

Spanking among Rural African American Mothers and Pathways to Child Behavior
Problems during Kindergarten

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ABSTRACT

AMANDA R. CLINCY: Spanking among Rural African American Mothers and
Pathways to Child Behavior Problems during Kindergarten
(Under the direction of Martha Cox)

This dissertation research is comprised of two studies aimed at exploring the implications of spanking for children's behavior in multiple contexts. Specifically, Study 1 explored whether linkages between maternal spanking at 36 months and internalizing and externalizing behaviors during kindergarten were moderated by child negative emotionality at 6 months and maternal sensitivity, maternal harshness, and sociodemographic risk at 36 months. In Study 2, effortful control at 58 months was examined as a potential mechanism by which maternal spanking influenced behavior within particular contexts. The sample consisted of 468 rural African American mothers and their children participating in the Family Life Project. Data were obtained from multiple sources including reports from the mother and teacher and coding from observational protocols. In the first study, maternal spanking was unrelated to internalizing or externalizing behaviors. However, associations between maternal spanking and externalizing behaviors were contingent upon the overall parenting context. Specifically, in parenting contexts characterized by low levels of sensitivity or high levels of harshness, maternal spanking was associated with higher levels of externalizing behavior. In the context of high sensitivity, maternal spanking was related to lower levels of externalizing behaviors. Contrary to prediction, child negative emotionality and

sociodemographic risk did not emerge as moderators of the association between maternal spanking and behavior problems. In Study 2, maternal spanking was related to lower levels of effortful control for children prone to negative emotionality. Maternal spanking was associated with higher levels of effortful control in the context of maternal harshness. Contrary to what was hypothesized, effortful control was not associated with behavior problems, suggesting that, in the current sample, other mechanisms may account for relations between maternal spanking and externalizing behavior within particular contexts. In sum, this research highlights the importance of examining the specific conditions under which spanking is harmful or beneficial to children's adjustment in multiple domains of functioning.

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General Introduction

Spanking is a fairly normative parenting practice in the United States. Surveys suggest that at least 84% of American parents have spanked their child at least once by the time they reach the age of 3 or 4 (Straus & Stewart, 1999). Many researchers argue that physical discipline has few benefits and can actually cause more harm than good by increasing levels of aggression and mental health difficulties in children (American Academy of Pediatrics, 1998; Straus, 1994). However, these findings seem to vary by ethnic group membership. Even though on average African American parents tend to use physical discipline more frequently (Pinderhughes, Dodge, Bates, Pettit, & Zelli, 2000; Polaha, Larzelere, Shapiro, & Pettit, 2004), the negative effects of spanking have mainly been found among European American children and have not consistently emerged among African American children (Deater-Deckard & Dodge, 1997; Deater-Deckard, Dodge, Bates, & Pettit, 1996; Dodge, McLoyd, & Lansford, 2005).

Much of the work on spanking in African American families, while informative, has not adequately considered the heterogeneity within African American families. Variations in income, education, neighborhood residence, parenting style, child temperament, and a host of other factors create a context within which African American parents decide how to respond to child misbehavior and a context that can determine the effects of spanking on child behavior.

Furthermore, studies that do consider whether contextual factors buffer or intensify relations between spanking and child behavior have not empirically

demonstrated the basic developmental processes that may underlie linkages between spanking and behavior within particular contexts. Recently, attention has been given to the role of self-regulation as a potential mediator of the association between physical punishment and heightened behavior problems. Evidence from this line of work suggests that spanking impedes the development of self-regulatory abilities, specifically effortful control, and, in turn, contributes to increased behavior problems (Chang, Olson, Sameroff, & Sexton, 2011). However, this limited body of research has been conducted with predominantly European American samples and has ignored contextual factors that might influence whether or not particular mediators link spanking to behavior, especially within African American families.

In light of this, it is critical that researchers look within African American families to begin to answer questions about the mediators that underlie links between spanking and positive or negative outcomes within multiple contexts. The answers to these questions have implications not only for broadening our understanding of spanking and its consequences in diverse groups but also for policy recommendations regarding physical discipline and for informing the dialogue on whether what is considered “optimal” parenting is context dependent. Given the paucity of research among African American families considering the processes that underlie linkages between spanking and behavior within particular contexts, the goal of Study 1 was to examine associations between maternal spanking at 36 months and child behavior problems during kindergarten in a large group of African-American families from 3 poor rural counties in eastern North Carolina. The families are representative of all African American families in the 3 counties giving birth to a child during the year of subject recruitment. Also of

interest was whether child, maternal, and broader contextual factors moderated the relationship between maternal spanking and children's behavior problems. Using the same sample, Study 2 focused on one potential mediator that may account for the relationship between maternal spanking and behavior within several of the contexts explored in Study 1. Specifically, Study 2 examined whether associations between maternal spanking and child behavior in the context of child and maternal characteristics were mediated by effortful control.

Before describing the research goals in more detail, relevant literature that encompasses both studies is discussed. The introduction begins by considering how spanking is defined and how it is distinguished from corporal punishment and physical abuse. Next, theories that stress the importance of understanding the context within which parenting behaviors occur are discussed. Specifically, Gershoff's (2002) process-context model of corporal punishment that grounds the two proposed studies is reviewed. This section is followed by a discussion of the benefits of within-group approaches to understanding spanking and harsh parenting practices more generally within African American families. Next, the implications of the rural context in which the families in the present study interact are discussed. Finally, the general introduction concludes with an overview of the dissertation chapters.

1.1 Distinguishing Spanking from Corporal Punishment

Much of the extant literature examining physical discipline has not adequately made distinctions between spanking, corporal punishment, and physical abuse. Corporal punishment has often been conceptualized as a continuum, with the absence of physical punishment on one end and physical abuse occurring on the opposite, extreme end (see

review in Gershoff, 2002; Strassberg, Dodge, Pettit, & Bates, 1994). This conceptualization has proven to be problematic given that it is not clear that these behaviors represent different points along a continuum or different aspects of parenting. For the purpose of the current studies, spanking, corporal punishment, and physical abuse were conceptualized as related but independent constructs.

Straus (1994) provides one of the most commonly used definitions of corporal punishment. He defines it as “the use of physical force with the intention of causing a child to experience pain but not injury for the purposes of correction or control of the child’s behavior” (p. 4). According to this definition, corporal punishment is not one single behavior, rather it is essentially a category of several disciplinary behaviors that may include spanking, hitting, pushing, and slapping, as long as they do not cause significant physical injury (Gershoff, 2002; Giles-Sims, Straus, & Sugarman, 1995).

Scholars, politicians, and the general public are fairly unanimous in seeing certain subsets of behaviors that fall under corporal punishment as overly harsh and punitive, such as pushing and slapping (Baumrind, Larzelere, & Cowan, 2002; Gershoff, 2002). However, there is less agreement about the use of spanking, which has been defined as “striking the child on the buttocks” (Strassberg et al., 1994 p. 446) or striking the child on the extremities or buttocks with an open hand (Friedman & Schonberg, 1996). Many argue that spanking is not harmful when employed as one of many disciplinary strategies (Baumrind et al., 2002) and in a supportive environment (Baumrind et al., 2002; McLoyd & Smith, 2002). Unlike harsher forms of corporal punishment that are more aggressive and reactive, spanking represents a fairly ritualized, goal-oriented tactic.

Once physical discipline becomes injurious, it is no longer considered corporal punishment. It is considered physical abuse. The Child Welfare and Information Gateway (2008) has determined that physical abuse occurs when caregivers inflict “physical injury as a result of punching, beating, kicking, biting, burning, shaking or otherwise harming a child” .

These distinctions are critically important in light of the ongoing political and legal debates regarding whether corporal punishment should be prohibited in the United States. Many countries, such as Austria, Germany, Sweden, and Norway, have implemented policies that ban parental use of corporal punishment (The Center for Effective Discipline, 2010). Evidence documenting the detrimental effects of physical discipline must be accepted with caution given that in current research severe forms of physical discipline are often not distinguished from disciplinary behaviors that cause minor, temporary pain, such as spanking.

1.2 Gershoff’s Process-Context Model of Corporal Punishment

In addition to confounding spanking with harsher forms of physical discipline, the majority of the research cited in support of banning spanking often examines the practice outside of the broader context. This is troubling given evidence to suggest that the effects of certain parenting practices on child development vary depending on the normative nature of the parenting practice (i.e. authoritative parenting style, discipline) (Baumrind et al., 2002; Deater-Deckard et al., 1996), characteristics of the child and parent (Alink, Mesman, van Zeijl, Stolk, Juffer, Bakermans-Kranenburg, & Koot, 2009; Belsky, Hsieh, & Crnic, 1998; Deater-Deckard & Dodge, 1997; McLoyd & Smith, 2002; Morris, Silk, Steinberg, Sessa, Avenevoli, & Essex, 2002; Rubin, Hastings, Chen, Stewart, McNichol,

& Hastings, 1998), and the overall the sociocultural (Baumrind et al., 2002; Deater-Deckard et al., 1996) and socioeconomic contexts within which families are embedded (Dearing, 2004).

Gershoff's process-context model of corporal punishment attempts to elucidate the pathways by which corporal punishment affects child behavior within particular contexts. This model is heavily grounded in development systems theories (i.e. bioecological theory, developmental contextualism), which conceptualizes development as a function of dynamic relations between variables occurring at the social, cultural, biological, familial, and other nested levels of influence (Bronfenbrenner & Morris, 1998; 2006; Lerner, Rothbaum, Boulos, & Castellino, 2002). Within a developmental system, parenting behaviors are thought to influence and be influenced by variables occurring at each of the multiple levels of the system (Lerner et al., 2002). According to Gershoff (2002), approaching the study of corporal punishment from a developmental systems perspective allows researchers to begin to answer questions regarding how and why corporal punishment affects kids and when, whether, and for whom corporal punishment is beneficial or harmful. Thus, Gershoff places a strong emphasis on both mediators and moderators of the relationships between corporal punishment and child outcomes in order to begin to explain how corporal punishment might cause certain child outcomes.

Contextual variables or potential moderators are depicted in Gershoff's model as nested levels of influence. Gershoff highlights child characteristics (i.e. temperament, gender, and regulatory abilities), parental characteristics (i.e. parenting style, mental health), and social-cultural factors (i.e. socioeconomic status) as determinants of the effects of corporal punishment on child behavior.

Out of many relevant child characteristics, child temperament has received considerable attention in terms of its role as a moderator of the effects of discipline on child behavior (see Gershoff, 2002, for review). Scholars have long emphasized the importance of complex interactions between child temperament and parenting in determining child adjustment (e.g. Belsky, 1997; Gershoff, 2002; Rothbart & Bates, 1998; Thomas & Chess, 1977). Indeed, children who are highly anxious, fearful, and overall reactive are easily over-aroused by harsh disciplinary tactics and subsequently show poorer adjustment compared to their less reactive counterparts (Kochanska, 1993, 1994; Morris et al., 2002; Rubin et al., 1998). Unfortunately, there is a paucity of research examining the moderating influence of child temperament on the association between spanking and child adjustment in African American families.

With regard to parental characteristics, Gershoff (2002) focuses on the way in which relatively stable characteristics of the parenting environment can influence the impact of physical discipline on child behavior. The emotional climate is thought to moderate this relationship by transforming the nature of the parent-child interaction and by influencing the child's openness to parental influence (Darling & Steinberg, 1993). There is evidence to suggest that this is the case (e.g. Alink et al., 2009; Deater-Deckard & Dodge, 1997; McLoyd & Smith, 2002). For example, McLoyd and Smith (2002) found that spanking was only associated with increased behavior problems for children who received little parental emotional support.

Lastly, in accordance with theoretical models that place a heavy emphasis on the impact of factors outside of the family system in order to better understand minority families (Boykin & Toms, 1985; Garcia Coll, Crnic, Lamberty, & Wasik et al., 1996;

Garcia Coll & Pachter, 2004; Ogbu, 1981), Gershoff (2002) emphasizes the importance of the social-cultural context in shaping the effects of physical discipline on child outcomes. Similar to Garcia Coll and colleagues (1996), Gershoff (2002) suggests that strategies that may ensure child competence are a function of complex interactions between social class or social position (e.g. education, income, neighborhood residence) and culture. For example, African American parents residing in poor quality neighborhoods may engage in more controlling parenting behaviors to promote their children's survival. In fact, Dearing (2004) found that for African American children in low quality neighborhoods, restrictive parenting was linked to more optimal school related outcomes.

In terms of processes or mediators, Gershoff's (2002) model describes several mediators that are hypothesized to account for the effects of spanking on child outcomes. The mediators highlighted include observational learning, social control, external and internal attributions, and aspects of self-regulation. For example, according to Gershoff (2002), spanking is proposed to cause children to experience high levels of negative arousal. High levels of negative arousal are thought to impede the development of self-regulatory abilities (Hoffman, 2000), and deficits in self-regulatory abilities likely underlie the development of behavior problems (Eisenberg et al., 2005). However, implicit in Gershoff's model is that the effects of spanking and the mediators through which spanking influences behavior vary according to characteristics of the child, parent, and broader ecological context. To illustrate, children who are temperamentally reactive may be more vulnerable to the effects of spanking on self-regulation and, in turn, display more behavioral problems as compared to children who are less reactive. Unfortunately,

few, if any, studies have examined whether the processes through which spanking influences child adjustment vary as a function of contextual variables.

Thus, in order to advance our understanding of the role of context in the link between physical discipline and child outcomes, researchers must consider that the direct effects of spanking and the processes through which spanking influences child adjustment are shaped by complex interactions between multiple factors occurring at various levels of analysis. These factors include aspects of the child, parent, and broader community.

1.3 A Within-group Approach to Studying Parenting within African American Families

To better understand family processes within the unique conditions in which African Americans reside, many scholars have argued for the use of within-group approaches to studying African American families (Brody & Flor, 1998; Ogbu, 1981; Phinney & Landin, 1998). Within-group approaches move away from examining African Americans as a homogenous group and comparing their parenting behaviors against European American parents. These approaches do, however, allow for theories derived from research among European American samples to be tested to see whether or not they are valid among other groups, and if valid, under what conditions they apply. This is done without one group being implicitly or explicitly described as deficient when compared to the other group. A within-group approach also recognizes the variability within particular ethnic groups in terms of individual and child characteristics and environmental demands. Furthermore, it can also provide a more comprehensive understanding of adaptive processes that may promote child competence within particular contexts.

A within-group approach to studying spanking is particularly useful because researchers have theorized links to contemporary and historical experiences, some of which are unique to African Americans. First, religiosity and spirituality have been an integral part of African American culture and have roots that trace back to West Africa (Boykin & Toms, 1986). During slavery, many African Americans adopted Christianity and biblical principles regarding how to raise children became highly influential. Principles such as “Spare the rod, spoil the child” have encouraged physical discipline for centuries (Ahn, 2000). Second, some theorists argue that the hostile environment of slavery required submission to authority, and parents used harsh discipline to ensure the survival of their children in this environment (Lassiter, 1987). While slavery is no longer present, its legacy is the poverty and discrimination experienced by many African American families, which create a challenging environment for African American parents raising children.

1.4 The Rural Context

The vast majority of research exploring how African Americans parents adapt to these challenging environments and raise their children has been conducted using urban, low-income samples, which has essentially created an urban bias in the literature (Horton, Thomas, & Herring, 1995). Though African American families raising children in rural regions have many strengths, such as their religious faith and churches (Wiley, Burr Warren, Montanelli, 2002), they also face unique challenges. For these families, poverty is entrenched in a system of political and economic stratification. African American families are often caught in a historical cycle of poverty which is the result of deeply rooted dependency, racism, and lack of land (Tickamyer & Duncan, 1990). In addition to

facing these obstacles, African American rural families must cope with the stressors common to rural life. Rural communities are often characterized by low educational attainment, high infant mortality, low quality housing and health care, and few formal support services (Brody, Stoneman, Flor, McCrary, Hastings, & Conyers 1994; Cochran, Skillman, Rathge, Moore, Johnston, & Lochner, 2002; Lichter & Johnson, 2007). Underdeveloped infrastructures and scarcity of jobs, especially jobs offering upward mobility, are also qualities that characterize many rural communities (Tickamyer & Duncan, 1990). The occupations that are available are usually low wage and physically exerting (Brody & Flor, 1998). Lichter and Johnson (2007) suggest that economic and cultural isolation may give rise to behaviors that continue the cycle of poverty, such as welfare dependency and single parenthood.

Parents who are trying to raise self-sufficient children within the rural context may employ harsh parenting practices to maximize their children's survival. African American parents have long held the view that African American children have a narrow "window of error", or that in society, misbehavior holds greater consequences for African Americans as opposed to other groups (Hines & Boyd-Franklin, 1996). The term "no nonsense" parenting has been used to describe the parenting style of rural African American mothers (Brody, Flor, & Gibson, 1999). This style is characterized by high levels of parental control, which includes spanking, along with affection. No nonsense parenting has been found to promote better self-regulation, cognitive and social competence and fewer internalizing behavior problems among rural African American children (Brody & Flor, 1998). It is important for researchers to begin to better understand how rural African American parents adapt to their environments and what

parenting strategies they use to promote child competence within their ecological niches. A second key question is whether family level characteristics influence the effects of disciplinary strategies on child adjustment within these rural ecological niches in the same way they have been found to influence child adjustment in groups residing in other contexts.

1.5 Overview of Chapters

In light of the push for ecologically-grounded, within-group explorations of parenting among African American families, this dissertation examined maternal spanking within this framework. Both studies applied Gershoff's (2002) process-context model of corporal punishment. The primary goal of the two distinct but complementary studies was to examine the conditions under which spanking is beneficial or harmful to rural African American children and the processes that underlie these associations. Specifically, in Study 1, I explored whether maternal spanking at 36 months predicted children's behavior problems during kindergarten and whether this relationship was strengthened or attenuated by certain child characteristics, maternal attributes, and broader contextual factors. In Study 2, I focused on understanding the process by which interactions between maternal spanking and child characteristics and between maternal spanking and maternal characteristics predicted child behavior problems. In particular, I examined one potential mediator, effortful control, to help elucidate the ways through which maternal spanking is associated with child behavior problems under certain family-level conditions.

Study 1: Spanking among Rural African American Mothers and Pathways to Child Behavior Problems during Kindergarten: An Analysis of Moderators

2.1 Introduction

Corporal punishment has been found to be a robust predictor of aggression, antisocial behavior, and mental health difficulties in children (see meta-analysis in Gershoff, 2002). However, studies documenting these positive associations have mainly sampled European American families. These findings often fail to replicate when researchers examine spanking among African American families. In fact, the research findings for African American families are fairly mixed, with studies finding negative, neutral or even positive effects on child behavior (Christie-Mizell, Pryor, & Grossman, 2008; see review in Horn, Joseph, & Chen, 2004). The mixed nature of the findings for African Americans may be due to the fact that researchers often do not adequately capture the heterogeneity within this population. The heavy focus on the main effects of spanking as opposed to interaction effects fails to acknowledge that African Americans vary in terms of child characteristics, maternal characteristics, and characteristics of the broader community, all of which may influence whether spanking has negative, neutral, or even positive effects.

