child verbal aggression	30	29	28	27	26	25	24	23	22	21
Child negative act (nonaggressive)	30	29	28	27	26	25	24	23	22	21

CHILD ALONE (5 seconds)

Solitary activity	30	29	28	27	26	25	24	23	22	21
Watching/unoccupied/transition	30	29	28	27	26	25	24	23	22	21
Watching TV	30	29	28	27	26	25	24	23	22	21

NOTES

This 10-minute scale was:	1	indoors
	2	outdoors
	3	indoors and outdoors

The NICHD Study of Early Child Care
Form 56H Revision 07/06/95

ORCE QUALITATIVE NOTES AND RATINGS

First name/description and ID of caregiver rated: _____

1 = Not at all;   2 = Minimally;   3 = Moderately;   4 = Highly characteristic

I.   **Caregiver Ratings**

A.	Sensitivity/responsivity	CG1	1	2	3	4
		CG2	1	2	3	4
B.	Intrusiveness/overcontrol	CG1	1	2	3	4
		CG2	1	2	3	4
C.	Detachment/disengagement	CG1	1	2	3	4
		CG2	1	2	3	4
D.	Stimulation of cognitive development	CG1	1	2	3	4
		CG2	1	2	3	4

II.   **Child Ratings**

A.	Self-reliance	1	2	3	4
B.	Aggression/angry affect	1	2	3	4
C.	Attention	1	2	3	4
D.	Positive affect/mood	1	2	3	4

E.   Activity

     1   low to normal activity
     2   overactive

F.   Social withdrawal from peers

     1   average involvement
     2   withdrawn/avoids peer contact
     3   NA

III.   **Setting Ratings**

A.	Chaos	1	2	3	4
B.	Overcontrol	1	2	3	4
C.	Positive Emotional Climate	1	2	3	4
D.	Negative Emotional Climate	1	2	3	4

OBSERVATION CYCLE

TIME OF STOP
(Use 24 hr. clock)

0	0	0	0
1	1	1	1
2	2	2	2
	3	3	3
	4	4	4
	5	5	5
	6		6
	7		7
	8		8
	9		9

AVAILABLE ADULTS

NUMBER OF CAREGIVERS	NUMBER OF OTHER ADULTS	PROPORTION OF TIME "TO-BE-INTERVIEWED TEACHER" INVOLVED WITH STUDY CHILD

0	0	0	0	1 0%
1	1	1	1	2 1% - 49%
2	2	2	2	3 50% - 90%
3	3	3	3	4 > 90%
4	4	4	4	
5	5	5	5	
6	6	6	6	
7	7	7	7	
8	8	8	8	
9	9	9	9	

AVAILABLE CHILDREN

< 2 yrs		2- <3.5		3.5-5.5		> 5.5 - 12 yrs	
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

ASLEEP CHILDREN

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

APPENDIX M

Parent Background Questionnaire

Teacher-Child Relationships Project
Parent Background Questionnaire

Cover Sheet

```
INTERVIEWER:   USE CHILD'S NAME
               WHEVER "CHILD" APPEARS
               IN A QUESTION
```

Date of Interview: _____/_____/_____
                     mo   day   yr

Interviewer Name: _____

Center #:_____

A. RELATIONSHIP TO CHILD

First I need to ask you about your relationship with CHILD.

A.1.   We want to interview the person most responsible for CHILD's care. Are you that person?

> No…………………………………………………………01
> Yes…………………………………………………………...02 *Skip to A.3.

A.2.   Who is most responsible for CHILD's care?

> Name: _____
>
> Address: _____
>
> Phone: _____

```
TERMINATE INTERVIEW
```

A.3.   What is your relationship to CHILD?

```
DO NOT READ LIST. CIRCLE ONE RESPONSE.
```

> Mother……………………………………………………………. 01
> Father……………………………………………………………... 02
> Stepmother……………………………………………………….... 03
> Stepfather………………………………………………………….. 04
> Grandmother……………………………………………………….. 05
> Grandfather………………………………………………………… 06
> Sister/stepsister……………………………………………………. 07
> Brother/stepbrother………………………………………………... 08
> Other relative (Female)…………………………………………….. 09
> Other relative (Male)………………………………………………. 10
> Foster Parent (Female)…………………………………………….. 11
> Foster Parent (Male)………………………………………………. 12
> Parent's Partner (Female)………………………………………….. 13
> Parent's Partner (Male)……………………………………………..14

A.4.   Are you child's legal guardian?

