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# Pathways to Externalizing Behavior: The Effects of Mother's Harsh Parenting and Toddler's Emotional Reactivity

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A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University

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Abstract

PATHWAYS TO EXTERNALIZING BEHAVIOR: THE EFFECTS OF MOTHER'S HARCH PARENTING AND TODDLER'S EMOTIONAL

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Externalizing behavior is stable as early as 2 years of age and is a precursor to many childhood and adult negative outcomes. Although global self report data show a relationship between parenting and children's externalizing, few studies have examined the proximal effect of observed mother's parenting on children's expression of aggression. A sample of 55 primarily African American, toddler-mother dyads were observed in their homes. Data was collected on the 2-year-old children's emotional reactivity, externalizing behavior, social competence and mother's harsh and supportive parenting. A second wave of data was collected one year later with a smaller sample, $n$=37. Children who were boys and more emotionally reactive had higher Externalizing scores on the CBCL, both at age 2 and 3. Mothers who used contingent harsh parenting in response to child noncompliance had children who were higher on Externalizing behavior concurrently, but not across time. Mother's contingent supportive parenting in response to child compliance at age 2 predicted children's Social Competence at age 3.

Results lend support to a transactional model of parent-child interaction very early in development that can be linked variously to children's aggressive, acting out and prosocial behaviors.

# Introduction

National statistics suggest that the prevalence of conduct problems in preschool and school-age children is high, between 10-25% (Snyder, 2001). Recently, a study that received nationwide media attention (Gilliam, 2005) examined the growing frequency of preschool expulsion and recommended directing more resources toward understanding and ameliorating children's early problem behaviors. This is particularly pertinent advice, given that early occurring aggressive behaviors appear to be highly stable across development, especially among boys (Cummings, Ianotti & Zahn-Waxler, 1989; Keenan, Shaw, Delliquadri, Guiovannelli & Walsh, 1998; Olweus, 1979; Shaw, Gilliom & Giovannelli, 2000). Although at very young ages, oppositional, defiant behavior is often dismissed as being part of the "terrible twos" or as a developmental stage that will pass, it can set some children on a path toward increasing aggressive behavior. In fact, approximately 50% of children who show early disruptive behavior continue on the same negative trajectory into their elementary school years and early adolescence (Campbell, 1994; 1995). Left untreated, children with early aggressive conduct problems often graduate to more serious violations, including academic and peer problems, school drop-out, substance abuse, delinquency, and violence (Moffit, Caspi, & Dickson, 1996). Of additional concern is the challenge in confronting conduct disorder down the line in development with adolescents who have spent their young lives acting out and who are now highly resistant to change (Kazdin, 1995).

Not surprisingly, children who are behaviorally disruptive behavior at home and in school get noticed. Up to 75% of all child referrals to treatment are related to externalizing behaviors (Feinfield, & Baker, 2004). However, some researchers and clinicians (Webster-Stratton, Reid & Hammond, 2004) have advocated for catching children even earlier than school age, when they are more behaviorally malleable, in order to halt progression on a potentially destructive trajectory. For effective intervention, it is important to elucidate the processes that lead to early onset externalizing behaviors, and toward this end, progress has been made. Several indicators have been implicated, theoretically and in basic research, in the equation of risk factors that push children toward conduct problems. This study will examine two powerful, salient forces in children's early development that have emerged from the literature—temperament and parenting—as they relate to children's expression of externalizing behaviors. The subsequent review will first consider the developmental significance of the toddler period and then will address the body of work already conducted on temperament, parenting and children's externalizing behavior. Finally, the hypotheses and the unique contributions of this study will be presented.

*The developmental significance of early childhood*

The early childhood period described in this study focuses on the toddler (age 2-3) developmental period. During this time, children experience remarkable changes in cognitive, emotional and physical realms. They learn that within the parent-child relationship, certain behaviors result in predictable responses from parents. For example, screaming in a grocery store may get them what they want, while the same

scream at home does not. Throwing food on the floor may result in parental disapproval, while successful potty usage elicits parental joy. In addition, 2-3 year old children see themselves as agent of change (Jennings, 1991), gain increasing levels of self-regulation (Kopp, 1992), begin to internalize and comply with parental requests (Kochanska, 1995), and grow in their ability to communicate clearly (Ainsfeld, 1984). Not coincidently, children's new competencies also coincide with willful disobedience (Kochanska, 1995) and fits of frustration and undirected anger (Shaw & Bell, 1993). Responding to their children's growing repertoire of behaviors becomes a new challenge for parents. Shaw has described this period as a time of veritable "assault on the home and parents" by children's newfound sense of independence and autonomy.