Two of the most frequently studied consequences of spanking are internalizing and externalizing behavior problems. Externalizing behaviors can be thought of as conduct problems, such as aggression or delinquent behavior (Eisenberg et al., 2001). Children with higher levels of externalizing behaviors are more likely to display lower academic

performance and higher rates of conduct disorder, delinquency in adolescence, and criminality in adulthood (Farmer, 1994; Parker & Asher, 1987). Conversely, internalizing behaviors can be conceptualized as sadness and anxiety (Achenbach, 1982; Eisenberg et al., 2009; Hymel, Rubin, Rowden, & LeMare, 1990). Children who experience internalizing behaviors are more likely to be clinically depressed and involved in criminal activity and have higher rates of suicide and poor physical health as adults (Klein, Lewinsohn, & Seeley, 1997; Nolen-Hoeksema, Morrow, & Fredrickson, 1993; Weissman et al., 1999).

Spanking has traditionally been hypothesized to lead to greater internalizing and externalizing behavior problems through several mediators including emotional arousal (Gershoff, 2002). Spanking is often associated with the generation of high levels of fear and anger in the child, which, in turn, can contribute to future disruptions in the quality of the parent-child relationship (Gershoff, 2002). In addition, children's fear and anger have been associated with self-regulatory difficulties (Eisenberg et al., 2009). Children with high levels of fear or anger are more likely to display heightened internalizing and externalizing behaviors (Deater-Deckard, Ivy, & Petrill, 2006; Eisenberg et al., 2005; Murray & Kochanska, 2002). Given the long-term implications of externalizing and internalizing behaviors, understanding under what conditions spanking promotes or deters the development of behavior problems among African American children is critical.

There is a substantial body of work attempting to better understand the implications of spanking for African American children's behavior. Several studies find neutral or negative associations between spanking and African American children

externalizing behaviors (Deater-Deckard et al., 1996; Horn et al., 2004; Polaha et al., 2004). For example, Deater-Deckard and colleagues (1996) reported that for the African American children in their sample, maternal physical discipline was not associated with higher levels of teacher and peer reported externalizing behaviors. In addition, there was a trend for African American children receiving physical discipline to display less aggression and externalizing behaviors. Similarly, Polaha and colleagues (2004) found a significant partial correlation between externalizing behaviors and spanking for European American children, but not for African American children. When using teacher reported externalizing behaviors, maternal physical discipline was associated with fewer externalizing behaviors in African American boys, but unrelated to behavior problems in African American girls. In addition, one review synthesizing the literature on spanking among African American children demonstrated that in several longitudinal studies, African American children who were spanked were less likely to fight and show antisocial behaviors (see review in Horn et al., 2004).

The majority of the aforementioned studies examined spanking and externalizing behaviors. There has been less research looking at linkages between spanking and internalizing behaviors, and the limited body of research has produced mixed results. Indeed, in their study of rural African American families, Brody and Flor (1998) found that no nonsense parenting, which includes physical discipline, was indirectly related to fewer internalizing behaviors through higher levels of self-regulation during middle childhood. Similarly, other studies have found that among African American children, physical punishment is unrelated to anxiety (see review in Horn et al., 2004). Brody and Flor (1998) as well as the studies cited in Horn and colleagues (2004) examined physical

discipline more broadly. One study conducted by Christie-Mizell and colleagues (2008) found that spanking was associated with increased depressive symptoms among African American children age 6 to 14. Similarly, pooling together internalizing and externalizing behavior problems, McLoyd and Smith (2002) found that rates of spanking when children were 4 until they were 10 years of age were associated with increased behavior problems overtime.

Taken as a whole, the evidence suggests that when examining the main effects of spanking, spanking is unrelated to or associated with fewer externalizing behaviors in African American children. However, spanking may contribute to greater internalizing behavior problems. This suggests that while spanking may have few negative effects on antisocial behaviors, it can still impact children's mental health adversely. Indeed, studies indicate that harsh parenting techniques may increase children's feelings of helplessness and decrease feelings of confidence (see review in Gershoff, 2002). There is a paucity of research exploring the impact of spanking on both internalizing and externalizing behaviors in the same study. Thus, the first goal of the study was to examining whether spanking was associated with internalizing and externalizing behaviors in young African American children.

In addition to the lack of research jointly examining the effects of spanking on both internalizing and externalizing behaviors, few studies have examined spanking among children as young as 3 years of age. Understanding the implications of spanking for child behavior is particularly important during early childhood. By the end of the second year of life, children have experienced rapid developmental changes in terms of increases in verbal abilities and overall physical movement. They tend to be less

compliant, making parenting very challenging. Parents may engage in more controlling and punitive parenting behaviors, such as spanking, during this time. In fact, spanking is usually at its highest during the toddler years and then slowly declines after age 5 (Straus & Stewart, 1999).

In summary, the mixed nature of the findings and the lack of information on the implications of spanking for very young African American children suggest the need to explore under what conditions spanking during early childhood is associated with behavior problems. Gershoff's (2002) process-context model of corporal punishment suggests that relatively stable individual characteristics of the parent and child, as well as the broader sociocultural and socioeconomic context in which discipline is occurring can determine its implications for child behavior. Few studies have considered the role of contextual variables, such as child temperament, both sensitive and harsh parenting, and cumulative sociodemographic risk, in moderating associations between maternal spanking and African American children's behavior problems, particularly among rural African American children.

2.2 Contextual Moderators

2.2.1 Child Negative Emotionality as Moderator

Several models recognize the importance of complex interactions between child temperament and parenting in determining child adjustment (e.g. Belsky, 1997; Gershoff, 2002; Rothbart & Bates, 1998; Thomas & Chess, 1977). Temperament is thought to have a biological basis and is broadly defined as individual differences in emotional, motor, and attentional reactivity and self-regulation (Rothbart & Bates, 1998; Rothbart & Bates, 2006). Negative emotionality is a commonly studied dimension of infant reactivity, often

defined as a tendency to display high intensity negative emotional reactions to stressors (Rothbart, Ahadi, & Hershey, 1994). Negative emotionality also refers to the propensity to display several types of negative affect including anger (distress to limitations) and fear (distress to novelty). Children high on negative emotionality may be irritable, difficult to soothe and show high-intensity negative reactions (Paulussen-Hoogeboom, Stams, Hermanns, & Peetsma, 2007).

Negative emotionality has been implicated in the development of internalizing behaviors (Lengua, West, & Sandler, 1998; Eisenberg et al., 2001) and externalizing behaviors (Eisenberg et al., 2001; Eisenberg et al., 2009; Gilliom, Shaw, Beck, Schonberg, & Lukon, 2002; Lengua et al., 1998; Lengua, 2006). Rothbart and Bates (2006) suggest that negative emotionality in the form of anger and irritability is typically associated with externalizing behaviors, whereas sadness and fear are associated with internalizing behaviors. The experience of these emotions may not only predispose children to externalizing and/or internalizing symptoms, but also may make them more vulnerable to negative experiences from peers that may reinforce these behaviors (Eisenberg et al., 2009).

Given that children high in negative emotionality may be vulnerable to the development of behavior problems, it is important to understand whether parenting behaviors, such as spanking, make this group even more susceptible to developing behavior problems. When compared to children low in negative emotionality, children who are high in negative emotionality are more reactive and need more parental support to develop self-regulatory abilities (Morris et al., 2002). Deficits in self-regulatory abilities likely underlie the development of behavior problems (Eisenberg et al., 2005).

Thus, children prone to negative emotionality compared to children not prone to negative emotionality may be more reactive and less able to regulate attentional and behavior responses when spanked and, in turn, may display more behavior problems. Furthermore, children who are over-aroused by harsh parenting behaviors may be less likely to internalize the message their parent is trying to communicate through discipline (Eisenberg et al., 2005). Grusec and Goodnow (1994) suggest that children will be less motivated to attend to parental socialization messages when power-assertive discipline tactics are overly employed because they fail to establish the parent as supportive and sensitive to the child's needs.

Although few, if any, studies examine complex interactions between spanking and child negative emotionality, there is a fairly large body of evidence that supports the proposition that children who are prone to negative emotionality are particularly harmed by negative parenting behaviors, such as harsh discipline, coercion, and physical and verbal aggression, compared to children who are not as reactive (Belsky et al., 1998; Morris et al., 2002; Rubin et al., 1998). For example, maternal negative dominance has been shown to predict increased externalizing behaviors, but only among male toddlers with an angry temperament (Rubin et al., 1998). Similarly, negative parenting is associated with higher levels of internalizing behaviors, but only among children high on negative reactivity. This positive relationship did not emerge for children low on negative reactivity (Morris et al., 2002).

Several studies, specifically focused on discipline, find comparable findings (Paterson & Sanson, 1999; van Zeijl, Mesman, Stolk, Alink, van IJzendoorn, Bakermans-Kranenburg et al., 2007). van Zeijl and colleagues (2007) found that children who

received more negative forms of discipline (i.e. prohibition, physical obstruction) showed higher externalizing behavior problems than those who experienced less negative forms of discipline. Likewise, among Australian families, Paterson and Sanson (1999) demonstrated that parental use of physical punishment was associated with higher levels of externalizing behaviors among children who were highly reactive, an aspect of negative emotionality, but it was unrelated to externalizing behaviors among children who were less reactive.

While informative, the aforementioned studies tested linkages among families of European descent. Less is known about temperament by parenting interactions within African American families. Though theoretical models focused on parenting among ethnic minorities place a heavy emphasis on the impact of factors outside of the family system (Boykin & Toms, 1985; Garcia Coll et al., 1996; Garcia Coll & Pachter, 2004; Ogbu, 1981), it is recognized that the family system makes unique contributions to parenting and child development (Garcia Coll et al., 1996). Furthermore, a limited body of work suggests that temperamental characteristics are important in order to fully understand parenting in African American families (Hess et al., 2002). To fill this gap, as shown in Figure 2.1, Study 1 examined whether child negative emotionality measured at 6 months moderated the association between maternal spanking at 36 months and internalizing and externalizing behaviors during kindergarten.

It is important to note that there is evidence to suggest that the two dimensions of negative emotionality, distress to limitations and distress to novelty, represent different types of negative emotions (Braungart-Rieker, Hill-Soderlund, & Karrass, 2010; Buss & Goldsmith 1998) and differentially relate to parenting (Braungart-Rieker et al. 2010;

Razza, Martin. & Brooks-Gunn, 2011). Taking this into consideration, the current study examined negative emotionality as a composite of distress to limitations and distress to novelty as is typically done, but also examined distress to limitations and distress to novelty individually.

2.2.2 Maternal Sensitivity and Harshness as Moderators

Increasingly, research has documented that parenting style, or emotional climate, moderates the influence of parenting practices on child adjustment. Emotional climate is thought to moderate this relationship by transforming the nature of the parent-child interaction and by influencing the child's openness to parental influence (Darling & Steinberg, 1993). The effects of parenting behaviors, such as spanking, may depend on other aspects of the parenting context, such as general parental sensitivity (e.g. warm, emotionally supportive, positive) or parental harshness (e.g. negative and intrusive).

Though much of the work reviewed in early sections demonstrates that spanking has neutral or positive main effects on externalizing behaviors, these associations do not appear to hold when broader aspects of the parent-child relationship are taken into consideration. Several studies have established associations between discipline and increased behavior problems in the context of low parental sensitivity, but not high parental sensitivity (Alink, et al., 2009; Deater-Deckard & Dodge, 1997; McLoyd & Smith, 2002). For example, in a racially diverse sample, McLoyd and Smith (2002) examined whether spanking overtime, beginning at age 4, predicted overall behavior problems (externalizing and internalizing) and whether that association differed when parental emotional support was taken into account. Spanking emerged as a significant predictor of increased behavior problems overtime, but only in the context of low

parental emotional support. Similarly, Deater-Deckard and Dodge (1997) found that physical discipline when children were 5 years old was correlated very weakly with externalizing behaviors from kindergarten up through 6th grade for children when their parents also scored high on warmth. In contrast, for children with parents who scored low on warmth, physical discipline and externalizing behaviors were much more strongly and positively correlated.

Little research has examined associations between spanking and internalizing behaviors in the context of emotional support. Among African American children, Christie-Mizell and colleagues (2008) did not find emotional support functioned as a moderator of the relationship between spanking and internalizing behavior problems, specifically depressive symptoms. Spanking was associated with increased internalizing behavior problems despite levels of parental emotional support. However, the authors note that once emotional support was added into the model, the positive associations between spanking and depressive symptoms diminished. These findings may suggest that emotional support functions as a stronger moderator of the relationship between spanking and externalizing behaviors as opposed to internalizing behaviors, but these findings call for further replication. Moreover, it is important to note this study included slightly older children, ranging from 6 to 14 years of age, potentially highlighting issues of developmental timing and whether different moderators are operating for older children versus younger children.

The majority of research exploring the overall parenting context as a moderator of the relationship between physical discipline and child behavior has focused on emotional support. However, low support does not necessarily mean that parents are more negative

in their interactions with their child. In fact, it may mean that a parent is disengaged. If negative parenting behaviors have greater implications for the development of behavior problems in children than the absence of positive parenting behaviors (Karreman, van Tuijl, van Aken, & Dekovi, 2006), it is necessary to understand the role of a harsh parenting style in modifying the relationship between spanking and child behavior. Parents who physically discipline their children are more likely to display other negative parenting behaviors, such as yelling (Hemenway, Solnick, & Carter, 1994). For this reason, it is often argued that the negative effects of spanking may actually be the result of the grouping together of harmful and negative techniques that characterize an overall negative or harsh parenting style (Darling & Steinberg, 1993; DeVet, 1997; Levin & Sears, 1956; Patterson, 1982; Simons, Johnson, & Conger, 1994; Straus & Mouradian, 1998). However, scholars who study physical discipline among African Americans propose that spanking is often not accompanied by parental negativity and, thus, is less strongly related to child behavior (Dodge et al., 2005). If spanking is combined with an overall harsh parenting style, it may be more strongly related to child behavior, given that harsh discipline may model poor regulatory behaviors and expose children to high levels of negative arousal (Chang et al., 2011).

Perhaps, Christie-Mizell and colleagues (2008) would have found that the relationship between spanking and internalizing behavior problems was intensified in the context of high harsh parenting even though emotional support did not emerge as a moderator. The negative emotions associated with harsh parenting styles coupled with physical discipline may cause children to experience heightened negative emotions, which, in turn, may contribute to increased behavior problems. To gain a fuller

understanding of how parenting style transforms the effects of spanking, we must consider harsh parenting styles along with warm or more sensitive parenting styles. Hence, as displayed in Figure 2.1, Study 1 explored both harsh and sensitive parenting as moderators of the association between maternal spanking and behavior problems.

2.2.3 Cumulative Sociodemographic Risk as a Moderator

It is widely recognized that the experience of risk factors such as poverty, single parenthood, low parental education, and unemployment often occur together (Masten, Coatsworth, Neemann, Gest, Tellegen, & Garmezzy, 1995), and are generally more predictive of child outcomes when examined cumulatively rather than one at a time (Burchinal, Vernon-Feagans, Cox, & Key Family Life Project Investigators, 2008). The literature has established a robust association between early sociodemographic risk and child behavior problems (Appleyard, Egeland, van Dulmen, & Sroufe, 2005; Campbell, Shaw, & Gilliom, 2000; Deater-Deckard, Dodge, Bates, & Pettit, 1998). Gortmaker, Walker, Weitzman, and Sobol (1990) found that children in families with little education, low income, and a host of other cumulated risk factors were more likely to show internalizing behavior problems than children with fewer risk factors. Similarly, in another study examining the cumulative impact of risk factors, including low-SES and living with a single mother and in a large household, the presence of multiple risk factors in contrast to fewer risk factors was associated with higher externalizing behaviors over middle childhood (Deater-Deckard et al., 1998). In addition, the literature indicates that examining the effects of risk factors experienced in early childhood is particularly important as the presence of risk factors in early childhood continues to explain

adolescent problem behavior above and beyond the effects of cumulative risk in middle childhood (Appleyard et al., 2005).

The most frequently studied sociodemographic risk factors include education, marital status, welfare receipt, poverty status, employment, and household size (Ackerman, Izard, Schoff, Youngstrom, & Kogos, 1999; Li-Grining, 2007). Increasingly research has shown that the effects of parenting behaviors on child outcomes vary as a function of broader risk factors. There are two main approaches to examining risk by parenting interactions. The first approach involves examining the role of broader risks factors in heightening relations between parenting behaviors and less optimal child outcomes (Ackerman et al., 1999). From this perspective, associations between spanking and increased behavior problems may be stronger for children facing higher levels of ecological risk than for children facing lower levels of ecological risk. This may be particularly true if spanking is administered in a less controlled and consistent fashion. Impoverished parents, due to limited mental coping abilities as a result of the stress and strain of poverty, have a tendency to be more punitive and inconsistent in their disciplinary practices (McLoyd, 1990). Some support for this perspective was generated by studies focused on children exposed to both harsh or less sensitive parenting and contextual risk (Ackerman et al., 1999; Pettit, Bates, & Dodge, 1997; Evans, Kim, Ting, Tesher, & Shannis, 2007). Specifically, Ackerman and colleagues (1999) demonstrated that higher versus lower cumulative risk and higher versus lower parental negative emotionality interacted to predict higher levels of child behavior problems.

Though studies have demonstrated that cumulative risk intensifies relations between parenting and less optimal child outcomes, this is often only the case when

examining parental negativity. Scholars who study physical discipline among African Americans propose that spanking is often not accompanied by parental negativity (Dodge et al., 2005) and, thus, may represent a more controlling parenting practice rather than a negative parenting practice. Hence, viewing spanking as an adaptive parenting behavior for children facing high levels of ecological risk may be a particularly useful perspective. This perspective is in contrast to conceptualizing sociodemographic risk as a factor that heightens relations between spanking and child behavior problems.

Indeed, parenting behaviors related to success in high-risk contexts may be very different than those related to success in low-risk contexts. Qualitative work suggests that parents residing in high-risk ecological environments engage in more restrictive parenting practices (Burton, 1990; Furstenberg, 1993). In fact, parenting behaviors that are controlling and restrictive may be more beneficial for children in high poverty contexts than strategies that are authoritative, or autonomy granting (Lamborn, Dornbusch, & Steinberg, 1996), because they may prevent children from engaging in antisocial behavior often associated with living in these types of environments (Garmezy, 1985). Though restrictive parenting behaviors may not necessarily involve physical punishment, studies indicate that they are positively correlated (e.g. Davis et al., 2001). Even with children as young as 3 years of age, parents may use controlling behaviors, such as spanking, to curb child misbehavior because they understand that the implications of misbehavior may be severe as children age, particularly for African American children experiencing adversity.