> No…………………………………………………………01
> Yes…………………………………………………………...02

B.   ABOUT YOUR CHILD

B.1.   Is CHILD a boy or girl?

Boy……………………………………………………01
Girl..……………………………………………………...02

B.2.   What is CHILD's birth date? _____/_____/_____
                                                          mo   day   yr

B.3.   How would you describe CHILD's racial or ethnic background?

g.   Black/African American………………………………… 01
h.   Asian/Asian American…………………………………02
i.   White/Caucasian………………………………………03
j.   Latino/Hispanic……………………………………….. 04
k.   Biracial………………………………………………….05
l.   Other:_____

B.4.   When did CHILD begin Head Start? _____/_____
                                                               mo   yr

B.5.   How many days per week does CHILD attend Head Start class? _____days/week

B.6.   Does CHILD have any special needs or disabilities—for example, physical, emotional, language, hearing, learning difficulty, or other special needs?

No……………………………………………………01 *** Skip to C.1.**
Yes…………………………………………………...02

B.7.   How would you describe CHILD's special needs?

_____

C.   ABOUT YOU AND YOUR FAMILY

Now I'm going to ask you some questions about you and your family.

C.1.   What is your birth date?   _____/_____/_____
                                                              mo   day   yr

C.2.   How would you describe your racial or ethnic background?

m.   Black/African American………………………………… 01
n.   Asian/Asian American…………………………………02
o.   White/Caucasian………………………………………03
p.   Latino/Hispanic……………………………………….. 04
q.   Biracial………………………………………………….05
r.   Other:_____

C.3.   What is your current marital status?

        Single, never married……………………………….01
        Married…………………………………………...02
        Separated…………………………………………03
        Divorced…………………………………………..04
        Widowed…………………………………………..05

C.4.   Are you currently involved in a relationship?

        No………………………………………………01 * **Skip to C.8.**
        Yes……………………………………………...02

C.5.   Are you currently living with a spouse or partner?

        No………………………………………………01
        Yes……………………………………………...02

C.6.   How happy are you in your relationship?

        Extremely happy……………………………………………01
        Very happy…………………………………………………..02
        Happy………………………………………………………..03
        Fairly unhappy………………………………………………04
        Extremely unhappy……………………………………….05

C.7.   How supportive is your partner of you in your role as a parent?

        Extremely supportive.………………………………………… 01
        Very supportive.……………………………………………… 02
        Supportive.……………………………………………………03
        Somewhat supportive.………………………………………04
        Not at all supportive…...……………………………………05

C.8.   How many children do you have?
                                        _____
                                     children

C.9.   How old were you at the birth of your first child?   _____
                                       years

C.10.   Including yourself, how many people are living in your home?

                                     _____
                                     people

    C.10.a.   How many adults (people over 18)   _____
                                      adults

    C.10.b.   How many children (under 18)   _____
                                 children

C.11.   Tell us about your work

I do not work in a job away from home……………………………..01
I work in our home for money………………………………………02
I work out of the house full time (40 hours a week)……….……...03
I work out of the house part time (less than 40 hours a week)….....04
I am not working but I am looking for a job……….……………..05
I am in training for a job..……………………………………....06

C. 12. Are you in school?

No……………………………………………………………01
Yes…………………………………………………………...02

If YES:
C.12.a.   I am in high school…………………………….. 01
I am in vocational school……………………… 02
I am in college…………………………………..03

C.13.   How many years of school have you have completed?
*(DO NOT READ LIST. CIRCLE ONLY **ONE** RESPONSE*)

No formal schooling……………. 01

Elementary School

Less than 6th grade……………… 02
Grades 6-8………………………. 03

High School

9th grade…………………………. 04
10th grade………………………… 05
11th grade………………………… 06
12th grade………………………… 07

Adult HS or GED classes………... 08

Vocational, Trade, or Business School After High School Graduation/GED

Less than one year…………………… 10
One – two years……………………… 11
Two years or more…………………… 12

College After High School Graduation/GED

1 year………………………………… 13
2 years……………………………….. 14
3 years……………………………….. 15
4 years……………………………….. 16
Graduate school years………………… 17

Other *(SPECIFY)*

_____……… 18

D. EMPLOYMENT AND INCOME

Now I would like to ask you some questions about the sources of income for your household. As I said earlier, this information will remain confidential and will not be reported to any agency or Head Start.

D.1. What are the sources of money in your family?