During early childhood, a primary task for parents is to manage their child's growing autonomy with their own demands for child compliance (Shaw, Bell & Gilliom, 2000). Children's newfound sense of independence and desire to take on challenges is a joy for parents to witness, but also becomes a real liability in terms of safety, which necessitates increasing parental vigilance over children's activities and behavior. National statistics reveal that unintentional injury from falls is the leading cause of death in children, followed closely by accidental suffocations, strangulations, chokings, and poisonings, most of which occur in the home (National Safety Council, 2003; National Center for Injury Prevention and Control, 2003). In addition to monitoring their safety, toddlers' social behavior also becomes more challenging for parents to confront. New skills, such as negotiation, cooperation, sharing must be learned through sensitive, planful childrearing. Parents may find it difficult to balance the need to

impose the stricter discipline, control and limit setting necessary to maintain safety and help shape desirable behavior in their children and still maintain the affection and warmth enjoyed from earlier developmental periods (Kochanska, 1993; Shaw & Bell, 1993; van den Boom, 1995). Consequently, parenting strategies change and overall parenting satisfaction declines during the toddler period (Fisher & Fagot, 1993). Given the demanding tasks of parenting a toddler, parenting becomes more challenging (Shaw & Bell, 1993), especially if coupled with a child who has an irritable, demanding temperament.

*Harsh parenting and children's externalizing problems*

Parent-child relationship quality during early childhood has far reaching implications for children's psychosocial development. Parents who set limits and enforce rules, but are warm, nurturing, and willing to listen receptively to their children set them on developmental trajectories of increasing competence (Kochanska, 1995). Sensitive, responsive parents have children who are more securely attached (De Wolff & van Ijzendoorn, 1997; Lyons-Ruth, Alpern, & Repacholi, 1993; Stevenson-Hinde & Shouldice, 1995), internalize standards (Grusec & Goodnow, 1994; Kochanska, 1995), demonstrate cognitive competence (Fagot & Gauvain, 1997), and evidence fewer behavior problems (Campbell, 1995; Keenan & Shaw, 1995; Shaw, Winslow, Owens, Vondra, Cohn, & Bell, 1998).

In contrast, harsh parenting during early childhood seems to increase children's externalizing problems (e.g., Calkins, 1994; Eisenberg, Lsoya, Fabes, Guthrie, Reiser, Murphy, Shepard, Poulin, & Padget, 2001; O'Leary, Smith-Slep, & Reid, 1999; Shaw,

Keenan, & Vondra, 1994; Tschann, Kaiser, Chesney, Alkon & Boyce, 1996), internalizing problems (Shaw, Keenan, Vondra, Delliquadri, & Giovannelli, 1997) and non-compliance (e.g., Braungart-Rieker, Garwood, & Stifter, 1997; Kochanska, Tjebkes, & Forman, 1998). Harsh and conflictual interactions with parents during early childhood have important consequences for later adjustment and may propel children along a developmental pathway leading to problems and psychopathology during childhood and adolescence.

One way that harsh discipline negatively influences development is through the early developmental tasks of emotion recognition and regulation. Parents who use harsh disciplinary practices that are characterized by anger or over-control may interfere with their children's developing ability to interpret and internalize parental messages (Scaramella & Leve, 2004). In particular, parents' negative emotions tend to increase children's emotional arousal, even to the extent of overwhelming them. Once emotionally aroused, children are more likely to act upon their internal feelings than to parents' directives. Theoretically, then, harsh parenting may intensify children's risk for emotionally negative cycles of parent-child interaction.