Though few, if any, studies have explicitly tested the effects of spanking on children in high-risk ecological contexts, there is some evidence to support the benefits of

more punitive, controlling, and restrictive parenting for children at-risk. In particular, a more punitive parenting style, partly indexed by the severity of punishment that parents administer, has been associated with better child cognitive functioning in low-SES families, but not in high-SES families (Baldwin, Baldwin, & Cole, 1990). Furthermore, Dearing (2004) found that controlling and restrictive parenting predicted higher academic achievement and lower levels of internalizing behavior problems in early elementary school children. However, this relationship only held for African Americans in low-SES neighborhoods. In contrast, for children who resided in high-SES neighborhoods and for European American children across all neighborhoods, restrictive parenting was related to lower academic achievement and higher internalizing behavior problems. Though Dearing did not look at cumulative sociodemographic risk specifically, neighborhood SES is often confounded with individual level risk factors (Leventhal & Brooks-Gunn, 2000), which suggest that the families living in the most impoverished neighborhoods may have the highest level of cumulative sociodemographic risk. Certainly, low-SES neighborhoods have high rates of unemployment, single parenthood, and poverty (Leventhal & Brooks-Gunn, 2000).

Accordingly, findings similar to Dearing's (2004) study may emerge when examining cumulative sociodemographic risk as a moderator of the relationship between spanking and child behavior among African Americans. Thus, as displayed in Figure 2.1, Study 1 examined whether cumulative sociodemographic risk moderated the relationship between maternal spanking and externalizing and internalizing behaviors.

2.3 Research Questions and Hypotheses

1. Does maternal spanking (36 months) predict child internalizing and externalizing behaviors (kindergarten)?
 - Hypothesis 1: Higher levels of maternal spanking (36 months) will be associated with higher levels of child internalizing behaviors (kindergarten) as compared to children who experience lower levels of maternal spanking. Levels of maternal spanking will not be associated with levels of child externalizing behaviors (kindergarten).
2. Does child early negative emotionality (6 months) moderate the association between maternal spanking and child internalizing and externalizing behaviors?
 - Hypothesis 2: Higher levels of maternal spanking (36 months) will be associated with higher levels of internalizing and externalizing behaviors (kindergarten) for children high on early negative emotionality (6 months). For children low on early negative emotionality, levels of maternal spanking will be unrelated to child internalizing and externalizing behaviors.
3. Do harsh parenting and sensitive parenting (36 months) moderate the association between maternal spanking (36 months) and child internalizing and externalizing behavior problems (kindergarten)?
 - Hypothesis 3: In the context of high maternal sensitivity (36 months), levels of maternal spanking (36 months) will not be associated with child internalizing and externalizing behaviors (kindergarten). In the context of low maternal sensitivity, higher levels of maternal spanking are predicted to be associated with higher levels of child internalizing and externalizing behaviors.

- Hypothesis 4: Levels of maternal spanking will be more strongly associated with child internalizing and externalizing behaviors (kindergarten) in the context of high maternal harshness (36 months) than in the context of low maternal harshness.
4. Does family sociodemographic risk (36 months) moderate the association between maternal spanking (36 months) and child internalizing and externalizing behaviors (kindergarten)?
- Hypothesis 5: In the context of high cumulative sociodemographic risk, higher levels of maternal spanking will be associated with lower levels of child internalizing and externalizing behaviors. In the context of low cumulative sociodemographic risk, higher levels of maternal spanking will be associated with higher levels of child internalizing and externalizing behaviors.

2.4 Sample

The sample for the current study was drawn from the Family Life Project. The FLP is a longitudinal, multi-method, multi-respondent rural study that explores the ways in which child, family, and contextual factors shape child development overtime. The FLP used a developmental, epidemiological sampling design to recruit a representative sample of families with oversampling of low-income families in Pennsylvania and North Carolina and African American families in North Carolina. Families were recruited in person at hospitals and over the phone using birth records. Eligibility criteria included residency in the target counties, English as the primary language spoken in the home, and plans to stay in the area for the next 3 years. A total of 1,292 families enrolled in the study by completing the first home visit when the infant was 2 months of age. Only the

468 African American maternal primary caregivers and their children residing in North Carolina were included in the proposed study. At 36 months, 70% of the mothers were single and 30% married. The median monthly family income was about \$1400 and ranged from less than \$400 to over \$19,500. There was variability in education within the sample. Fifty-four percent of mothers had a high school degree or less. Thirty-five percent had some college and 7% had a college degree.

2.5 Procedure

Two trained Research Assistants collected all data during home visits. All data for the proposed study was collected when children were on average 6 and 36 months of age and when they were in kindergarten. During the 6-month visit, the caregiver completed the KFAST literacy screener (Kaufman & Kaufman, 1994). All caregivers reading at the 8th grade level or above independently completed the questionnaires, while those reading below the 8th grade had the questionnaires read to them by home visitors. At this time point caregivers also completed the Infant Behavior Questionnaire. At the 36-month visit caregivers completed the individual demographic questionnaire, the Adult-Child Conflict Tactic Scale, and the Strength and Difficulties Questionnaire. During the kindergarten visit, the target child's kindergarten teacher completed the Strength and Difficulties Questionnaire.

At the 36-month visit, in addition to completing questionnaires, the primary caregiver and the child were filmed in a semi-structured 10-min dyadic puzzle activity. The mother was told that the child should complete the age-appropriate puzzles, but that the mother could give any help she considered necessary. A team of six coders scored the DVDs for caregiver behavior. All coders were blind to other information about the

families. Two criterion coders trained all other coders until excellent independent reliability (intraclass correlation $> .80$ for all composites) was maintained for each coder on each scale. Once reliability was met, two noncriterion coders were assigned to each case and completed independent codes (on which reliability was based) and then resolved any disagreements to arrive at a final code. Every coder also continued to code at least 20% of cases with a criterion coder to ensure continued reliability with the criterion, master coder.

2.6 Measures

Spanking was assessed at 36 months using a modified version of the Conflict Tactics Scale (Straus, 1979), the Adult-Child Conflict Tactic Scale. This measure consists of 20 items that evaluate how the parent has reacted to conflict with the child over the past year, such as trying to discuss an issue calmly, yelling at or insulting the child, stomping out of the room or house, threatening to spank the child, and hitting or trying to hit the child. The items gradually become more coercive and aggressive as they progress. The measure has 5 subscales: verbal discussion, verbal aggression, hostile-indirect withdrawal, physical aggression, and spanking. All items are rated on a 7-point scale, ranging from “never” to “almost every day”. For the purpose of the current study, only the spanking subscale was used which included two items measuring the frequency of spanking. Parents indicated how often they “spanked TC” and “spanked TC with something”. These items were averaged to obtain a rating of the frequency of maternal spanking. Internal consistency for the spanking subscale was .95 in a normative sample and .80 in a high-risk sample (Rains, 2004). In the current sample, the Cronbach’s alpha was .64. A principle components factor analyses indicated that the two items loaded

positively and highly on one single factor. The conflict tactics scale shows strong test-retest reliability in low income minority samples (McGuire & Earls, 1993). In addition, several studies conducted with African American families that document associations between the conflict tactics scale and variables for which there are theoretical grounds to expect associations provide some evidence of predictive validity in low-income African American samples (e.g. Wiley, Buur Warren, Montanelli, 2002).

Negative emotionality was assessed at 6 months using primary caregivers' responses to the Infant Behavior Questionnaire (Rothbart, 1981). This measure consists of 60 items representing 5 dimensions of temperament. These 5 scales include approach, distress to novelty, distress to limitations, duration of orientation, and recovery to distress. Parents were asked to rate the frequency of temperamental behaviors during activities over the past week such as bathing, play, and daily activities on a 7-point scale. The internal consistency of the scales ranged from .67 to .85 in a middle-class sample (Rothbart, 1986). For the purpose of this study, a negative emotionality composite was created using the mean scores of distress to novelty and distress to limitations, which both reflect temperamental reactivity (Paulussen-Hoogeboom et al., 2007). In addition, the two subscales were examined separately as predictors. In the current sample, the Cronbach's alpha was .73 for distress to limitations and .87 for distress to novelty. A principle components factor analyses indicated that the two subscales loaded positively and highly on one single factor. In studies employing the IBQ in low-income African American samples, it has been shown to be associated with variables for which there are theoretical grounds to expect linkages providing some evidence of predictive validity in

low-income African American samples (e.g. Chang, Fine, Ispa, Thornburg, Sharp & Wolfenstein, 2004).

Sociodemographic risk was calculated based on six self-reported risks measured at 36 months that reflect family structure and a lack of socioeconomic resources (Li-Grining, 2007). Risk factors included whether mothers had less than a high school degree, were single, received welfare, and had income below the federal poverty line. Whether or not mothers were employed and whether or not the household contained more than four minors (Ackerman et al., 1999) were also coded as risk factors. All items were assessed at 36 months of age. The presence or absence of a particular risk factor was added to obtain a final risk score. Similar risk composites have previously been used in studies with low-income, minority samples and have been shown to be associated with variables for which there are theoretical grounds to expect associations (Li-Grining, 2007), which provides some evidence of predictive validity.

Maternal sensitivity and harshness were assessed at 36 months by a system in which mothers were coded during the caregiver-child interaction. A 7-point Likert scale was used on the following codes, all revised from scales developed in the National Institute of Child Health and Human Development Study of Early Child Care (Cox, Paley, Burchinal, & Payne, 1999; National Institute of Child Health and Human Development Early Child Care Research Network, 1999): sensitivity/responsiveness, intrusiveness, detachment/disengagement, positive regard for the child, negative regard for the child, animation, and stimulation of development. The scales ranged from “very low” to “very high”. Once these scores were obtained, two composites were formed to indicate sensitive parenting and harsh parenting (M. Willoughby, personal

communication, February 21, 2012). Maternal sensitivity was created by summing scale scores for sensitivity, positive regard, stimulation of development, animation, and detachment/disengagement (reverse-scored). Harsh parenting was created by summing scale scores for intrusiveness and negative regard. In the current sample, average inter-rater reliability across pairs of coders was .90 for sensitive parenting and .94 for harsh parenting. These scales have previously been used in studies with African American samples (Propper, Willoughby, Halpern, Carbone, & Cox, 2007) and demonstrate factor invariance across European and African Americans caregivers in the FLP (M. Willoughby, personal communication, February 21, 2012).

Externalizing and internalizing behaviors were measured by Strength and Difficulties Questionnaire (SDQ; Goodman, 1997) at 36 months using parent report and at kindergarten using teacher report. This questionnaire is a brief behavior screening measure that provides balanced coverage of children's behaviors, emotions, and relationships over the past 6 months. The SDQ inquires about 25 attributes, 10 of which would generally be thought of as strengths, 14 of which would generally be thought of as difficulties, and one of which is neutral. The 25 SDQ items are divided among 5 scales: hyperactivity, emotional symptoms, conduct problems, peer problems, and prosocial behavior. The parent and kindergarten teacher of the target child rated the child on a 3-point scale ranging from "not true" to "certainly true". Sample items include, "Considerate of other people's feelings" and "often loses temper". Items on the emotional scale were used as indicators of a latent variable or factor capturing internalizing behaviors at 36 months and kindergarten. A latent variable representing externalizing behaviors was captured by the 5 items on the conduct problems scale at 36 months and

kindergarten. The internal consistency of this measure ranged from .51 to .76 in a normative sample (Goodman & Scott, 1999). In the current sample, the Cronbach's alpha was .72 for emotional symptoms and .65 for conduct problems at 36 months and .64 for emotional symptoms and .86 for conduct problems at kindergarten. Construct and convergent validity for this measure have been established within at-risk, ethnically diverse samples (Hill & Hughes, 2007).

Control variables included maternal education, average monthly income, and marital status because socioeconomic status has been established as a predictor of parenting behaviors (Conger, Rueter, & Conger, 2000; McLoyd, 1990) and behavior problems (Dodge et al., 1994). However, these variables were not entered as controls in models that include cumulative sociodemographic risk as a moderator given many of the control variables were included as risk indices. Child gender was controlled for in all analyses because gender differences in the linkage between spanking and behavior problems have emerged in the literature (Deater-Deckard et al., 1996). Furthermore, previous levels of behavior problems were controlled for given that the cross-sectional nature of early work in this area is a shortcoming that has hindered the field's ability to make inferences about whether spanking predicts less optimal outcomes (Benjet & Kazdin, 2003; Lazelere, 2000).

RESULTS

All hypotheses were tested using MPLUS Version 5.2 software package (Muthén & Muthén, 2007). Mplus was chosen for multiple reasons. First, it has the capability to test structural equation models and combine both observed and latent variables into a single model. Second, Mplus handles missing data using full information maximum

likelihood (FIML), which produces less biased parameter estimates than those yielded by procedures such as listwise deletion (Schafer & Graham, 2002). FIML maximizes the sample size for the study by using all available data in an iterative process used to generate the parameters that most likely fit the data. In addition, unlike listwise deletion which assumes that the data is missing completely at random (MCAR; cases are truly missing at random and missingness is not a function of other observed measures), FIML assumes data are missing at random (MAR; missing is a function of observed measures), which is often the case with longitudinal data.

To evaluate the research questions, several structural equation models (SEM) were tested. SEM allows researchers to use latent variables to model measurement error. In addition, SEM allows for the testing of a set relationship between one or more observed dependent or latent variables and one or more observed independent or latent variables (Schumacker & Lomax, 2004). Essentially, simultaneous regression equations can be examined and the overall model fit for all pathways can be evaluated. While regression does allow for the testing of multiple independent variables, only one dependent variable can be tested at a time. Oftentimes, this type of framework is too limited given the complexity of many developmental models. Additionally, more advanced theoretical models can be analyzed, such as mediation SEM models, multiple group SEM models and mediated moderation models (Schumacker & Lomax, 2004).

Data for Study 1 analyses were drawn from the 6-month, 36-month, and kindergarten time points. The analyses included measures of child negative emotionality (distress to limitations and distress to novelty) at 6 months and maternal spanking, maternal sensitivity and harshness, and cumulative sociodemographic risk at 36 months.

In addition, latent variables of internalizing and externalizing behaviors at kindergarten were created to account for measurement error. Lastly, several covariates, including child gender, family income, maternal education, and marital status, were examined in all analyses except when cumulative risk was used as moderator. Concurrent relationships between maternal spanking and behavior problems at 36 months were also controlled in all analyses.

Preliminary Analyses

Prior to testing Study 1 hypotheses, descriptive and correlational statistics were run for each variable of interest. These analyses examined means, standard deviations, and univariate normality. The presence of multivariate outliers were examined and diagnostics conducted to evaluate the linearity of residuals against independent variables, independence of observations, and homoscedasticity of the data in the sample to ensure the assumptions of the analyses were met. The diagnostics did not reveal any strong violations of the assumptions of the analyses.

The means, standard deviations, and correlations for all study variables are presented in Table 2.1. Among the predictor variables, maternal spanking as reported by the mother was only significantly associated with mother-reported distress to limitations ($r = .11, p < .05$). Specifically, higher levels of maternal spanking were significantly associated with higher levels of mother-reported distress to limitations. Maternal spanking was unrelated to the control variables, except for mother-reported externalizing behaviors at 36 months ($r = .15, p < .01$). Greater use of spanking was associated with higher levels of mother-reported externalizing variables, confirming the need to control for concurrent associations between maternal spanking and externalizing behaviors.

Maternal spanking was positively and significantly associated with the outcome variable, teacher-reported externalizing behavior at kindergarten ($r = .13, p < .05$), suggesting that higher levels of maternal spanking were associated with higher levels of externalizing behavior problems. Interestingly, maternal spanking was unrelated to the second outcome, teacher-reported internalizing behaviors at kindergarten, and the control variable, mother-reported internalizing behaviors at 36 months.

There were several significant associations between controls and the other predictors and outcomes that justify their inclusion in the proposed analyses. Higher levels of income and education were associated with lower levels of mother-reported negative emotionality ($r = -.13, p < .01$; $r = -.18, p < .01$) and observed maternal harshness ($r = -.10, p < .05$; $r = .22, p < .01$) and higher levels of observed maternal sensitivity ($r = .32, p < .01$; $r = .29, p < .01$). In addition, higher levels of income were associated with lower levels of externalizing behaviors at kindergarten ($r = -.16, p < .05$). Marital status was significantly related to sensitivity ($r = .31, p > .01$), harshness ($r = -.14, p > .01$), and externalizing behaviors at kindergarten ($r = -.14, p > .01$). These correlations suggested that married mothers were more likely to be sensitive and less likely to be harsh and have children who displayed externalizing behaviors.

Several significant correlations between child gender and the predictors emerged. Child gender was significantly and positively related to mother-reported distress to novelty ($r = .11, p > .05$) and negatively related to observations of harsh parenting ($r = -.15, p > .01$). These associations suggest that girls were more likely to display distress to novelty and less likely to receive harsher parenting. There were no significant associations between child gender and the outcome variables, suggesting that in this

sample, boys and girls did not differ in terms of the prevalence of teacher-reported behavior problems.

Lastly, a single-group CFA model containing a teacher-reported internalizing behavior factor and externalizing behavior factor was evaluated. The factor loading for the two latent variables are presented in Table 2.2. Given the good model fit and decent factor loadings, the two factors representing internalizing and externalizing behaviors during kindergarten were used for all subsequent analyses

Linkages between Spanking and Behavior Problems

According to Hypothesis 1, higher levels of maternal spanking at 36 months were predicted to be associated with higher levels of internalizing behaviors but not associated with levels of externalizing behaviors at kindergarten. This hypothesis was assessed by testing the significance of parameters linking mother-reported spanking to teacher-reported internalizing and externalizing behavior problems at kindergarten. The results from this model, Model 1, and the fit statistics are presented in Table 2.3. The model fit statistics indicate that the model fit the data well, Tucker-Lewis Index (TLI) = .95, comparative fit index (CFI) = .95, root mean square error of approximation (RMSEA) = .03. Only partial support of Hypothesis 1 was found. Maternal spanking at 36 months was unrelated to externalizing behaviors during kindergarten as predicted, but there was a trend to suggest that maternal spanking predicted higher levels of externalizing behaviors above and beyond the effects of the covariates and externalizing behaviors at 36 months ($b = .64, p < .10$). However, contrary to prediction, maternal spanking at 36 months was also unrelated to internalizing behaviors during kindergarten.

The same analyses were repeated predicting externalizing by itself in one model, Model 2, and internalizing in a separate model, Model 3. These results are also presented in Table 2.3. Similarly, no significant associations between maternal spanking and behavior problems emerged. Across the models presented in Table 2.3, the covariates were unrelated to internalizing and externalizing behaviors. However, in Model 2, higher levels of mother-reported externalizing behaviors at 36 months significantly predicted higher levels of teacher-reported externalizing behaviors at kindergarten ($b = .21, p < .05$).