		NO	YES
a.	Mother's job………………………………………..	01	02
b.	Father/spouse/partner's job………………………...	01	02
c.	SSI (disability)…………………………………..	01	02
d.	Unemployment checks…………………………….	01	02
e.	Family/Friends……………………………………..	01	02
f.	Public Assistance/WIC/welfare/TANF…………..	01	02
g.	Child support…………………………………………	01	02
h.	Payments for providing foster care………………...	01	02
i.	Other_____		

D.2. Thinking about all the sources of income you just told me about, what was the total income for your household last month?

Probe: Your best guess would be fine.

FAMILY…………………………………………..$_____

Don't Know…………………………………………..99

D.3. How many people lived off that money?............................... _____
people

E. HOUSING

E.1. In what type of housing do you live? Do you live in. . ..

A house or apartment on your own (your own family)…… 01
A house or apartment that you share……………………… 02
Transitional housing……………………………………. 03
A homeless shelter……………………………………… 04

E.2. How many times have you moved in the last 12 months?   _____
times moved

F. TRACKING INFORMATION

Thank you for spending time with me. I would also like to thank you for participating in this interview and will give you money in just a few minutes. Do you mind giving me your contact information in case we need to get in touch with you?

Today's Date: ____/____/____   Interviewer: _____

Caregiver's Name: _____

Caregiver's Date of Birth: ____/____/____

Child's Name: _____

Child's Date of Birth: ____/____/____

F.1.   What is your telephone number? ___ ___ ___ -- ___ ___ ___ -- ___ ___ ___ ___

                No telephone…………………………………………………… 01
                Refused………………………………………………………… 98

F.2.   Do you have another phone number like a beeper or cell phone number?

                No beeper cell phone number…………………………………… 01

                Beeper   ___ ___ ___ -- ___ ___ ___ -- ___ ___ ___ ___

                Cell phone   ___ ___ ___ -- ___ ___ ___ -- ___ ___ ___ ___

F.4.   Please give me your permanent address.

        Address:_____
                        Street   Apt. #

        _____
                Town/City   State   Zip Code

APPENDIX N

Family Environment Scale

<div style="border:1px solid">

Family Environment Scale

Form R

Item Booklet

</div>

by Rudolf H. Moos, Ph.D.

Instructions

There are 18 statements in this booklet. They are statements about families. You are to decide which of these statements are true of your family and which are false. Make all your marks on the separate answer sheet. If you think the statement is *True* of your family, make an **X** in the box labeled T (true). If you think the statement is *False* or *mostly False* of your family, make an X in the box labeled F (false).

You may feel that some of the statements are true for some family members and false for others. Mark **T** if the statement is *true* for most members. Mark **F** if the statement is *false* for most members. If the members are evenly divided, decide what is the stronger overall impression and answer accordingly.

Remember, we would like to know what your family seems like to *you.* So do not try to figure out how other members see you family, but *do* give us your general impression of your family for each statement.

Distributed by Mind Garden, Inc.

info@mindgarden.com
www.mindgarden.com

1. Family members really help and support one another.　　　T　　　F

3. We fight a lot in our family.　　　T　　　F

11. We often seem to be killing time at home.　　　T　　　F

13. Family members rarely become openly angry.　　　T　　　F

21. We put a lot of energy into what we do at home.　　　T　　　F

23. Family members sometimes get so angry they throw things.　　　T　　　F

31. There is a feeling of togetherness in our family.　　　T　　　F

33. Family members hardly ever lose their tempers.　　　T　　　F

41. We rarely volunteer when something has to be done at home.　　　T　　　F

43. Family members often criticize each other.　　　T　　　F

51. Family members really back each other up.　　　T　　　F

53. Family members sometimes hit each other.　　　T　　　F

61. There is very little group spirit in our family.　　　T　　　F

63. If there's disagreement in our family, we try hard to smooth things over and keep the peace.　　　T　　　F

71. We really get along well with
    each other.   T   F

73. Family members often try to   T   F
    one-up or out-do each other.

81. There is plenty of time and   T   F
    attention for everyone in our
    family.

83. In our family, we believe you   T   F
    don't ever get anywhere by
    raising your voice.

APPENDIX O

Parenting Stress Index

Subject # _____

Date _____

PARENTING STRESS INDEX

(Short Form)

|

Richard R. Abidin
University of Virginia

Directions:

In answering the following questions, please think about the child you are most concerned about. (target child)

The questions on the following pages ask you to mark an answer which best describes your feelings. While you may not find an answer which exactly states your feelings, please mark the answer which comes closest to describing how you feel.

YOUR FIRST REACTION TO EACH QUESTION SHOULD BE YOUR ANSWER.