One model that has been helpful in conceptualizing the link between parenting and children's externalizing behavior is Patterson's Coercion Theory (1982). This theory is based on the principles of reinforcement and conditioning, and has been termed by Fagot & Leve (1998) as "basic training" in the education and practice of antisocial skills for children. Specifically, parents initiate the coercive cycle with harsh discipline, which is met with an aversive, antisocial response by the child, who seeks to extinguish

the parent's aversive behavior. However, rather than halting the interaction, the child's response is followed by reciprocating and escalating levels of negativity between parent and child. For children, parents serve as models of antisocial behavior, while simultaneously modeling an absence of prosocial behavior. Such exposure produces children adept at acting out, but deficient in prosocial means of interacting and problem solving.

Some factors have been identified that contribute to parent's tendency to use harsh parenting with their children. In particular, child temperament has been implicated as a risk factor in the onset of coercive parent-child interchanges. Although Patterson (1982) hypothesized that parents are more likely to initiate coercive cycles when dealing with a difficult child, this has not been examined empirically. The next section details child temperament research, in general, and then children's emotional reactivity as related to externalizing behavior, in particular.

### *Child temperament*

Zeanah & Fox (2004) refer to temperament as the "how" of early behavior, that is, all infants react to their environments, but vary in the manner and intensity of their response. Most contemporary theories of development look at temperament as an innate, biological marker of an infant's behavior. Some go further and argue that temperament has a considerable genetic component as well (Goldsmith, Buss, & Lemery, 1997).

In the late 1950's, Thomas, Chess and Birch (1968) began a seminal study that has defined much of the temperament research that continues today. From a sample of 136

infants and their parents, they examined individual differences in infant behavior across contexts and in interaction with their parents. Investigators identified nine dimensions, including activity level, rhythmicity, approach-withdrawal in novel situations, intensity of emotional expression, valence of mood (positive-negative), adaptability to changes in routine, persistence, distractibility/soothability, and threshold of sensory responsiveness. Three distinct groups were identified based on clusters of infants who fell at extreme ends on various dimensions. Thomas and Chess labeled the temperament groups as easy, slow-to-warm-up, and difficult. Children who quickly adapt to changes in their environment, who express little distress over changes to their routine, who can focus and sustain attention, who persist in the face of difficulty, and who are pleasant and placid are often described as having an easy temperament (e.g., Rothbart & Bates, 1998; Thomas & Chess, 1977). Alternatively, temperamentally difficult children are characterized by resistance to control, lack of persistence, quick and intense negativity, difficulty soothing, irritability, low positivity, difficulty focusing and sustaining attention, and/or impulsivity (e.g., Kagan, 1998; Rothbart & Bates, 1998; Thomas & Chess, 1977; Wachs, 1999). Finally, slow-to-warm up children initially look difficult, but after a period of time more closely resemble children with easy temperaments.

The original work of Thomas, Chess and associates has undergone revision as advances in research refine the construct of temperament. Researchers who tried to replicate Thomas & Chess' results confronted difficulty, particularly with the number of temperament dimensions and the conceptual overlap among them (Rothbart, 2004).

This resulted in the search for more parsimonious models of temperament. For example, Rothbart's theory (Rothbart, 1981; Rothbart & Derryberry, 1981) of temperament includes two broad areas—reactivity and regulation. According to Rothbart, reactivity refers to the underlying biological and physiological response systems present at birth, such as motivation and attention. In contrast, regulation is conceptualized as emerging with development and involves higher order cognitive processes and control in response to reactivity.

Many temperament researchers agree that one of the core characteristics of a difficult temperament is children's propensity towards negative emotional reactivity (Bates, 1980; Rothbart, 2004)). Negative emotional reactivity refers to the level of stimulation needed to elicit a negative emotional response, such as anger, fear, or sadness (Gottman, Katz & Hooven, 1997), and children vary widely on this characteristic (Rothbart & Bates, 1998). Children with a low threshold of reactivity seem to be more sensitive to environmental demands, like restrictions or requests from parents, such that even small changes or adjustments have the potential to produce strong, negative emotions (Wachs & Kohnstamm, 2001). In turn, children's negative emotions may evoke similar negativity in parents, placing parent and child at loggerheads, and setting the stage for ongoing conflictual interactions.