Moderators of the Linkages between Spanking and Behavior Problems

To address all moderation hypotheses (Hypothesis 2-4), a continuous variable of the proposed moderator was entered into a main effect model. These models are delineated with an “a” following the model number in Tables 2.4-2.7. A second model was estimated that included a variable representing the interaction between maternal spanking and the proposed moderator. In Tables 2.4-2.7, these models are delineated with the same model number as their corresponding main effect model, but a “b” follows the model number to delineate that the model contains the interaction term. If a statistically significant parameter estimate for the interaction term predicting internalizing or externalizing behaviors was found, the interactions were probed using Preacher, Curran, and Bauer’s (2006) online computations tools. Regression coefficients and covariance matrices estimated in MPLUS for the interaction model were used. Simple slopes of regression lines linking maternal spanking to internalizing or externalizing behaviors were obtained for high, medium, and low values of the moderator. For each proposed moderator, separate sets of models (main effect and interaction) were run examining

externalizing and internalizing behaviors jointly and each type of behavior separately, without controlling for the covariance between internalizing and externalizing behaviors.

The results for the analyses examining the moderating role of negative emotionality did not support Hypothesis 2, which predicted that maternal spanking at 36 months would be associated with higher levels of behavior problems at kindergarten for children high on negative emotionality at 6 months. Specifically, a significant interaction between mother-reported spanking and negative emotionality did not emerge. The results are presented in Table 2.4. In Table 2.4, Models 4a and 4b included both teacher-reported internalizing and externalizing behaviors as outcomes. In Models 5a and 5b, externalizing behaviors was the only outcome examined. Lastly, in Models 6a and 6b, only internalizing behaviors were examined as an outcome. All subsequent tables are presented in the same format.

Mother-reported distress to limitations and distress to novelty were also examined individually as moderators, but the results did not differ from what emerged when the composite, negative emotionality, was examined as a moderator (results not shown).

Partial support was found for Hypothesis 3, which predicted that maternal spanking would be associated with higher levels of behavior problems, but only in the context of low maternal sensitivity. In the context of high maternal sensitivity, maternal spanking was hypothesized to be unrelated to behavior problems. The findings are presented in Table 2.5. Though the results for Model 7b did not indicate a significant interaction between mother-reported spanking and observed maternal sensitivity at 36 months for teacher-reported internalizing behaviors during kindergarten, there was a significant interaction predicting teacher-reported externalizing behaviors

($b = -.12, p < .01$) above and beyond the effect of previous levels of mother-reported externalizing behavior. Similarly, when examining externalizing as an outcome alone (Model 8b), there was also a significant interaction between maternal spanking and maternal sensitivity ($b = -.03, p < .01$).

The results of the online probing of the significant two-way interactions between maternal spanking and sensitivity for the model including externalizing behaviors and its covariance with internalizing behaviors (Model 7b), as well as the model with externalizing alone (Model 8b) are presented in Figure 2.2.

Regarding the results from the probing of the interaction for Model 7b, the two-way interaction plot (Figure 2.2a) indicated that when maternal sensitivity was low (1 SD below the mean), higher levels of maternal spanking were associated with higher levels of externalizing behaviors. This is consistent with Hypothesis 3. When maternal sensitivity was high (1 SD above the mean), higher levels of maternal spanking were associated with fewer externalizing behaviors. Maternal spanking was unrelated to externalizing behavior at moderate levels of sensitivity. To identify the significant region of the moderation by maternal sensitivity, the region of significance was obtained from the online probing utility. The probing suggest that the interaction effect was significant for mothers slightly below the mean ($\leq -.11$) and well above the mean (≥ 1.51) on maternal sensitivity. Thus, the regions of significance further supported that maternal spanking was only related to higher child externalizing behaviors when mothers were below average in their levels of sensitivity. Secondly, it also supported the finding that maternal spanking was associated with fewer externalizing behaviors when mothers were above average in their levels of sensitivity.

The results from the probing of the interaction for Model 8b are presented in Figure 2.2b. Consistent with what was presented in Figure 2.2a, when maternal sensitivity was low (1 SD below the mean), higher levels of maternal spanking predicted higher levels of externalizing behaviors. Maternal spanking was unrelated to externalizing behaviors at moderate and high levels of sensitivity. The interaction effect was only significant for parents below the mean ($\leq -.31$).

Full support was found for Hypothesis 4, which predicted that maternal spanking would be more strongly associated with behavior problems in the context of high levels of maternal harshness as compared to low levels of harshness. The findings are presented in Table 2.6. Though the results for Model 10b did not indicate a significant interaction between mother-reported spanking and observed maternal harshness at 36 months for teacher-reported internalizing behaviors during kindergarten, there was a significant interaction predicting teacher-reported externalizing behaviors at kindergarten ($b = .10, p < .01$) above and beyond the effects of previous levels of mother-reported behavior problems. Similarly, when examining externalizing as an outcome alone (Model 11b), there was also a significant interaction between maternal spanking and maternal harshness ($b = .06, p < .001$).

The results of the online probing of the significant two-way interactions between maternal spanking and harshness for the model including externalizing behaviors and its covariance with internalizing behaviors (Model 10b), as well as the model with externalizing alone (Model 11b) are presented in Figure 2.3.

Regarding the results from the probing of the interactions for Model 16b, the two-way interaction plot (Figure 2.3a) indicated that when maternal harshness was high (1 SD

above the mean), higher levels of spanking were associated with higher teacher-reported levels of externalizing behaviors. In addition, spanking and externalizing behaviors were unrelated at moderate (mean) and low (1 SD below the mean) levels of harshness. These findings are consistent with Hypothesis 4. The interaction effect was only significant for parents slightly above the mean ($\geq .09$). Thus, the regions of significance further supported that maternal spanking was only related to higher externalizing behavior problems when parents were above average in their levels of harshness.

The results from the probing of the interaction for Model 11b are presented in Figure 2.3b. In line with what was presented in Figure 2.3a, when maternal harshness was high, higher levels of maternal spanking predicted higher levels of externalizing behaviors. The interaction effect was also only significant for parents above the mean ($\geq .15$)

The results for the analysis examining the moderating role of cumulative sociodemographic risk did not support Hypothesis 5. The results are presented in Table 2.7. The interaction between sociodemographic risk and maternal spanking did not predict internalizing or externalizing behaviors in any of the models.

DISCUSSION

Gershoff's (2002) process-context model of corporal punishment provides a theoretical framework that emphasizes the complex associations between spanking and child outcomes and suggests that these linkages are dependent on a myriad of factors within and outside of the family system. Grounded in this framework, the goal of this study was to investigate the relationship between maternal spanking at 36 months as reported by the mother and teacher-reported child internalizing and externalizing

behaviors during kindergarten (accounting for the 36 month association between mother-reported spanking and mother reported internalizing and externalizing behavior problems). In addition, the goal was to examine whether these associations were strengthened or attenuated by certain child characteristics, maternal attributes, and broader contextual factors. Specifically, negative emotionality, maternal sensitivity and harshness, and cumulative sociodemographic risk were examined as moderators. Though the hypotheses evaluated in the current study were only partially supported, the results meaningfully contribute to the ongoing dialogue on whether or not spanking is harmful to children's development.

The findings from this study are consistent with past work showing that maternal spanking is unrelated to externalizing behaviors among African American children (e.g. Deater-Deckard et al, 1996). Indeed, in the current study, maternal spanking at 36 months was only associated with higher levels of externalizing behaviors during kindergarten at the trend-level. More importantly, the results suggest that the effects of spanking on child adjustment depend on the overall parenting context (Alink et al., 2008; Deater-Deckard & Dodge, 1997; McLoyd & Smith, 2002). As has been shown in previous research, African American children who were spanked and also experienced low maternal sensitivity (as measured through observation at age 3), were more likely to show higher levels of teacher-reported externalizing behavior problems during kindergarten even after adjusting for previous levels of behavior problems and demographic factors than those children who were spanked but experienced high maternal sensitivity. Moreover, for children with parents who were average in their levels of sensitivity, maternal spanking was unrelated to externalizing behaviors.

Several different conclusions can be drawn from the fact that maternal spanking was associated with higher levels of externalizing behaviors in the context of low sensitivity. First, mothers primarily score low on sensitivity by being harsh, detached, or a combination of both in interactions with their child. Thus, the linkages between maternal spanking and externalizing behavior in the context of low sensitivity may suggest that spanking is not only detrimental for children when it is accompanied by harshness and negativity, but also when disengaged parents use spanking. Children of detached mothers have few interactions with their mothers, let alone positive interactions. However, when they do have interactions with their mothers they tend to be unsupportive and very dysregulating (Hildyard & Wolf, 2002), potentially contributing to greater behavior problems.

Second, detachment could matter little and harsh mothers who are also low in sensitivity may be driving the effects of maternal spanking at low levels of sensitivity. In the current study, detachment was not examined as a moderator, apart from other indicators of low sensitivity. It is important for further research to tease apart the nature of associations between maternal spanking and behavior problems by evaluating and comparing linkages for both detached mothers and harsh mothers. The current study took one step toward providing more insight into these complex associations by empirically demonstrating the moderating effects of maternal harshness in addition to the moderating effects of maternal sensitivity, but additional work is still needed to focus on maternal detachment. Moreover, future research should attempt to examine the mechanisms proposed by Gershoff (2002), such as emotional arousal, internal attributions, and social information processing that may account for associations between spanking and behavior

problems within parenting contexts. This may provide greater insight into the developmental processes linking spanking to later adjustment.

Interestingly, children of parents well above average in sensitivity actually showed fewer behavior problems during kindergarten when spanked. Few, if any, studies have found such effects when examining sensitivity as a moderator. Though the majority of studies exploring the overall parenting context as a moderator find that spanking is unrelated to behavior problems in the context of high maternal sensitivity (Alink et al., 2008; McLoyd & Smith, 2002), results of the current study are not surprising. Several scholars hypothesize that there is a de-coupling of more control-oriented parenting behaviors and emotional support in African American families (Deater-Deckard & Dodge, 1997; Tamis-LaMonda, Briggs, McClowry, & Snow, 2008). Some researchers believe that it is for this reason that studies find beneficial main effects of spanking on African American children's behavior (Deater-Deckard & Dodge et al., 1997; Gunnoe & Mariner, 1997; Lansford, Deater-Deckard, Dodge, Bates, & Pettit, 2004).

Moreover, Darling and Steinberg (1993) suggest that the overall emotional climate transforms the nature of the parent-child interaction and influences the child's openness to parental influence. The overall parenting context can essentially determine the effectiveness of a particular parenting practice. In line with this notion, the findings of the current study may suggest that rural African American children with supportive and sensitive parents are more likely to internalize parents' expressed objectives behind the use of spanking as a disciplinary tactic and show fewer externalizing behaviors.

Furthermore, this finding fits nicely with other work that has attempted to characterize the parenting behaviors of rural African American mothers. Specifically,

Brody and Flor (1998) use the term “no nonsense” parenting to describe their parenting style, which is characterized by high levels of parental control, which includes spanking, along with affection. This parenting style is thought to be a result of the fact that rural, low-income African American families often face multiple risk factors, and parents who are trying to raise self-sufficient children may employ harsh parenting practices to promote child competence within their ecological niches. Indeed, “no nonsense” parenting has been found to promote better self-regulation, cognitive and social competence and fewer internalizing behavior problems among rural African American children (Brody & Flor, 1998).

It is important to note that the linkage between maternal spanking and fewer externalizing behavior problems in the context of high sensitivity did not hold in analyses where the covariance between the internalizing and externalizing factors was not accounted for. In fact, when only externalizing behaviors were included in the model, maternal spanking was not associated with behavior problems in the context of high sensitivity. Modeling the covariance between the two factors provides a more accurate representation of how internalizing and externalizing behaviors often manifest in the population. Indeed, Eisenberg and colleagues (2009) reported co-occurrence rates as high as 29% among a sample of early elementary school students who were around the age of 6. By allowing internalizing and externalizing behaviors to be orthogonal, the true nature of the associations between maternal spanking and externalizing behaviors or maternal spanking and internalizing behaviors may be masked. Notwithstanding, this may also call into question the robustness of the linkage between maternal spanking and externalizing

behaviors in the context of high levels of sensitivity and highlights the need for more work in this area to further understand sensitivity as a moderating mechanism.

Another important contribution of the current study is the findings related to maternal harshness. Few, if any, studies have gone beyond examining maternal sensitivity and support as a moderator to also consider the effects of maternal harshness, despite the fact that the two aspects of parenting are relatively independent given that low sensitivity does not necessarily imply that parents are more negative in their interactions with their child. In fact, it may mean that a parent is disengaged. It is often argued that the negative effects of spanking may actually be the result of the grouping together of harmful and negative techniques that characterize an overall negative or harsh parenting style (Darling & Steinberg, 1993; DeVet, 1997; Levin & Sears, 1956; Patterson, 1982; Simons, Johnson, & Conger, 1994; Straus & Mouradian, 1998). However, the results from the current study demonstrate that spanking may not always be employed in the context of maternal harshness but *when* spanking has negative effects it may be due to a grouping together of more negative techniques. Indeed, maternal spanking was more strongly related to higher levels of externalizing behaviors during kindergarten for children in parenting contexts characterized by high levels of maternal harshness, which includes intrusiveness and negativity. Children who are spanked by harsh parents are probably more likely to be exposed to high levels of negative arousal from their parents, which can be dysregulating (Chang et al, 2011) and can undermine the development of regulatory skills (Hoffman, 2000). In turn, children who show deficits in their regulatory abilities are more likely to display behavior problems (Eisenberg et al., 2005).

Surprisingly, there were no significant associations emerged between maternal spanking and teacher-reported internalizing behaviors. Few studies have examined linkages between spanking and internalizing behaviors. One study found that African American children who were spanked were more likely to show higher levels of internalizing behaviors (Christie-Mizell et al., 2008). However, this study sampled slightly older children ranging from 6 to 14 years of age, highlighting issues of developmental timing. Internalizing behaviors may be somewhat harder to capture in kindergarteners. Indeed, internalizing behaviors often peak later than externalizing behaviors (Gilliom & Shaw, 2004). Thus, as children age, the effects of spanking on internalizing behaviors may be more apparent.

Furthermore, in studies examining spanking in older children, particularly during developmental periods where spanking is less frequent and less normative, spanking may actually serve as a proxy for the overall parenting environment. Spanking is usually at its highest during the toddler years and then slowly declines after age 5 (Straus & Stewart, 1999). Parents who do not show this decrease and continue to use spanking as a disciplinary technique into adolescence may be less sensitive and in tune with their child's developmental need for more autonomy support. In fact, in the current study, spanking and sensitivity were not significantly correlated, but significant associations have been documented in studies of older African American children (Christie-Mizell et al., 2008). Moreover, a lack of autonomy support in middle childhood and adolescence has been linked to higher levels of internalizing behaviors (e.g. Barber, Olsen, & Shagle, 1994).

In addition, as a result of the subtle nature of internalizing behaviors, mothers may be more likely to observe situations in which these behaviors may be expressed as compared to teachers. For this reason, some scholars have suggested that maternal reports may be more likely to capture internalizing behaviors (Coie, Terry, Lenox, Lochman, & Hyman, 1995; Keiley, Bates, Dodge, & Pettit, 2000). Given that parental reports have their own shortcomings, multiple respondents might be the best way to capture internalizing behaviors across multiple contexts.

Contrary to what was predicted, child negative emotionality and cumulative sociodemographic risk did not emerge as moderators nor did they show direct associations with behavior problems. Though temperament did not emerge as a significant predictor or moderator in the analyses, this study attempted to fill a gap in the literature. There is a paucity of work focused on understanding the influence of child characteristics, in particular temperament, on associations between parenting and child outcomes among African American families. Though the current study captured child temperament using a widely utilized measure, the null findings may be a result of the fact that mothers reported on child temperament. Parental reports, particularly reports of temperament, may capture parents' positive or negative biases toward their child rather than the child's actual characteristics (Mangelsdorf, Schoppe, & Buur, 2000). Furthermore, there are often very weak associations between parental reports of temperament and more objective laboratory observations (Kochanska, Tjebkes, & Forman, 1998). As has been recommended by other scholars (e.g. Mangelsdorf et al., 2000), future studies should use a multiobserver approach to best capture temperament.

In terms of cumulative sociodemographic risk, the lack of significant results may be a function of the fact that the sample was primarily low-income and faced multiple risk factors. Consequently, there might not have been enough variability in parental experience of sociodemographic risk to detect meaningful differences. Perhaps with a more economically diverse sample, the expected associations would emerge. Furthermore, the moderating role of cumulative risk may be more relevant for older children who actually have more exposure to the broader ecological environment that these risk factors are supposed to capture. Restrictive parenting behaviors are thought to be more beneficial for children in high poverty contexts than strategies that are authoritative, or autonomy granting (Lamborn, Dornbusch, & Steinberg, 1996), because they may prevent children from engaging in antisocial behavior often associated with living in these types of environments (Garmezy, 1985). Indeed, the majority of the work examining how community context moderates the influence of parenting on child outcomes has looked at restrictive parenting practices among children approaching middle childhood or adolescence (Dearing, 2004; Burton, 1990).

Moreover, the lack of significant findings in the current study may suggest that in the context of cumulative risk, examining spanking apart from other types of restrictive parenting behaviors may not illuminate anticipated pathways from restrictive parenting practices to more optimal child behavior. In other words, it may be an overall style of restrictive parenting that is adaptive in high-risk environments rather than spanking in isolation. In support of this, Dearing (2004) found that restrictive parenting more broadly predicted lower levels of internalizing behaviors but only for children in low-SES neighborhoods.

It is important to note that though the current study failed to provide evidence supporting the adaptive function of maternal spanking for young children facing multiple risk factors, no support was generated for the perspective that cumulative risk intensifies relations between parenting and less optimal child outcomes (e.g. Ackerman et al., 1999; Evans et al., 2007). Taken all together, this highlights the need for additional research to examine how the broader ecological context may influence the effects of parenting.

In addition to what has already been mentioned, there are several additional limitations that should be acknowledged. First, the African American families sampled were rural and low-income. As a result, the findings cannot be generalized to urban dwelling or middle-income African American families. Second, a more comprehensive measure of physical discipline that was not based solely on maternal report would provide supplementary information about maternal discipline. Asking parents to recall the frequency of disciplinary action, as was done in the current study, may not provide the most reliable results. Obtaining multiple assessments of physical discipline including observations from research assistants and individuals in the household might provide a stronger measure of maternal spanking.