Please mark the degree to which you agree or disagree with the following statements by circling the number which best matches how you feel. If you are not sure, please circle #3.

1	2	3	4	5
Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree

Example:

I enjoy going to the movies. (If you sometimes enjoy going to the movies, you would circle #2.)

1 (2) 3 4 5

Subject # _____

Date

1	2	3	4	5
Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree

1. I often have the feeling that I cannot handle things very well. 1 2 3 4 5

2. I find myself giving up more of my life to meet my children's needs than I ever expected. 1 2 3 4 5

3. I feel trapped by my responsibilities as a parent. 1 2 3 4 5

4. Since having this child I have been unable to do new and different things. 1 2 3 4 5

5. Since having a child I feel that I am almost never able to do things that I like to do. 1 2 3 4 5

6. I am unhappy with the last purchase of clothing I made for myself. 1 2 3 4 5

7. There are quite a few things that bother me about my life. 1 2 3 4 5

8. Having a child has caused more problems than I expected in my relationship with my spouse (male/female friend). 1 2 3 4 5

9. I feel alone and without friends. 1 2 3 4 5

10. When I go to a party I usually expect not to enjoy myself. 1 2 3 4 5

11. I am not as interested in people as I used to be. 1 2 3 4 5

12. I don't enjoy things as I used to. 1 2 3 4 5

PD [   ]

13. My child rarely does things for me that make me feel good. 1 2 3 4 5

14. Most times I feel that my child does not like me and does not want to be close to me. 1 2 3 4 5

15. My child smiles at me much less than I expected. 1 2 3 4 5

16. When I do things for my child I get the feeling that my efforts are not appreciated very much. 1 2 3 4 5

17. When playing, my child doesn't often giggle or laugh. 1 2 3 4 5

18. My child doesn't seem to learn as quickly as most children. 1 2 3 4 5

19. My child doesn't seem to smile as much as most children. 1 2 3 4 5

20. My child is not able to do as much as I expected. 1 2 3 4 5

21. It takes a long time and it is very hard for my child to get used to new things. 1 2 3 4 5

APPENDIX P

Center for Epidemiological Studies Depression Scale

Name_____

The Center for Epidemiological Studies Depression Inventory (CES-D)
(Radloff, 1977)

Below is a list of ways you may have felt or behaved. Please choose the best answer that describes how often you have felt this way during the past week.

DURING THE PAST WEEK...	RARELY/ NONE of the time (Less than 1 day)	SOME/ A LITTLE of the time (1 – 2 days)	OCASSIONALLY/ MODERATE AMOUNT (3 – 4 days)	MOST/ ALL of the time (5 – 7, days)
1. I was bothered by things that usually don't bother me.	0	1	2	3
2. I did not feel like eating; my appetite was poor.	0	1	2	3
3. I felt that I could not shake off the blues even with help from my family or friends.	0	1	2	3
4. I felt that I was just as good as other people.	0	1	2	3
5. I had trouble keeping my mind on what I was doing.	0	1	2	3
6. I felt depressed.	0	1	2	3
7. I felt that everything I did was an effort	0	1	2	3
8. I felt hopeful about the future.	0	1	2	3
9. I thought my life had been a failure.	0	1	2	3
10. I felt fearful.	0	1	2	3
11. My sleep was restless.	0	1	2	3
12. I was happy.	0	1	2	3
13. I talked less than usual.	0	1	2	3
14. I felt lonely.	0	1	2	3
15. People were unfriendly.	0	1	2	3
16. I enjoyed life.	0	1	2	3
17. I had crying spells.	0	1	2	3
18. I felt sad.	0	1	2	3
19. I felt that people dislike me.	0	1	2	3
20. I could not get "going."	0	1	2	3

APPENDIX Q

Colorado Childhood Temperament Inventory

Colorado Temperament Inventory

Checked in by:_____
Date Checked in:_____

Subject ID#_____
Date of Birth: _____/_____/_____

Date of Visit:_____/_____/_____
Gender: M F

Please answer the items on this page, about the behavior of your child, by circling one of the numbers following each item. We know that no item will apply to your child in every situation, but try to consider his/her usual or general behavior. Please answer honestly—there are no right or wrong answers.

How much is your child like this?