Notwithstanding, this study makes a contribution to the literature by demonstrating the importance of considering the effects of maternal spanking within the overall parenting context as defined not only in terms of sensitivity but also harshness. Specifically, maternal spanking was only associated with greater externalizing behaviors in the context of low sensitivity and high harshness. In addition, maternal spanking was associated with fewer externalizing behaviors in the context of high maternal sensitivity. Looking at both dimensions of the parenting context provides a more comprehensive

understanding of how interactions between spanking and the parenting context operate as critical determinants of children's adjustment. However, future research is greatly needed to better understand the mechanisms that might explain associations between spanking and behavior in different parenting contexts. Furthermore, the results of the study highlight the necessity of additional research using stronger measurement of temperament and economically diverse samples to further explore potential moderators of the relationship between spanking and behavior.

Study 2: Spanking among Rural African American Mothers and Pathways to Child Behavior Problems during Kindergarten: An Examination of Mediated Moderation

3.1 Introduction

As emphasized in Study 1, in order to understanding the implications of maternal spanking for African American children, the disciplinary tactic must be explored within context. It is well recognized that African American families vary in terms of child, maternal, and broader community characteristics (Garcia Coll et al., 1996), all of which may influence whether spanking has negative, neutral, or even positive effects on child behavior. However, less adequately understood are the processes that may underlie linkages between spanking and child behavior within particular contexts.

Gershoff's (2002) process-context model of corporal punishment attempts to better comprehend the complex process by which physical punishment, such as spanking, influences children's behavior. Her model describes several mediators that are hypothesized to account for the effects of spanking on child outcomes, nested within various levels of contextual influence (i.e. child temperament, parenting style). The mediators highlighted include observational learning, social control, external and internal attributions, and aspects of self-regulation. Implicit in this model is that the effects of spanking and the mediators through which spanking influences behavior vary according to characteristics of the child, parent, and broader ecological context. Thus, the current study focused on one potential mediator, effortful control, a self-regulatory ability, that may account for relations between

spanking and internalizing and externalizing behavior within contexts defined by parenting style and child temperament.

3.2 Effortful Control

Effortful control (EC) is a facet of temperament generally defined as “the ability to suppress a dominant response in order to perform a subdominant response” (Rothbart, Ellis, Rueda, & Posner, 2003, p. 1114). More specifically, effortful control is a class of regulatory mechanisms that includes both inhibitory control and attention shifting and focusing skills (Rothbart & Rueda, 2005). These processes are used to voluntarily modulate the overt expression of emotion as well as the internal experience of emotion. Effortful control starts to develop in early infancy (Rothbart, 1986) and shows significant developmental growth between the ages of 2 and 5 (Kochanska, Murray, Jacques, Koenig, & Vandegeest, 1996; Rothbart & Rueda, 2005). Before the 5th year of life, effortful control becomes fairly consolidated and almost trait-like (Kochanska & Knaack, 2003).

As an aspect of temperament, effortful control is often considered to be constitutionally based, but there is evidence to suggest that parental socialization plays a role in its development (Lengua, Honorado, & Bush, 2007; Li-Grining, 2007). Parental responsiveness (Kochanska, Murray, & Harlan, 2000) and inductive or positive discipline (Lengua et al., 2007) promote effortful control while power assertion deters its development (Kochanska & Knaack, 2003). Understanding the influence of disciplinary tactics utilized around the age of 3, when effortful control is starting to become consolidated, has significant implications for children’s later adjustment. Indeed, effortful control plays a critical role in the development of a number of socioemotional outcomes, including empathy (Eisenberg, Fabes, Murphy, Karbon, Smith, & Maszk, 1996), prosocial behavior (Eisenberg, Fabes,

Karbon, Murphy, Wosinski, Polazzi, Carlo, & Juhnke, 1996), and social adjustment (Eisenberg, Hofer, & Vaughan, 2007; Henry, Caspi, Moffitt, Harrington, & Silva, 1999). Given the established linkages between discipline and effortful control and between effortful control and child behavior, effortful control may be a critical mediator to help explain associations between spanking and behavior in the context of child temperamental reactivity and parenting style.

3.3 Contextual Moderators

3.3.1 Child Negative Emotionality as a Moderator

Temperament has been conceptualized as individual differences in regulation and reactivity (Rothbart, 1989). As outlined in earlier sections, effortful control is a regulatory system that comes online late in the first year of life (Rothbart et al., 2003). How well children are able to employ the effortful control system often depends on the level of reactivity that they have to modulate (Rothbart & Bates, 2006). Children prone to negative emotionality, a commonly studied dimension of infant reactivity (Rothbart et al., 1994), are difficult to soothe and show high-intensity negative reactions to environmental stimuli (Paulussen-Hoogeboom et al., 2007). Given their high levels of reactivity, it is not surprising that they are more likely to show deficits in effortful control (Ahadi, Rothbart, & Ye, 1993; Kochanska et al., 2000; Kochanska & Knaack, 2003).

A significant body of research suggests that children prone to negative emotionality are also more susceptible to the effects of parenting behaviors (Belsky et al., 1998; Morris et al., 2002; Rubin et al., 1998). Though there is ample evidence to suggest that maternal control and discipline are associated with internalizing and externalizing behaviors, particularly among children who show high negative emotionality (Belsky et al., 1998;

Morris et al., 2002; Rubin et al., 1998), the findings from Study 1 do not align with this notion. The results from Study 1 suggest that the effects of maternal spanking on behavior do not vary as a function of child negative emotionality. However, few studies have examined temperament by parenting interactions in rural low-income African American samples. The findings from Study 1 may suggest that, in this sample, linkages between maternal spanking and behavior for children prone to negative emotionality are more complex than simple direct associations between spanking and behavior can capture. For these children, spanking may be a more important predictor for earlier emerging outcomes, such as effortful control, and serve to predict behavior problems through the mediation of effortful control (e.g. Eisenberg et al., 2005). Thus, although associations between spanking and behavior did not differ as a function of negative emotionality in Study 1, there may still be an indirect association between maternal spanking and internalizing and externalizing behaviors through effortful control. Indeed, Preacher, Rucker, and Hayes (2007) suggest that it is possible to have a significant indirect effect even when there is no significant direct effect.

Few studies have examined effortful control as the mechanism linking spanking to behavior for children prone to negative emotionality. Scholars have hypothesized that children characterized by negative emotionality show strong emotional reactions to parental discipline (Morris et al., 2002; Paterson & Sanson, 1999), and, in turn, have difficulty shifting and focusing their attention, key aspects of effortful control (Eisenberg et al., 2005). The ability to shift attention from negative stimuli to neutral or positive stimuli is critical in decreasing the experience of negative emotions (Eisenberg et al., 2005), such as anger. Events that elicit anger, like spanking, may lead to aggression and other externalizing

behaviors (Gershoff, 2002), because children prone to negative emotionality have difficulty modulating their anger by employing self-regulatory systems, such as effortful control (Eisenberg et al., 2005). In addition, children who cannot decrease their experiences of negative thoughts and focus on positive thoughts may be more distressed and, in turn, experience greater anxiety and depression (Eisenberg et al., 2005; Silk, Steinberg, & Morris, 2003).

Taken as a whole, these findings suggest that for children prone to negative emotionality, spanking may contribute to deficits in effortful control, which subsequently, can lead to increased levels of internalizing and externalizing behaviors. Therefore, as displayed in Figure 3.1, Study 2 attempted to examine whether maternal spanking at 36 months was associated with lower levels of effortful control at 58 months for children prone to negative emotionality at 6 months. In addition, Study 2 explored whether the interaction between maternal spanking and child negative emotionality predicted behavior problems during kindergarten through effortful control.

3.3.2 Maternal Sensitivity and Harshness as Moderators

Effortful control might also account for relationships between spanking and increased behavior problems in the context of low maternal sensitivity and high maternal harshness because deficits in effortful control are thought to underlie the development of behavior problems (Eisenberg et al., 2005). Consistent with previous research (e.g. Alink, et al., 2009; Deater-Deckard & Dodge, 1997; McLoyd & Smith, 2002), the results of Study 1 indicate that maternal sensitivity buffers children from the effects of maternal spanking on externalizing behaviors. Conversely, for children exposed to less sensitive parenting, the relationship between maternal spanking and behavior problems is intensified.

It is important to note that one study found that emotional support did not moderate the relationship between maternal spanking and internalizing behaviors (Christie-Mizell et al., 2008). However, this study included slightly older children, ranging from 6 to 14 years of age, potentially highlighting issues of developmental timing and whether different mediators and moderators are operating for older children.

While much is known about the role of maternal sensitivity, there has been virtually no research considering harshness as a moderator. The results from Study 1 demonstrate that the relationship between maternal spanking and behavior problems is intensified in the context of maternal harshness. In fact, it is often argued that the negative effects of spanking may actually be the result of the grouping together of harmful and negative techniques that characterize an overall negative or harsh parenting style (Darling & Steinberg, 1993; DeVet, 1997; Levin & Sears, 1956; Patterson, 1982; Simons, Johnson, & Conger, 1994; Straus & Mouradian, 1998), rather than the effects of spanking alone. Nevertheless, it is necessary to identify the process by which spanking influences behavior problems in less optimal parenting contexts.

Although limited, evidence suggests that spanking may be more dysregulating for children in the context of low support and high harshness which may impede the development of self-regulatory systems. Moreover, deficits in self-regulation are thought to underlie the development of behavior problems (Eisenberg et al., 2005). Indeed, Chang and colleagues (2011) posit that corporal punishment is associated with higher externalizing behaviors through lower effortful control because harsh discipline may model poor regulatory behaviors and expose children to high levels of negative arousal. More negative and punitive forms of expressivity from parents are thought to over arouse children, which

can undermine their regulation (Hoffman, 2000). Specifically, children may experience heightened negative emotions (e.g. anger, frustration) in response to parental harshness, combined with punitiveness (e.g. spanking), and may be less able to focus their attention (Eisenberg et al., 2005). As discussed in previous sections, scholars suggest that the ability to shift attention, an aspect of effortful control, from negative stimuli to neutral or positive stimuli is critical in decreasing the experience of negative emotions (Eisenberg et al., 2005). Children who cannot decrease their experience of negative thoughts may experience greater anxiety and depression (Eisenberg et al., 2005). Furthermore, children who are unable to regulate their anger and shift attention due to spanking may be more likely to display internalizing and externalizing behaviors.

However, this may only be the case when physical discipline is administered in low sensitivity or high harshness contexts. For children in sensitive contexts, spanking may not cause dysregulation because supportive and sensitive parents may be less negatively aroused and more regulated. In fact, parents who are supportive are more likely to model appropriate emotion regulation in stressful situations (Power, 2004), which creates a very predictable environment (Brody & Ge, 2001). These parents may administer physical punishment in a calm and controlled manner. Researchers suggest that studies that fail to uncover associations or find negative associations between spanking and African American children's behavior do so because spanking is administered in a controlled fashion and in an overall supportive context rather than accompanied with hostility (Dodge et al., 2005). When children who are in supportive and unsupportive parenting contexts are grouped together, it may mask important interaction effects.

In summary, both theory and evidence suggest that effortful control may mediate the relationship between spanking and behavior problems when the parenting context (i.e. sensitivity and harshness) is considered. Hence, as displayed in Figure 3.1, Study 2 also explored whether maternal sensitivity and harshness moderate the relationship between maternal spanking at 36 months and effortful control at 58 months. In addition, Study 2 explored whether effortful control was a mediator through which the interaction between maternal spanking and sensitivity and the interaction between maternal spanking and harshness predicted behavior problems during kindergarten.

3.4 Proposed Research Questions and Hypotheses

1. Does child negative emotionality (6 months) moderate the relationship between maternal spanking (36 months) and child effortful control (58 months)? In addition, is the interaction between maternal spanking and child negative emotionality associated with internalizing and externalizing behaviors (kindergarten) through child effortful control?
 - Hypothesis 1: Higher levels of maternal spanking (36 months) will be associated with lower levels of child effortful control (58 months) for children prone to negative emotionality (6 months). In addition, higher levels of maternal spanking will be associated with higher levels of child internalizing and externalizing behaviors (kindergarten) through lower levels of child effortful control for children prone to negative emotionality, but not for children low in negative emotionality.
2. Do maternal sensitivity and harshness (36 months) moderate the association between maternal spanking (36 months) and child effortful control (58 months)? In addition, are the interactions between maternal spanking and parenting style associated with

child internalizing and externalizing behaviors (kindergarten) through child effortful control?

- Hypothesis 2: Higher levels of maternal spanking (36 months) will be associated with lower levels of child effortful control (58 months) for children in low sensitive but not high sensitive parenting contexts (36 months). In addition, higher levels of maternal spanking will predict higher levels of child internalizing and externalizing behaviors (kindergarten) through lower levels of child effortful control for children exposed to low but not high maternal sensitivity.
- Hypothesis 3: Higher levels of maternal spanking (36 months) will be associated with lower levels of child effortful control (58 months) for children in parenting contexts characterized by high harshness (36 months). In addition, higher levels of maternal spanking will predict higher levels of child internalizing and externalizing behaviors (kindergarten) through lower levels of child effortful control for children exposed to high maternal harshness.

3.5 Sample

The sample for the current study was drawn from the Family Life Project. Recruitment procedures and sample descriptive statistics are provided in Study 1. Only the 468 African American maternal primary caregivers and their children residing in North Carolina were included in the proposed study.

3.6 Procedure

Two trained Research Assistants collected all data during home visits. All data for the present study took place when children were on average 6, 36, and 58 months of age and

when they were in kindergarten. At the 6-month visit caregivers completed the Infant Behavior Questionnaire. At the 36-month visit caregivers completed individual demographic questionnaire and the Adult-Child Conflict Tactic Scale. When the target child was 58 months of age, caregivers completed the Children's Behavior Questionnaire. During the kindergarten visit, the target child's kindergarten teacher completed the Strength and Difficulties Questionnaire.

At the 36-month visit, in addition to completing questionnaires, the primary caregiver and their child were filmed in a semi-structured 10-min dyadic puzzle activity. Details of the activity and coding procedures are described in Study 1.

3.7 Measures

Spanking was assessed at 36 months using a modified version of the Conflict Tactics Scale (Straus, 1979), the Adult-Child Conflict Tactic Scale. For the purpose of the current study, only the spanking subscale was used which included two items measuring the frequency of spanking. See Study 1 for further details.

Negative emotionality was assessed at 6 months using primary caregivers' responses to the Infant Behavior Questionnaire (Rothbart, 1981). For the purpose of this study, a negative emotionality composite was created using the mean scores of distress to novelty and distress to limitations, both of which reflect temperamental reactivity (Paulussen-Hoogeboom et al., 2007). See Study 1 for further details.

Effortful control was assessed at 58 months using the Children's Behavior Questionnaire (CBQ) (Rothbart, Ahadi, Hershey, & Fisher, 2001). The CBQ was designed to assess 15 temperament characteristics in young children based on child behavior over the past 6 months. The modified version of the measure used in the current study included 2 of

the 15 dimensions: attention focusing and inhibitory control. Attention focusing is the tendency to maintain attentional focus upon task-related channels. Sample attention focusing items include “When practicing an activity, has a hard time keeping her/his mind on it”. Inhibitory control is the capacity to plan and to suppress inappropriate approach responses under instructions or in novel or uncertain situations. Sample inhibitory control items include “Can easily stop an activity when she/he is told “no.” Primary caregivers were asked to rate the child on each item on a 7-point Likert scale ranging from “extremely untrue of your child” to “extremely true of your child.” Caregivers were also provided with a “not applicable” response option to be used when the child had not been observed in the situation described. In previous work with this scale, internal consistency for the subscales ranged from .68 to .93 (Kochanska, DeVet, Goldman, Murray, & Putnam, 1994). In the current study, Cronbach’s alpha was .62 for the inhibitory control and .60 for the attention focusing subscales. The two subscales were used as indicators of a latent variable capturing effortful control. The scale has been used in other studies with low-income African American children and it has been shown to be associated with variables for which there are theoretical grounds to expect associations providing some evidence of predictive validity in this population (Chang & Burns, 2005).

Maternal sensitivity and harshness were assessed at 36 months by a system in which mothers were coded during the caregiver-child interaction. Maternal sensitivity was captured by summing scale scores for sensitivity, positive regard, stimulation of development, animation, and detachment/disengagement (reverse-scored). Harsh parenting was captured by summing scale scores for intrusiveness and negative regard. See Study 1 for further details about this measure.

Externalizing and internalizing behaviors were measured at 36 months and kindergarten using the Strength and Difficulties Questionnaire (SDQ; Goodman, 1997). Each of the 5 items on the emotional scale was used as an indicator of a latent variable capturing internalizing behaviors. A latent variable representing externalizing behaviors was created using the 5 items on the conduct problems scale. See Study 1 for further details about this measure.

Control variables included maternal education, average monthly income, and marital status because socioeconomic status has been established as a predictor of parenting behaviors (Conger, Rueter, & Conger, 2000; McLoyd, 1990) and behavior problems (Dodge, Pettit, & Bates, 1994). I also controlled for child gender because gender differences in the linkage between spanking and behavior problems have emerged in the literature (Deater-Deckard et al., 1996). Furthermore, I controlled for previous levels of behavior problems given that the cross-sectional nature of early work in this area is a shortcoming that has hindered the field's ability to make inferences about whether spanking predicts less optimal outcomes (Benjet & Kazdin, 2003; Lazelere, 2000).

RESULTS

All hypotheses were tested by evaluating several structural equations models in MPLUS Version 5.2 software package (Muthén & Muthén, 2007) for the reasons described in Study 1. To address the three hypotheses, several models testing for mediated moderation were run as shown in Figure 3.2. Mediated moderation occurs when the interaction between two variables predicts a mediator, which, in turn, influences an outcome (Preacher, Rucker, & Hayes 2007). Two predictor variables and an interaction term were entered into each

model predicting effortful control and internalizing and externalizing behaviors. Effortful control was the hypothesized mediator and thus was also entered as a predictor of internalizing and externalizing behaviors. When testing for mediated moderation, the product of the a and b_1 paths and a and b_2 paths, as shown in Figure 3.2, are the effects of interest (Morgan-Lopez & MacKinnon, 2006; Preacher, Rucker, & Hayes, 2007). Significant indirect effects for the ab_1 and ab_2 paths would indicate that the effects of maternal spanking on internalizing and externalizing behaviors through effortful control vary as a function of the hypothesized moderators.

Data for the Study 2 analyses were drawn from the 6-month, 36-month, 58-month, and kindergarten time points. The analyses included measures of negative emotionality at 6 months and maternal spanking, maternal sensitivity, and maternal harshness at 36 months. In addition, measures of effortful control at 58 months and internalizing and externalizing behaviors at kindergarten were used. Lastly, several covariates were included: child gender, income, education, and marital status at 36 months. Concurrent relationships between maternal spanking and behavior problems at 36 months were also controlled for in all analyses.

Preliminary Analyses

Prior to testing Study 2 hypotheses, descriptive and correlational statistics were run for each variable of interest. These analyses examined means, standard deviations, and univariate normality. The presence of multivariate outliers were examined and diagnostics conducted to evaluate residual normality, linearity of residuals against independent variables, independence of observation, and homoscedasticity of the data in the sample to ensure the

assumptions of the analyses were met. No multivariate outliers were found and the diagnostics did not reveal any strong violations of the assumptions of the analyses.

The variable means and standard deviations and the correlations between the variables are presented in Table 3.1. The correlations between most study variables were discussed in Study 1. However, effortful control was not examined in Study 1. Several predictor variables were associated with effortful control. Maternal spanking was significantly and negative correlated with effortful control ($r = -.11, p < .05$), suggesting that higher levels of maternal spanking were associated with lower levels of effortful control. Negative emotionality was also associated with lower levels of effortful control ($r = -.15, p < .01$). Maternal sensitivity was significantly and positively correlated with effortful control ($r = .26, p < .01$), indicating that higher levels of sensitivity were related to higher levels of effortful control.

Regarding correlations between effortful control and the outcomes, internalizing and externalizing behaviors, effortful control was only correlated with externalizing behavior ($r = -.11, p < .05$). Higher levels of effortful control were associated with lower levels of externalizing behaviors. Effortful control was also related to several control variables. Higher levels of effortful control were related to higher levels of income ($r = .16, p < .01$) and education ($r = .17, p < .01$), but unrelated to child gender. Marital status was positively and significantly associated with effortful control ($r = .14, p < .01$), suggesting that married mothers were more likely to have children who displayed higher effortful control. The correlations between controls and effortful control justify their inclusion as covariates in the subsequent models evaluated.

Mediated Moderation

A continuous variable of the proposed moderator was entered into a main effect model along with maternal spanking predicting the mediator, effortful control, and the outcomes, internalizing and externalizing behaviors. These models are delineated with an “a” following the model number in Tables 3.2-3.4. A second model was estimated that included a variable representing the interaction between maternal spanking and the proposed moderator. In Tables 3.2-3.4, these models are delineated with the same model number as their corresponding main effect model, but a “b” follows the model number to delineate that the model contains the interaction term. Unfortunately, none of the hypotheses were fully supported. In all of the models evaluated, the proposed mediator, effortful control, was unrelated to either of the outcomes, thus mediated moderation could not be evaluated. However, several significant interactions emerged between maternal spanking and the moderators predicting effortful control. When a statistically significant parameter estimate for the interaction term predicting effortful control was found, the interactions were probed using Preacher, Curran, & Bauer’s (2006) online computations tools as described in Study 1. All models fit well as indicated by the fit indices reported in Tables 3.2-3.4.

The results for the analyses examining the moderating role of negative emotionality are presented in Table 3.2. The results did not fully support Hypothesis 1, which stated that higher maternal spanking would be associated with lower levels of effortful control for children high on negative emotionality, and in turn lower levels of effortful control would predict higher levels of behavior problems. However, there was a significant interaction between maternal spanking at 36 months and child negative emotionality at 6 months predicting child effortful control at 58 months ($b = -.11, p < .01$) (Table 3.2; Model 1b). The

results of the online probing of the significant two-way interaction between maternal spanking and negative emotionality predicting effortful control are presented in Figure 3.3.

Regarding the results from the probing of the interaction found in Model 1b, the two-way interaction plot (Figure 3.3) indicated that for children low in negative emotionality, the slope of the association between maternal spanking and effortful control was less steep compared to children high on negative emotionality. Specifically, for children low on negative emotionality (1 SD below the mean) higher levels of maternal spanking were less strongly associated with lower levels of effortful control compared to children high on negative emotionality (1 SD above the mean). This is partially consistent with Hypothesis 1. To identify the significant region of the moderation by negative emotionality, the region of significance was obtained from the online probing utility and indicated that spanking was only unrelated to effortful control among children who were almost two standard deviations or more below the mean (≤ -1.12) on negative emotionality.

The two components of negative emotionality, distress to limitations and distress to novelty, were examined separately as moderators but the results did not differ meaningfully from the findings that emerged for the composite negative emotionality (results are not shown). Therefore, these analyses are not discussed.

The results for the analyses examining the moderating role of maternal sensitivity are presented in Table 3.3. They did not support Hypothesis 2, which stated that higher levels of maternal spanking would be associated with lower child effortful control for children in low sensitive parenting contexts, and, in turn, lower level of effortful control would predict higher levels of behavior problems. As was found in Study 1, a significant interaction emerged

between maternal spanking and sensitivity at 36 months predicting externalizing during kindergarten ($b = -.12, p < .05$; Model 2b).

Regarding the moderating role of maternal harshness, the results are presented in Table 3.4. No support was found for Hypothesis 3, which predicted that higher levels of maternal spanking would be associated with lower effortful control for children in high harsh parenting contexts, and, in turn, lower level of effortful control would predict higher levels of behavior problems. A significant interaction between maternal spanking and harshness at 36 months predicting effortful control at 58 months ($b = -.20, p < .001$; Model 3b) emerged.

The results of the online probing of the significant two-way interaction between maternal spanking and harshness predicting effortful control are presented in Figure 3.4. Maternal spanking and effortful control were significantly related for children across levels of maternal harshness. However the slopes and the direction of the effects varied. For children in low harsh parenting contexts (1 SD below the mean), higher levels of maternal spanking were associated with lower levels of effortful control. Similarly, for children exposed to moderate levels of harshness (mean), higher levels of maternal spanking were associated with lower levels of effortful control. However, the slope was steeper for children in low harsh contexts as compared to children in high harsh contexts. Unexpectedly, children exposed to high levels of harshness (1 SD above the mean) showed higher levels of effortful control when spanked. The region of significance further confirmed the finding by indicating that the interaction effect was significant for children in parenting context slightly above the mean ($\leq .3$) and children slightly less than one standard deviation above the mean (≥ 1.27), suggesting that maternal spanking was only unrelated to effortful control for children in parenting context slightly above the mean but not extremely harsh.

DISCUSSION

There is a paucity of research focused on the processes that may underlie linkages between spanking and child behavior within particular contexts. Gershoff's (2002) process-context model of corporal punishment attempts to elucidate the complex process by which physical punishment impacts child behavior by describing several mediators that are hypothesized to account for these linkages, nested within various levels of contextual influence (i.e. child temperament, parenting style). Grounded within this framework, the goal of the current study was to examine effortful control as one potential mechanism that may account for relations between maternal spanking and child internalizing and externalizing behaviors within contexts defined by parenting style and child temperamental reactivity. Specifically, the current study investigated whether the effects of maternal spanking at 36 months on children's effortful control at 58 months were strengthened or attenuated by child negative emotionality at 6 months and maternal sensitivity and harshness at 36 months and, in turn, whether effortful control predicted behavior problems during kindergarten. Though the hypotheses evaluated in the current study were not fully supported, the results further our current understanding of the effects of maternal spanking on rural low-income African American children's adjustment. They highlight the need to move beyond simply examining the implications of spanking for children's behavior problems and the need to focus on other indicators of adjustment, such as effortful control, as well.

Few, if any, studies focused on African American children have examined the impact of spanking on the development of effortful control, despite the fact that previous research indicates that harsher parenting practices impede the development of critical regulatory abilities (Chang et al., 2011; Gilliom, Shaw, Beck, Schonberg, & Lukon, 2002). Indeed,

punitive parenting practices are thought to over arouse children, which can undermine their regulation (Hoffman, 2000). Consistent with these scholars, the results of the current study revealed a significant main effect of maternal spanking at 36 months on children's effortful control at 58 months across all mediated moderation models examined, such that higher levels of mother-reported spanking predicted lower levels of mother-reported effortful control.

Several scholars assert that spanking in African American families may be unrelated to children's adjustment (e.g. Deater-Deckard & Dodge, 1997; Horn et al., 2004). While this may be true for certain outcomes, such as behavior problems, other indices of functioning may be more negatively affected by spanking. Indeed, the results of the current study demonstrate that maternal spanking can be harmful to low-income African American children's effortful control. This is particularly concerning given regulatory abilities, such as effortful control, have been implicated in the development of empathy (Eisenberg, Fabes, Murphy, Karbon, Smith, & Maszk, 1996), prosocial behavior (Eisenberg, Fabes, Karbon, Murphy, Wosinski, Polazzi, Carlo, & Juhnke, 1996), and social adjustment (Henry, Caspi, Moffitt, Harrington, & Silva, 1999), and overall school readiness (Blair, 2002). This finding emphasizes the need for researchers to consider multiple domains of functioning when examining linkages between spanking and children's adjustment.

Although there was a significant main effect of maternal spanking on effortful control, associations between maternal spanking at 36 months and effortful control at 58 months varied as a function of child temperament at 6 months as reported by the mother. Few studies focused on low-income African American families, particularly rural families, have examined interactions between temperament and parenting behaviors as predictive of child

adjustment. Nevertheless, consistent with past research conducted primarily with European American families (Gilliom et al., 2002), interactions between infant negative emotionality and controlling parenting practices predicted self-regulation. Specifically, negative associations between maternal spanking and effortful control were intensified for children who showed higher versus lower levels of negative emotionality.

Several mechanisms may account for these associations. Namely, parents of children prone to negative emotionality may model poor regulatory behaviors when physically disciplining their child. Temperament is thought to have a biological basis (Rothbart & Bates, 1998), which suggests that parents and their children may share temperamental traits. Thus, parents of children who are prone to negative emotionality might be more reactive to and easily dysregulated by environmental stimuli, including child misbehavior. Parental discipline may make it more challenging for these children to modulate their anger and frustration by shifting and focusing their attention, key aspects of effortful control (Eisenberg et al., 2005), especially if discipline is accompanied by heightened levels of negative emotions from the parent. Furthermore, experiencing heightened levels of arousal may make children less likely to internalize the rules and regulations that parents are attempting to impose (Kochanska, 1995; Gershoff, 2002).

In addition, as suggested by Belsky (1998), this finding demonstrates that children prone to negative emotionality are more susceptible to their rearing environment as compared to children who are less prone to negative emotionality. However, given negative emotionality did not emerge as a moderator in Study 1, it may suggest that rural low-income African American children prone to negative emotionality are more susceptible to the effects of parenting behavior but only for certain outcomes, in particular self-regulatory capacities.

Interestingly, observed maternal sensitivity at 36 months had a direct effect on effortful control in the expected direction, but it did not emerge as a moderator. Few, if any, studies have examined whether maternal sensitivity attenuates associations between spanking and effortful control among African American families. It was expected that maternal spanking would be related to lower levels of effortful control in the context of low maternal sensitivity given that several studies document such effects when looking at behavior problems (McLoyd & Smith, 2002; Deater-Deckard & Dodge, 1997) and deficits in self-regulation are thought to underlie the development of behavior problems (Eisenberg et al, 2005).

However, it is often argued that negative parenting behaviors may have greater implications for children's less optimal development than the absence of positive aspects of parenting (Karreman, van Tuijl, van Aken, & Dekovi, 2006). Even though a significant interaction did not appear between maternal spanking and sensitivity, maternal harshness at 36 months, as measured by observational coding, emerged as a significant moderator of the relationship between maternal spanking and effortful control. It was expected that the negative association between maternal spanking and effortful control would be stronger for children in parenting contexts characterized by high levels of harshness as compared to children in contexts characterized by very little harshness. Contrary to what was hypothesized, maternal spanking in the context of low harshness was associated with lower levels of effortful control while maternal spanking in the context of high harshness was associated with higher levels of effortful control. This finding was not expected, and thus is difficult to explain. One potential explanation for this finding is that children in overly harsh parenting contexts may be behaviorally inhibited and fearful which can appear on the surface

as optimal self-regulation but in actuality there is overcontrolled emotional expression which can be just as detrimental as undercontrolled emotional expression (Eisenberg & Morris, 2002).

Eisenberg and Morris' (2002) heuristic model outlines three types of control including optimal control, overcontrol, and undercontrol. Optimally controlled children, who have the ability to modulate the internal experience of emotion and emotion-related behaviors, are able to flexibly and effortfully respond and adapt to the emotional demands of a situation. They can control emotions if needed but they can express emotions in socially acceptable ways. They tend to show high levels of attention shifting and focusing skills and inhibitory control, both of which are aspects of effortful control (Rothbart & Rueda, 2005). Alternatively, undercontrolled children lack the ability to modulate the internal experience of emotion and emotion-related behavior. They tend to show low levels of both inhibitory control and attention shifting and focusing skills (Eisenberg & Morris, 2002).

In contrast, overcontrolled children are viewed as behaviorally inhibited and overcontrolled in their emotional expression. While they are usually average in their levels of inhibitory control, they are often low in attention shifting and focusing skills (Eisenberg & Morris, 2002). In situations that evoke negative emotions, such as being physically punished, these children are unable to reduce their heightened emotions by shifting and focusing their attention, but they are able to inhibit behavior. A parent may view their child as having the ability to control behavior and, thus, they may rate that child as high on inhibitory control. Consequently, higher levels of inhibitory control may be driving the positive association between maternal spanking and higher levels of effortful control. As a result, future research is needed to examine whether interactions between spanking and harshness differentially

predict inhibitory control and attention focusing skills. As had been done in previous work by Valiente and colleagues (Valiente et al., 2003), subsequent studies should include observational measures that capture overcontrol along with measures of effortful control. By doing this, researchers can begin to explore whether overcontrol may explain the association between spanking and effortful control in harsh parenting contexts that emerged in the present study. Specifically, such research would have the ability to evaluate whether children in harsh parenting contexts who are spanked show higher levels of overcontrol and inhibitory control and lower levels of attention focusing skills.

Furthermore, for overcontrolled children who experience negative emotions such as fear and anxiety, the lack of regulatory mechanisms used to modulate these emotions may be challenging for harsh parents to identify because these parents are often also insensitive and may not be as in tune with more subtle aspects of their child's behavior, like shifting attention, compared to more sensitive parents. Consequently, they may not provide accurate ratings of attention focusing and shifting skills. Additionally, by not examining inhibitory control and attention focusing separately and combining them to capture effortful control, as was done in the present study, the results may not provide a true representation of how spanking may differentially influence multiple aspects of self-regulation for children in harsh parenting contexts. Taken as a whole, these findings suggest that additional work is needed to understand how inhibitory control and attention focusing differentially relate to parenting, but also how aspects of the parenting context that are thought to influence self-regulation may affect parents' abilities to reliably report on the behaviors of their children.

Though some significant interactions were found between maternal spanking and several moderators, effortful control was unrelated to behavior problems indicating that

effortful control did not account for associations between maternal spanking and behavior problems within particular contexts. This may suggest that other mechanisms may account for associations between spanking and behavior problems for children who are prone to negative emotionality and in less supportive contexts. For example, Gershoff (2002) suggests that observational learning and social information processing may be potential mediators. By seeing aggression modeled and rewarded through their own compliance, children may view aggression as a useful way to get others to comply. Observational learning seems to be even more salient when children are physically punished for engaging in aggressive behavior, which is often why children are punished (Bandura, 1973; Gershoff, 2002). It communicates to children that it is acceptable to physically punish someone when they behave in a manner that you don't agree with. Alternatively, the social information processing perspective posits that children who are exposed to harsher forms of parenting are more likely to attribute hostile intent to others and respond more aggressively in social interactions perceived as hostile (Dodge, Pettit, McClaskey, & Brown, 1986; Gershoff, 2002).

The lack of significant linkages between effortful control and behavior may be due to the fact that effortful control was reported by the parent and behavior problems were assessed by the child's kindergarten teacher. It has been documented that parents and teachers often view children's behavior differently given that they interact with children in very different contexts (Wolraich, Lambert, Bickman, Simmons, Doffing, & Worley, 2004). Several studies of effortful control combine parental report with observational measures and find associations between effortful control and teacher-reported behavior (e.g. Eisenberg et al., 2005, Valiente et al., 2003). Perhaps if multiple assessments of effortful control had been

examined in the current study, the anticipated associations between effortful control and behavior would have appeared.

In addition, few, if any, studies of African American families have extensively examined associations between parental reports of effortful control and observational measures to determine measurement validity. However, studies primarily sampling European American families demonstrate moderate associations between observational measures of effortful and parental reports of effortful control using the CBQ (Valiente et al., 2003), which was the measure employed in the current study. Additional work is needed to further evaluate the validity of the CBQ with African American families. As a result of these issues and the fact that there is so little work in this area focused on African American children, future work is needed to replicate these findings.

In addition to the limitations already noted, other limitations must be acknowledged. Given the restrictions of the current data, levels of effortful control at 36 months could not be examined. Even though maternal spanking was measured at 36 months and effortful control was measured at 58 months, it cannot be definitively asserted that maternal spanking contributed to lower effortful control without controlling for bidirectional associations between this aspect of child self-regulation and maternal spanking at 36 months. Indeed, effortful control emerges during the second year of life (Kochanska, Murray, Jacques, Koenig, & Vandegest, 1996; Rothbart & Rueda, 2005). Thus, in the current study, maternal spanking was measured as effortful control was developing. Moreover, children who are well-regulated show fewer behaviors that might cause parents to use spanking in the first place. Future research should attempt to further specify the direction of the association between spanking and effortful control.

Despite the limitations, the results of the current study contribute to our understanding of the effects of spanking on child adjustment. The current study has moved beyond the traditional focus on behavior outcomes to consider associations between spanking and children's self-regulation, specifically effortful control. The results demonstrate that child temperament and the overall parenting context modify the effects of spanking in complex ways. Given that so few studies examine interactions between child temperamental and parenting as predictors of child adjustment in African American families, future research is needed to replicate these findings using multiple methods of assessment for all constructs.

In addition, though fairly consistent results were found when proneness to fear and anger and negative emotionality were tested as moderators, the results of previous research suggest that anger and fear may cause children to differ in their susceptibility to different parenting behaviors (Kochanska, 1995; Lengua, 2008). For example, studies show that harsh discipline as opposed to gentle discipline is related to lower conscience and higher depression and aggression in fearful children but not fearless children (Gallagher, 2002; Kochanska, 1995; 1997). The majority of the work examining anger and fear as moderators has been conducted with middle-class European-American families. Perhaps, these processes operate slightly differently in different sociocultural and socioeconomic contexts. Indeed, contrary to past research, in Study 1, interactions between temperament and maternal spanking did not emerge when predicting behavior problems. Future research should continue to evaluate the role of temperament in modifying the effects of parenting behaviors on children's outcomes and work to determine the contexts in which anger and fear operate differently and similarly.

Moreover, the results of the current study highlight the need to consider maternal harshness and sensitivity as independent moderators of the relationship between spanking and adjustment. In the present study, the link between maternal spanking and effortful control varied as a function of maternal harshness but not maternal sensitivity. Looking at both dimensions of the parenting context may provide a more comprehensive understanding of the way by which interactions between spanking and the parenting context operate as critical determinants of children's effortful control. However, future research is greatly needed to better understand the mechanisms that might be driving the effects of spanking on self-regulation in different parenting contexts. Furthermore, additional research is needed to examine whether similar associations would appear in economically diverse samples of African American families.