		Not At All -------------- STRONGLY DISAGREE			A Lot -------- STRONGLY AGREE	
1.	Child persists at a task until successful.	1	2	3	4	5
2.	Child gives up easily when difficulties are encountered.	1	2	3	4	5
3.	Child tends to be shy.	1	2	3	4	5
4.	Child cries easily.	1	2	3	4	5
5.	When upset by an unexpected situation, child quickly calms down.	1	2	3	4	5
6.	Child goes from toy to toy quickly.	1	2	3	4	5
7.	Child likes to be with people.	1	2	3	4	5
8.	Child is always on the go.	1	2	3	4	5
9.	Whenever child starts crying, he/she can easily be distracted.	1	2	3	4	5
10.	Child prefers playing with others rather than alone.	1	2	3	4	5
11.	Child tends to be somewhat emotional.	1	2	3	4	5
12.	When child moves about, he/she usually moves slowly.	1	2	3	4	5
13.	If talked to, child stops crying.	1	2	3	4	5

APPENDIX R

Detailed SEM Models

Figure R1. Full model of teacher-child relationship quality and parental mental health as predictors of externalizing behavior problems.
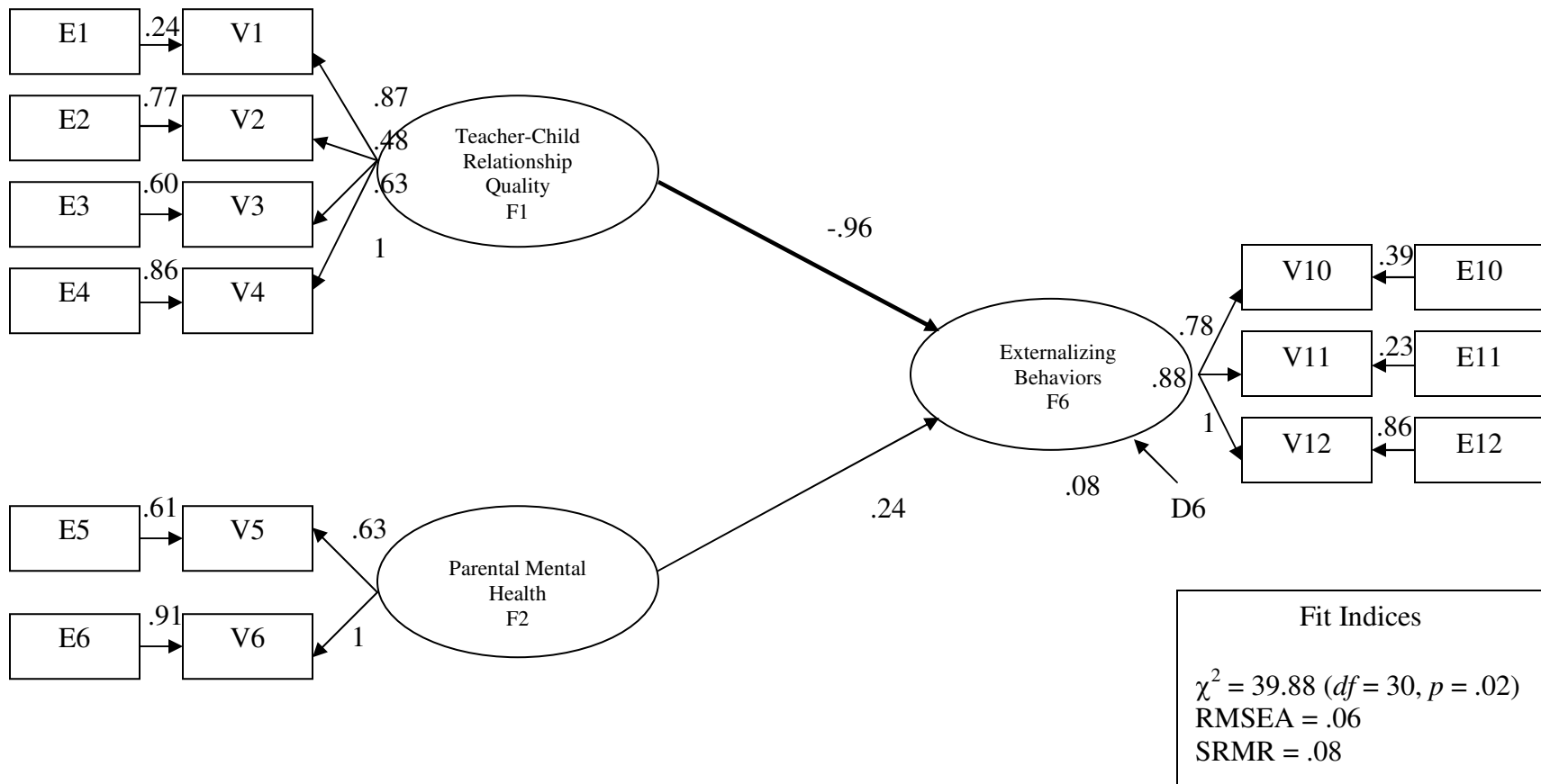
Figure R2. Full model of teacher-child relationship quality, parental mental health, and teacher-child relationship quality x parental mental health as predictors of externalizing behavior problems.
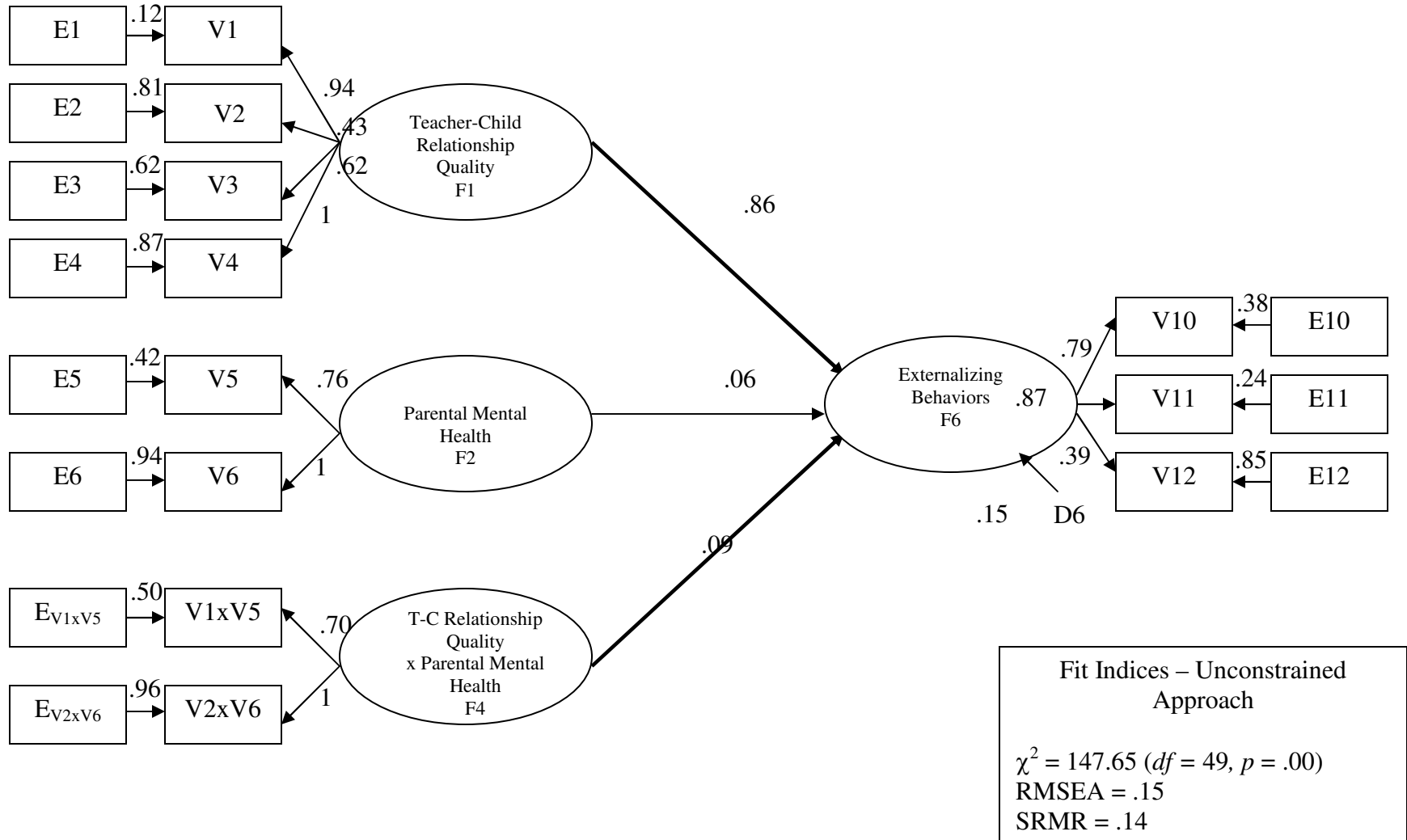
Figure R3. Full model of teacher-child relationship quality and family functioning as predictors of externalizing behavior problems.
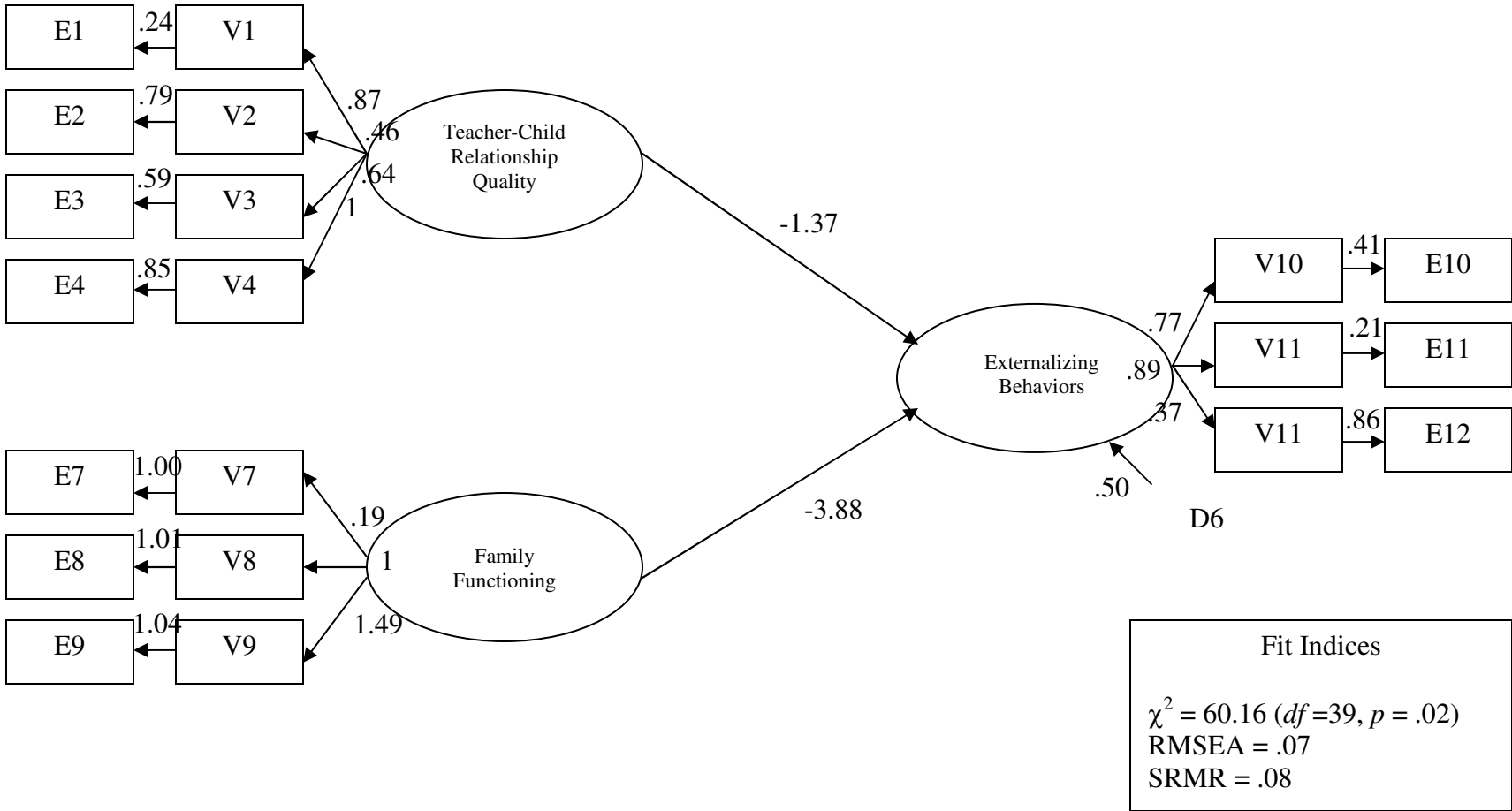
Figure R4. Full model of teacher-child relationship quality, family functioning, and teacher-child relationship quality x family functioning as predictors of externalizing behavior problems.
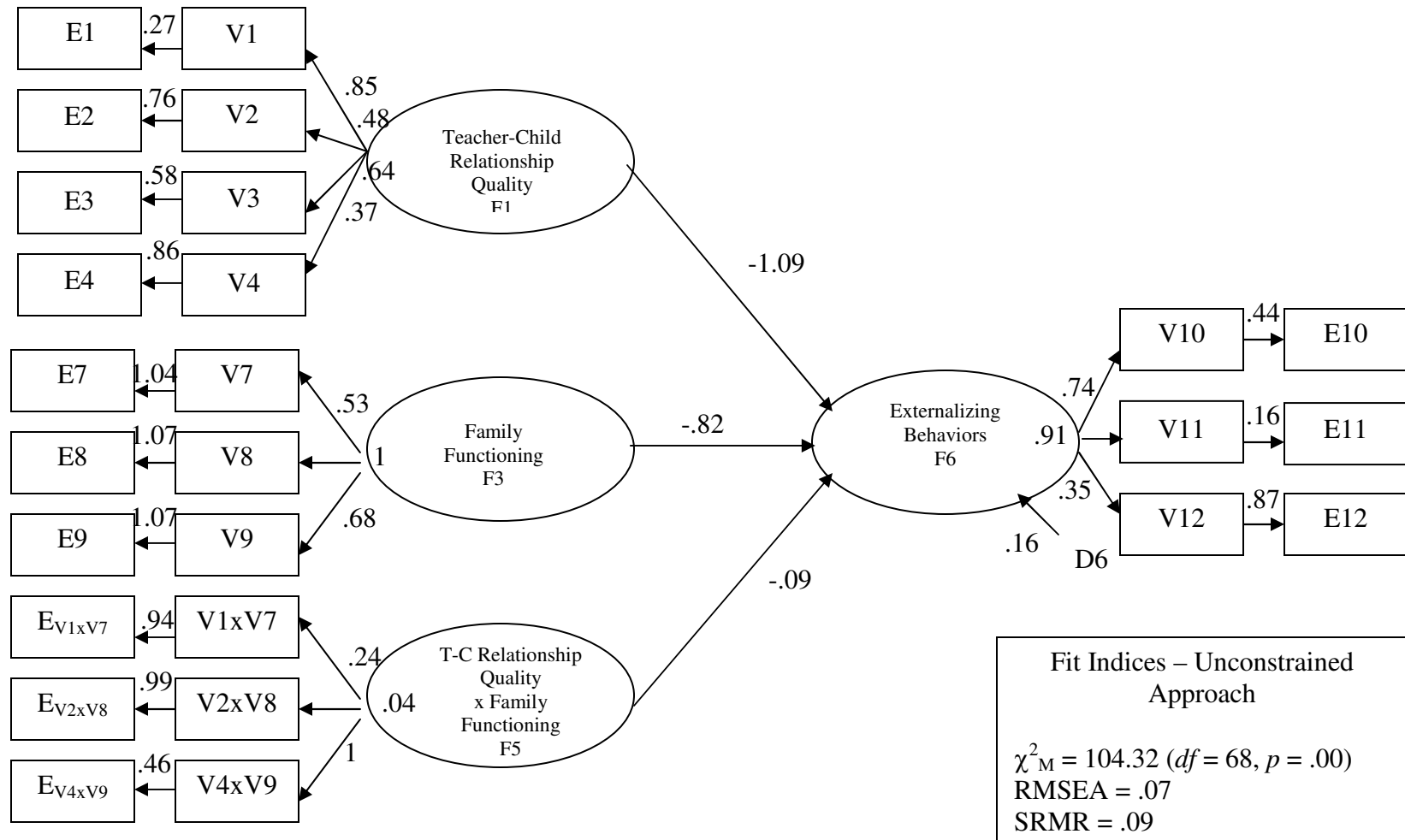
APPENDIX S

SEM Correlations

Table S1

Correlation Matrix of all SEM Indicator Variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. Conflict	------	-.32**	.59**	-.29**	-.05	.10	-.02	.03	-.07	.65**	.68**	.32**
2. Closeness		------	-.28**	-.06	.00	-.12	-.03	.02	.25*	-.24**	-.43**	-.12
3. Dependency			------	-.20	-.02	.12	-.07	-.07	-.04	.40**	.54**	.16
4. Positive T-C Interactions				------	.07	-.02	.02	.02	.06	-.37**	-.36**	-.14
5. Depression					------	.18	.43**	-.18	-.03	.03	.14	.14
6. P-C Dysfunction						------	.28**	-.38**	-.14	-.01	.16	.27*
7. Family Conflict							------	-.34**	-.16	.09	.11	.22*
8. Family Cohesion								------	.17	-.02	-.11	-.25*
9. Support of Partner									------	-.07	.32**	-.10
10. Attention Problems										------	.67**	.40**
11. Aggressive Behavior											------	.27*
12. Child Noncomplianc												------

* $p \leq .05$, **$p \leq .01$

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