General Conclusions

In general, this dissertation project contributes to the literature by attempting to examine the conditions under which spanking is beneficial or harmful to rural African American children and the processes that underlie these associations. Much of the work on spanking in African American families, while informative, has not adequately considered the heterogeneity within African American families. Variations in sociodemographic risk, parenting style, child temperament, and a host of other factors create a context that can determine the effects of spanking on child behavior. The findings from the study emphasize the complexity of associations between spanking and children's adjustment and the fact that these associations vary as a function of child and maternal characteristics. Specifically, in the current study, maternal sensitivity and harshness interacted with maternal spanking at 36 months to predict behavior problems during kindergarten, both lower and higher levels

depending on the context. In Study 2, child temperament at 6 months and harsh parenting at 36 months modified associations. between maternal spanking at 36 months and children's effortful control at 58 months. Taken together, the two studies that comprise this dissertation research highlight the importance of examining the parenting behaviors of rural, low-income African American families in context.

While this dissertation research greatly contributes to what is currently known about the implications of spanking for young, rural African American children's self-regulation and behavior, in its current state, the literature on spanking has not provided a satisfactory answer to the key question of whether spanking is beneficial or harmful to children's development. The answer to this question has implications for whether or not the United States follows the lead of countries, such as Norway and Sweden, and bans the use of corporal punishment. To adequately answer this question, additional research must expand the current study and focus on the impact of spanking on children adjustment across multiple domains of functioning. Furthermore, research must begin to elucidate the processes that underlie these linkages and how these associations differ as a function of context.

Given that in the current study spanking was associated with both positive and negative outcomes depending on the context and the lack of a substantial body of research on the effects of spanking in context, practitioners should not focus on forcing parents to stop using spanking as a disciplinary tactic. Instead, a more useful approach for practitioners may be to reinforce parents' positive disciplinary tactics or teach parents more positive strategies. Indeed, though the effects of spanking are uncertain, there is evidence demonstrating that mild nonphysical punishment, such as time out, paired with positive reinforcement can be an effective disciplinary strategy (Benjet & Kazdin, 2003).

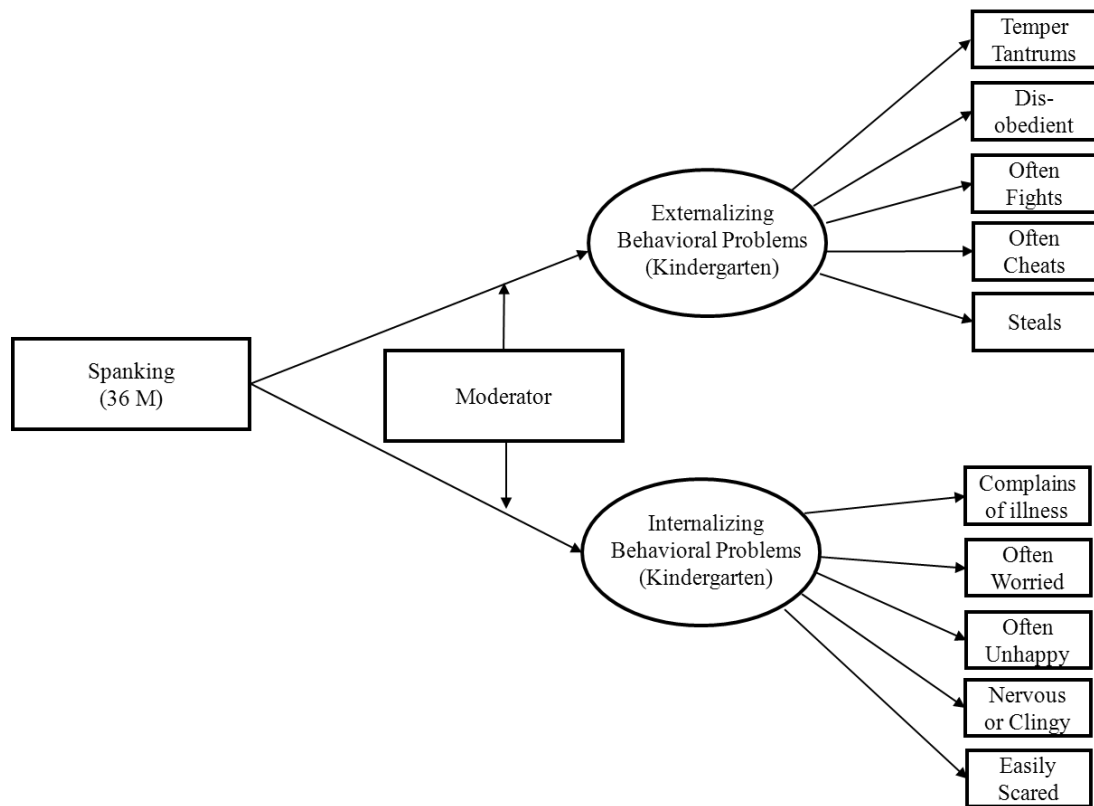


Figure 2.1. Hypothesized Model with Potential Moderators (Child Negative Emotionality, Maternal Harshness and Sensitivity, and Cumulative Sociodemographic Risk) Linking Spanking to Internalizing and Externalizing Behavior Problems

Table 2.1***Descriptive Statistics and Correlations between Study 1 Variables***

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
1. Spanking (36M)	1.75	1.57	1										
2. Distress to Limitations (6M)	3.46	1.00	.11 [*]	1									
3. Distress to Novelty (6M)	3.10	1.16	-.05	.28 ^{**}	1								
4. Negative Emotionality (6M)	3.28	.88	.03	.78 ^{**}	.84 ^{**}	1							
5. Sensitivity (36M)	12.77	3.16	-.05	-.09	-.11 [*]	-.12 [*]	1						
6. Harshness (36M)	5.27	1.66	.08	.03	.02	.03	-.34 ^{**}	1					
7. Sociodemographic Risk (36M)	1.88	1.33	.03	.12 [*]	.17 ^{**}	.18 ^{**}	-.28 ^{**}	.24 ^{**}	1				
8. Internalizing (K)	1.31	1.69	.01	-.00	-.06	-.04	.02	.03	.05	1			
9. Externalizing (K)	1.63	2.17	.13 [*]	.06	-.01	.02	-.15 ^{**}	.11 [*]	.13 [*]	.24 ^{**}	1		
10. Internalizing (36M)	2.01	2.07	.09	.07	.12 [*]	.12 [*]	-.24 ^{**}	.11 [*]	.16 ^{**}	.09 [†]	.12 [*]	1	
11. Externalizing (36M)	3.54	2.13	.15 ^{**}	.18 ^{**}	.05	.13 ^{**}	-.28 ^{**}	.16 ^{**}	.24 ^{**}	.07	.22 ^{**}	.50 ^{**}	1

Note. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$. Child Gender: 0=male; 1=female

Table 2.1 continued

	12	13	14	15
12. Income (36M)	1			
13. Education (36M)	.36**	1		
14. Marital Status (36M)	.28**	.26**	1	
15. Child Gender (36M)	-.05	.01	.00	1

Note. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$. Child Gender: 0=male; 1=female

Table 2.2***Estimates and Standard Errors of CFA Model***

	Externalizing		Internalizing	
	B	SE	B	SE
Temper Tantrums	.82	.04	--	--
Disobedient	.95	.05	--	--
Often Fights	.85	.04	--	--
Often Cheats	.81	.04	--	--
Steals	.83	.05	--	--
Complains of Illness	--	--	.52	.08
Often Worried	--	--	.63	.06
Often Unhappy	--	--	.76	.07
Nervous or Clingy	--	--	.73	.05
Easily Scared	--	--	.69	.06
CFI	.95			
TLI	.94			
RMSEA	.07			

Note. All loading were significant with p value of less than .01.

Table 2.3***Estimates and Standard Errors of Model Evaluating Associations between Spanking and Behavior Problems***

	Model 1				Model 2		Model 3	
	Externalizing		Internalizing		Externalizing		Internalizing	
	B	SE	B	SE	B	SE	B	SE
Focal Predictor								
Spanking (36M)	.64†	.03	-.01	.02	.06†	.03	-.01	.02
Controls								
Externalizing (36M)	.19†	.10	--	---	.21*			
Internalizing (36M)	--	--	.11	.07	--	--	.10	.07
Education (36M)	.00	.03	.00	.02	-.00	.02	.00	.10
Marital Status (36M)	-.17	.13	.06	.09	-.16	.13	.06	.08
Income (36M)	-.12†	.07	-.00	.03	-.10	.07	.01	.03
Child Gender (36M)	.02	.11	.01	.07	.02	.10	.00	.06
TLI	.95				.99		.93	
CFI	.95				.99		.95	
RMSEA	.03				.02		.04	

Note. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.
 Child Gender: 0=male; 1=female

Table 2.4

Estimates and Standard Errors of Models Evaluating Negative Emotionality as a Moderator of the Relationship between Spanking and Behavior Problems

	Model 4a				Model 4b				Model 5a		Model 5b		Model 6a		Model 6b	
	Externalizing		Internalizing		Externalizing		Internalizing		Externalizing		Externalizing		Internalizing		Internalizing	
					g				g		g					
Focal Predictors	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Spanking (36M)	.64†	.03	-.00	.02	.63†	.03	-.00	.02	.60†	.03	.60†	.03	-.00	.02	-	.02
Negative Emotionality (6M)	-.03	.06	-.05	.05	-.03	.06	-.05	.05	-.03	.06	-.03	.06	-.04	.04	-	.04
Spanking X Negative Emotion	--	--	--	--	-.02	.04	.00	.03	--	--	-.02	.03	--	--	.00	.02
Controls																
Externalizing (36M)	.19†	.10	--	---	.19†	.10	--	---	.21*	.09	.21*	.09	--	---	--	---
Internalizing (36M)	--	--	.12	.07	--	--	.12	.07	--	--	--	--	.10	.07	.10	.07
Education (36M)	.00	.03	.00	.02	.00	.03	.00	.02	-.00	.03	-.00	.02	-.00	.01	-	.01
Marital Status (36M)	-.17	.13	.06	.09	-.17	.13	.06	.09	-.16	.13	-.16	.13	.06	.07	.06	.08
Income (36M)	-	.07	-.01	.04	-	.07	-.01	.04	-.10	.07	-.10	.07	.01	.03	.01	.03
Child Gender (36M)	.12†	.02	.01	.07	.12†	.02	.01	.07	.02	.10	.02	.10	.01	.06	.01	.07
TLI	.95				.95				.98		.98		.94		.94	
CFI	.96				.96				.99		.99		.96		.96	
RMSEA	.03				.03				.03		.02		.04		.04	

Note. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Child Gender: 0=male; 1=female

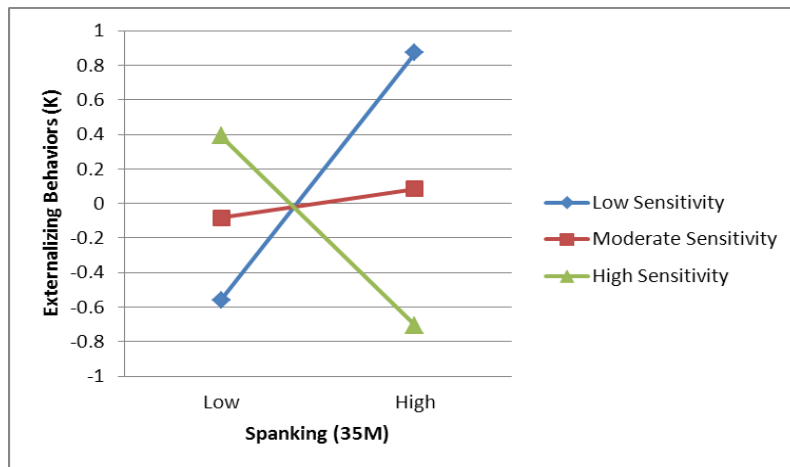
Table 2.5

Estimates and Standard Errors of Models Evaluating Sensitivity as a Moderator of the Relationship between Spanking and Behavior Problems

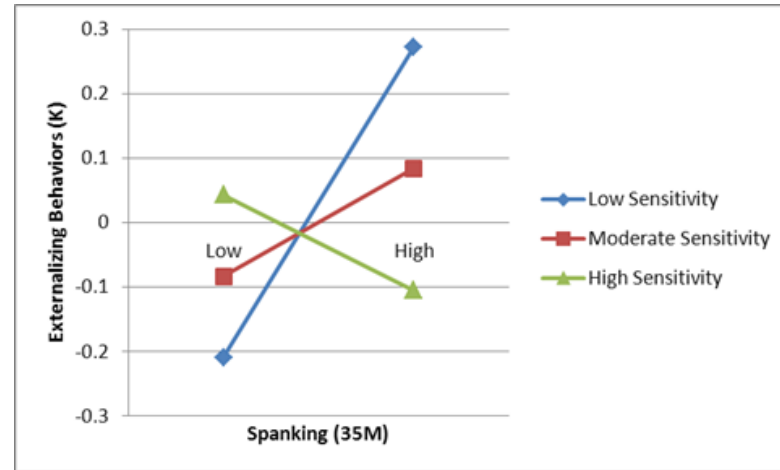
	Model 7a				Model 7b				Model 8a		Model 8b		Model 9a		Model 9b	
	Externalizing		Internalizing		Externalizing		Internalizing		Externalizing		Externalizing		Internalizing		Internalizing	
Focal Predictors	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Spanking (36M)	.08*	.03	.01	.02	.05	.03	-.00	.02	.06†	.03	.05	.03	-.00	.02	-.00	.02
Sensitivity (36M)	-.02	.02	.01	.01	-.05	.07	-.04	.05	-.01	.02	-.01	.02	.01	.01	.01	.01
Spanking X Sensitivity	--	--	--	--	-.12**	.04	-.04	.04	--	--	-.03**	.01			.00	.01
Controls																
Externalizing (36M)	.11	.09	--	---	.20†	.10	--	---	.21*	.10	.22*	.09	--	---	--	---
Internalizing (36M)	--	--	.11	.08	--	--	.10	.07	--	--	--	--	.11	.07	.11	.07
Education (36M)	-.01	.03	.01	.02	.00	.03	.00	.02	.00	.03	.01	.03	-.00	.01	-.00	.01
Marital Status (36M)	-.31*	.13	.04	.09	-.18	.13	.05	.09	-.15	.14	-.17	.14	.05	.08	.05	.08
Child Gender (36M)	-.10	.07	.01	.04	-.11	.07	-.00	.04	-.10	.07	-.11	.07	-.00	.03	.00	.04
TLI	.90				.95				.99		.99		.93		.93	
CFI	.92				.96				.99		.99		.95		.95	
RMSEA	.05				.03				.02		.02		.04		.04	

Note. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Child Gender: 0=male; 1=female



(a)



(b)

Figure 2.2. Interactions between Spanking and Sensitivity 36 Months Predicting Externalizing Behaviors during Kindergarten
 (a) Model including the covariance between internalizing and externalizing behaviors
 (b) Model without the covariance between internalizing and externalizing behaviors

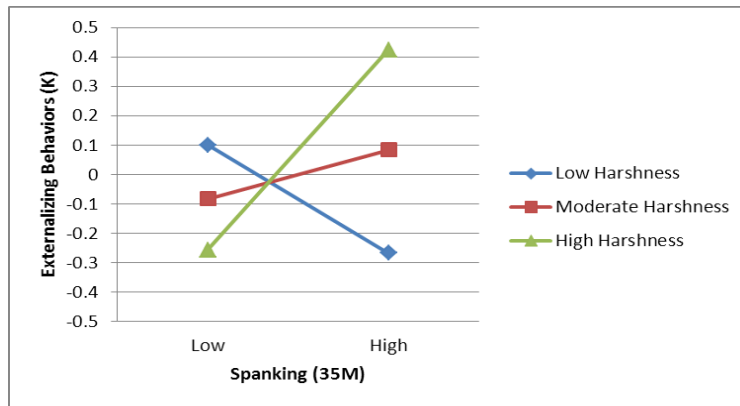
Table 2.6

Estimates and Standard Errors of Models Evaluating Harshness as a Moderator of the Relationship between Spanking and Behavior Problems

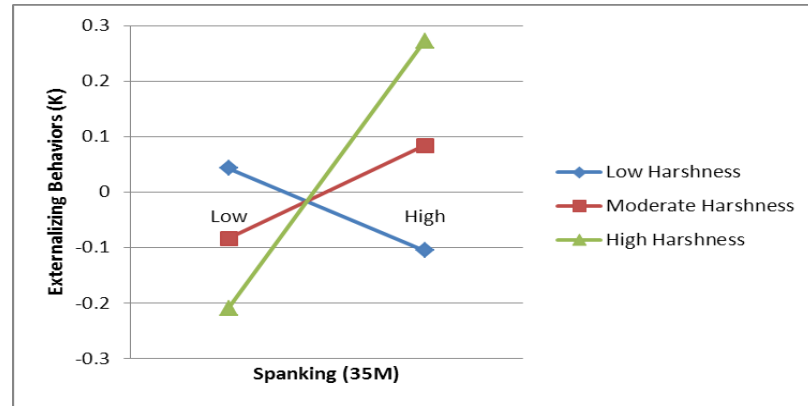
	Model 10a				Model 10b				Model 11a		Model 11b		Model 12a		Model 12b	
	Externalizing		Internalizing		Externalizing		Internalizing		Externalizing		Externalizing		Internalizing		Internalizing	
Focal Predictors	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Spanking (36M)	.06†	.03	-.01	.02	.05†	.03	-.00	.02	.06†	.03	.05†	.03	-.01	.02	-.01	.06
Harshness (36M)	.06	.06	.02	.05	.04	.06	.03	.05	.02	.03	.02	.03	.01	.02	.05	.08
Spanking X Harshness	--	--	--	--	.10**	.04	-.05	.03	--	--	.06***	.02			-.11	.08
Controls																
Externalizing (36M)	.18†	.10	--	---	.19†	.10	--	---	.20*	.03	.24*	.10	--	---	--	---
Internalizing (36M)	--	--	.11	.07	--	--	.10	.07	--	--	--	--	.10	.07	.13	.09
Education (36M)	.00	.03	.00	.02	.00	.03	.01	.02	.00	.02	-.00	.02	.00	.01	.02	.07
Marital Status (36M)	-.16	.13	.07	.09	-.18	.13	.08	.09	-.15	.13	-.17	.13	.07	.08	.07	.08
Income (36M)	-.11†	.07	-.00	.04	-.11	.07	-.01	.04	-.10†	.07	-.09	.07	.01	.03	.01	.08
Child Gender (36M)	.03	.11	.01	.08	.03	.11	.01	.07	.03	.10	.03	.10	.01	.07	.01	.07
TLI	.95				.95				.99		.99		.93		.93	
CFI	.96				.96				.99		.99		.95		.96	
RMSEA	.03				.03				.02		.02		.04		.04	

Note. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Child Gender: 0=male; 1=female



(a)



(b)

Figure 2.3. Interactions between Spanking and Harshness 36 Months Predicting Externalizing Behaviors during Kindergarten

(a) Model including the covariance between internalizing and externalizing behaviors

(b) Model without the covariance between internalizing and externalizing behaviors

Table 2.7

Estimates and Standard Errors of Models Evaluating Sociodemographic Risk as a Moderator of the Relationship between Spanking and Behavior Problems

	<i>Model 13a</i>				<i>Model 13b</i>				<i>Model 14a</i>		<i>Model 14b</i>		<i>Model 15a</i>		<i>Model 15b</i>	
	Externalizing		Internalizing		Externalizing		Internalizing		Externalizing		Externalizing		Internalizing		Internalizing	
Focal Predictors	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Spanking (36M)	.06	.03	-.00	.02	.06	.03	-.00	.02	.06	.03	.06	.03	-.00	.02	-.00	.02
Sociodemographic Risk (36M)	.06	.04	.02	.03	.06	.04	.01	.03	.05	.04	.05	.04	.01	.02	.01	.02
Spanking X Sociodemographic Risk	--	--	--	--	.01	.02	.01	.02	--	--	.01	.02	--	--	.01	.01
Controls																
Externalizing (36M)	.25*	.10	--	--	.25*	.10	--	--	.27**	.09	.27**	.09	--	--	--	--
Internalizing (36M)	--	--	.10	.07	--	--	.10	.07	--	--	--	--	.09	.07	.09	.07
Child Gender (36M)	.03	.11	.02	.08	.03	.10	.01	.08								
TLI	.96				.96				.99		.99		.95		.95	
CFI	.95				.95				.99		.99		.96		.96	
RMSEA	.03				.03				.03		.03		.04		.04	

Note. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Child Gender: 0=male; 1=female

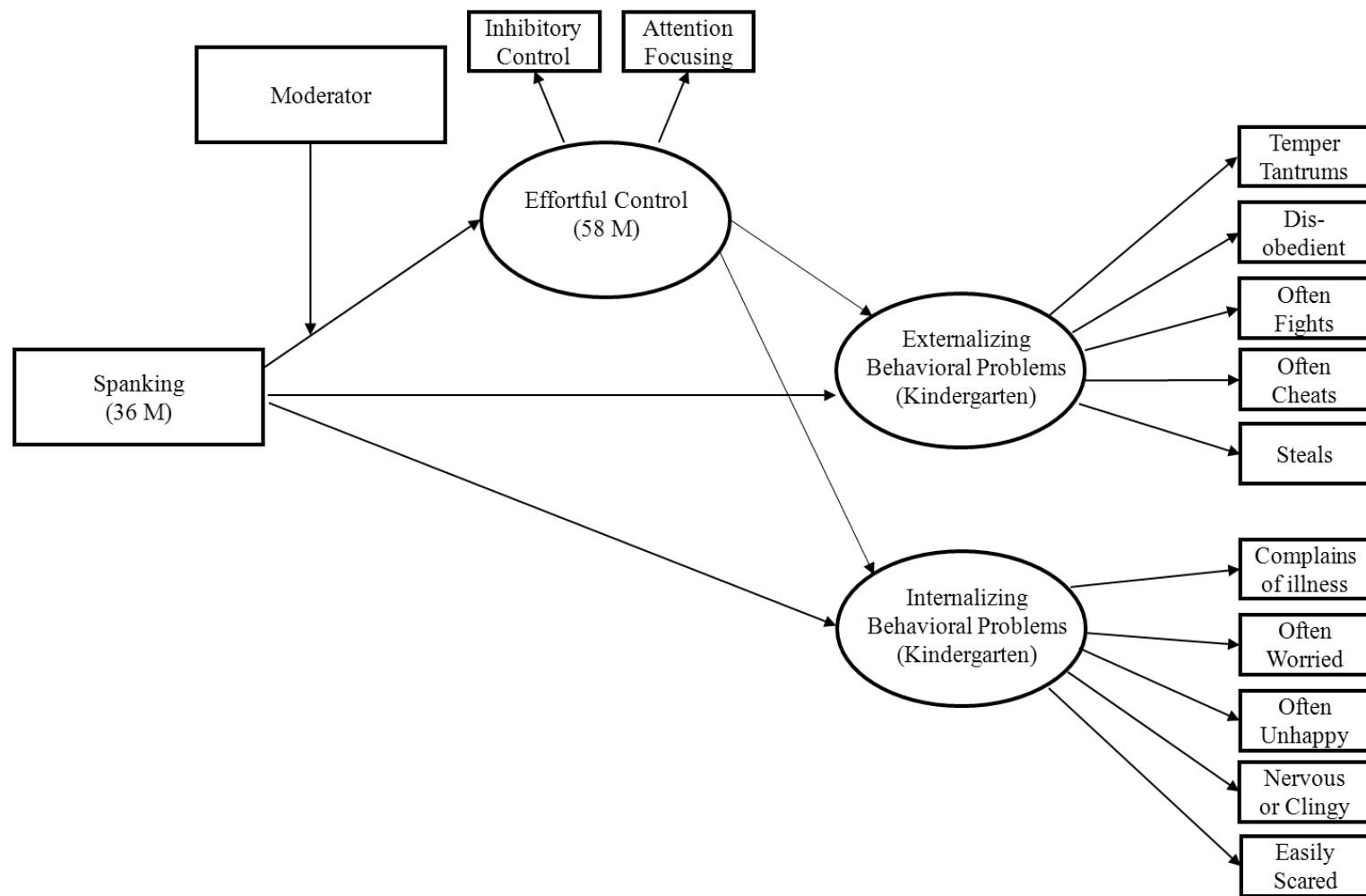


Figure 3.1. Hypothesized Model with Potential Moderators (Child Negative Emotionality and Maternal Harshness and Sensitivity) Linking Spanking to Internalizing and Externalizing Behavior Problems through Effortful Control

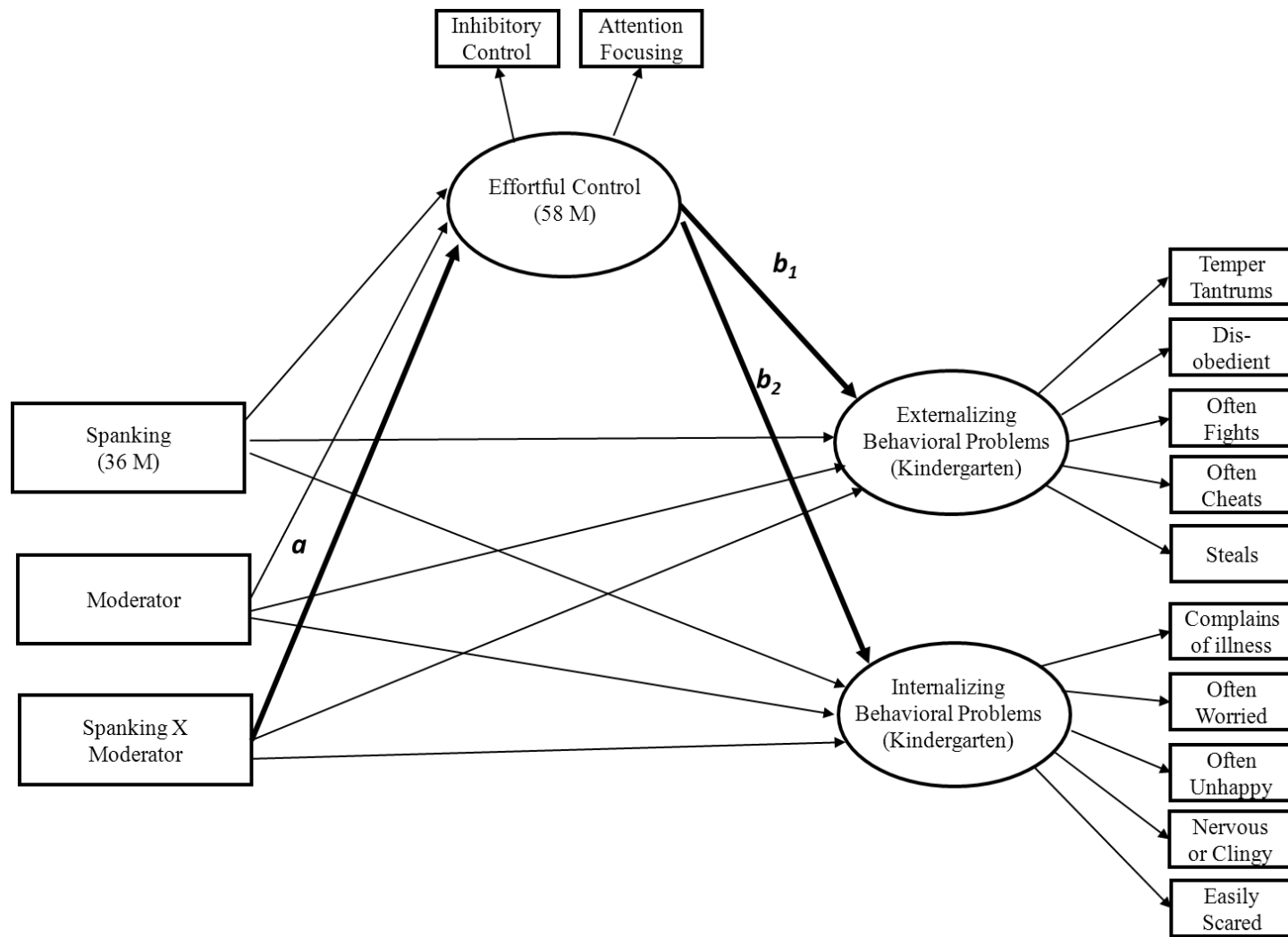


Figure 3.2. Hypothesized Mediated Moderation Model Linking Spanking to Internalizing and Externalizing Behavior Problems

Table 3.1*Descriptive Statistics and Correlations between Study 2 Variables*

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
1. Spanking (36M)	1.75	1.57	1								
2. Distress to Limitations (6M)	3.46	1.00	.11 [*]	1							
3. Distress to Novelty (6M)	3.10	1.16	-.05	.28 ^{**}	1						
4. Negative Emotionality (6M)	3.28	.88	.03	.78 ^{**}	.84 ^{**}	1					
5. Sensitivity (36M)	12.77	3.16	-.05	-.09	-.11 [*]	-.12 [*]	1				
6. Harshness (36M)	5.27	1.66	.08	.03	.02	.03	-.34 ^{**}	1			
7. EC	9.24	1.70	-.11 [*]	-.18 ^{**}	-.07	-.15 ^{**}	.26 ^{**}	-.10	1		
8. Internalizing (K)	1.31	1.69	.01	-.00	-.06	-.04	.02	.03	-.09	1	
9. Externalizing (K)	1.63	2.17	.13 [*]	.06	-.01	.02	-.15 ^{**}	.11 [*]	-.11 [*]	.24 ^{**}	1

Note. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Child Gender: 0=male; 1=female

Table 3.1 continued

	10	11	12	13	14	15
10. Internalizing (36M)	1					
11. Externalizing (36M)	.50**	1				
12. Income (36M)	-.13**	-.28*	1			
13. Education (36M)	-.15**	-.17**	.36**	1		
14. Marital Status (36M)	-.11*	-.21**	.28**	.26**	1	
15. Child Gender (36M)	.05	-.00	-.05	.01	.00	1

Note. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.
Child Gender: 0=male; 1=female

Table 3.2

Estimates and Standard Errors of Mediated Moderation Models Evaluating Negative Emotionality as the Moderator and Effortful Control as the Mediator of the Relationship between Spanking and Behavior Problems

Focal Predictors	Model 1a						Model 1b					
	EC		Externalizing		Internalizing		EC		Externalizing		Internalizing	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Spanking (36M)	-.28***	.06	.22*	.10	-.04	.06	-.24***	.05	.18*	.08	-.03	.05
Negative Emotionality (6M)	-.10†	.06	-.04	.07	-.07	.05	-.08	.06	-.05	.06	-.06	.05
Spanking X Negative Emotion	--	--	---	---	--	--	-.11**	.05	.04	.05	-.01	.04
Effortful Control (EC) (58M)	--	--	.18	.15	-.13	.10	--	--	.15	.14	-.12	.09
Controls												
Externalizing (36M)	--	--	.03	.12	--	--	--	--	.04	.12	--	--
Internalizing (36M)	--	--	--	--	.12	.09	--	--	--	--	.12	.09
Education (36M)	.01	.02	-.01	.03	.01	.02	.01	.02	-.01	.03	.01	.02
Marital Status (36M)	.26*	.11	-.36*	.14	.07	.10	.26*	.11	-.36*	.14	.07	.10
Income (36M)	.28***	.05	-.23†	.18	.05	.06	.29***	.05	-.21†	.12	.05	.07
Child Gender (36M)	.14	.10	.01	.11	.03	.08	.14	.10	.01	.11	.03	.08
TLI	.89						.89					
CFI	.91						.91					
RMSEA	.05						.05					

Note. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Child Gender: 0=male; 1=female

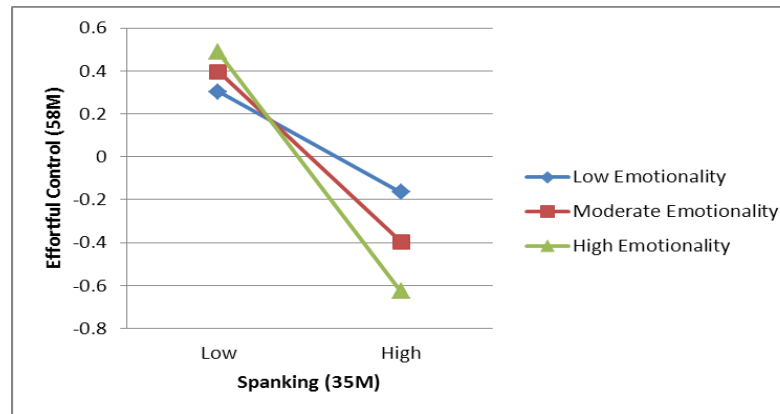


Figure 3.3. Interactions between Spanking at 36 Months and Emotionality at 6 Months Predicting Effortful Control at 58 Months

Table 2.3

Estimates and Standard Errors of Mediated Moderation Models Evaluating Sensitivity as the Moderator and Effortful Control as the Mediator of the Relationship between Spanking and Behavior Problems

Focal Predictors	Model 2a						Model 2b					
	EC		Externalizing		Internalizing		EC		Externalizing		Internalizing	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Spanking (36M)	-.12**	.04	.12*	.05	-.01	.03	-.14**	.04	.10†	.05	-.01	.03
Sensitivity (36M)	.12*	.06	-.15	.08	-.04	.06	.12†	.06	-.13	.08	-.04	.06
Spanking X Sensitivity	--	--	---	---	--	--	-.06	.05	-.12*	.05	.03	.04
Effortful Control (EC) (58M)	--	--	.13	.15	-.12	.10	--	--	.10	.15	-.10	.10
Controls												
Externalizing (36M)	--	--	.07	.08	--	--	--	--	.09	.13	--	--
Internalizing (36M)	--	--	--	--	.11	.08	--	--	--	--	.10	.08
Education (36M)	.01	.02	.00	.03	.01	.02	-.02	.02	.00	.03	.01	.02
Marital Status (36M)	.23*	.11	-.27†	.14	.07	.10	.24*	.11	-.29*	.14	.07	.10
Income (36M)	.48***	.09	-.22	.16	.10	.09	.48***	.09	-.22	.17	.09	.09
Child Gender (36M)	.12	.10	.06	.12	.03	.08	.13	.10	.07	.12	.02	.08
TLI	.88						.87					
CFI	.89						.89					
RMSEA	.05						.05					

Note. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Child Gender: 0=male; 1=female

Table 3.4

Estimates and Standard Errors of Mediated Moderation Models Evaluating Harshness as the Moderator and Effortful Control as the Mediator of the Relationship between Spanking and Behavior Problems

Focal Predictors	Model 3a						Model 3b					
	EC		Externalizing		Internalizing		EC		Externalizing		Internalizing	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Spanking (36M)	-.13**	.04	.12*	.05	-.01	.03	-.14**	.04	.10†	.06	-.00	.03
Harshness (36M)	-.08	.06	.12	.07	.02	.05	.08	.06	.12	.07	.03	.05
Spanking X Harshness	--	--	---	---	--	--	.20***	.05	.07	.07	-.03	.05
Effortful Control (EC) (58M)	--	--	.14	.15	-.12	.10	--	--	.06	.15	-.07	.10
Controls												
Externalizing (36M)	--	--	.07	.12	--	--	--	--	.13	.13	--	--
Internalizing (36M)	--	--	--	--	.11	.08	--	--	--	--	.09	.08
Education (36M)	.01	.02	.00	.03	.01	.02	-.02	.02	-.01	.03	.01	.02
Marital Status (36M)	.25*	.11	-	.14	.06	.10	.25*	.12	-.25†	.14	.05	.10
			.28†									
Income (36M)	.49***	.09	-.24	.17	.10	.09	.49***	.09	-.15	.17	.06	.09
Child Gender (36M)	.13	.10	.05	.12	.02	.08	.13	.10	.06	.12	.02	.08
TLI	.88						.89					
CFI	.90						.90					
RMSEA	.05						.05					

Note. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Child Gender: 0=male; 1=female

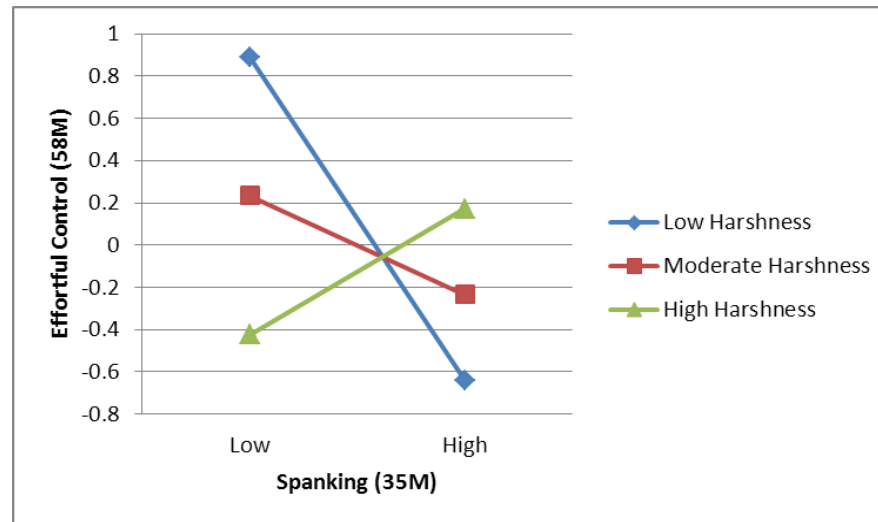


Figure 3.4. Interactions between Spanking and Harshness at 36 Months Predicting Effortful Control at 58 Months

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