In addition, because of its proclivity to draw a strong reaction from others, children's temperamental reactivity is of particular interest in terms of overall development. Children who tend to respond with strong negative emotions may come to view their world with more apprehension, suspicion and fear. Their negative emotions will also

encourage more negative feedback from people around them, as opposed to the easy child who—for example, coos and plays happily play with his feet—draws consistent positive feedback from others that is incorporated into his developing understanding of the world. Given the potential power that temperament has in shaping development, children's difficult temperament, or for the purposes of this study, children's negative emotional reactivity, is conceptualized as a developmental risk factor. Parents, who make up the majority of children's early interactions with the world, are a primary influence on children's modulation of their reactivity.

### *Child temperament and harsh parenting*

Although parenting young children requires flexibility and adaptation, children vary in their willingness to comply with parental requests. Developmentally, the toddler period is a time when parent's and children's goals are often mismatched, which may increase the likelihood of conflict. Parents of children who tend toward emotional reactivity enter this period with additional challenges. Over time, children who frequently display intense bouts of negative emotion may come to evoke similar negativity in parents, who in turn respond to their children with negative emotion rather than with appropriate behavioral responses and modulated affect (Scaramella & Leve, 2004). This has been confirmed empirically, in that more temperamentally difficult children tend to be at heightened risk for eliciting parenting that is negative (Hinde, Tamplin, & Barrett, 1993), angry or coercive (Rubin & Mills, 1988), highly controlling (Bates, Bayles, Bennett, Ridge & Brown, 1991; Campbell, 1995; Lee & Bates, 1985),

and emotionally negative (Bates, 1987; Braungart-Rieker, et al, 1997; Hartup & van Lieshout, 1995).

Scaramella and Leve (2004) have proposed that repeated exposure to children's negative emotional reactions may desensitize parents to children's negativity, with two important consequences. First, children may begin to intensify their responses in order to draw attention or elicit a similar reaction from parents. Second, parent's response to children's negative emotional reactivity may become automatic, so that even the slightest provocation, in essence, causes parents to go from 0 to 60: that is, parents immediately respond with inappropriately heightened levels of frustration, anger, and negativity, rather than with well-modulated feedback. Such parental responses may make it more difficult for children to learn to modulate their own emotion and to learn appropriate social and emotional behavior. Difficult children may be especially sensitive to their emotional environments and may respond to negative emotion in kind (Tschann, et al, 1996), a sort of emotional contagion (Compas, Howell & Phares, 1989).

Patterson, Debaryshe & Ramsey (1989) originally hypothesized that coercive cycles which lead to an early-starter pathway to antisocial behavior begin between the ages of 4 and 9; however, parent-child interactional styles may be firmly set by then. Identifying the earliest points at which children's reactive propensity begins to interfere with parenting may improve the effectiveness of efforts to prevent the development of coercive interactional processes, and in turn, subsequent problem behavior. Although studies have focused on the coercive behavior patterns of older children and parents

(Patterson, 1982; Dishion & Patterson, 1992), relatively few have examined it from an interactional perspective during the toddler period.

*Supportive parenting and children's social competence*

As reviewed above, several studies have demonstrated that harsh parenting relates to children's externalizing behavior, even in very young children. Alternatively, there is also strong evidence that has amassed over several decades that links supportive parenting to positive child outcomes across the span of child development (Knafo & Plomin, 2006; Baumrind, 1967; Hetherington, Henderson & Reiss, 1999; Kochanska, 1995; Stayton, Hogan & Ainsworth, 1971). In particular, parents who are affectionate, nurturing, patient, calm, attentive, predictable, and who use positive reinforcement to shape their children's behavior tend to have children who have greater levels of self control (Brody, Murry, & McNair, 2005) can modulate their emotions (Eisenberg, Spinrad & Smith, 2004), are more compliant (Dennis, 2006), have better peer relations (McDowell & Parke, 2005) and academic performance (Dearing, 2004), and are more socially competent overall (Fagan, 2000; Laible, Carlo, & Torquati, 2004; Webster-Stratton & Hammond, 1998). In sum, there appear to be strong main effects relationships between negative parenting variables and negative child outcome, as well as positive parenting variables and positive child outcomes.

Just as harsh parenting is a risk factor to children's development of behavior problems, especially with children who are temperamentally difficult, it may be that supportive parenting operates as a source of resilience to at-risk children. For example, when children are emotionally reactive, supportive parenting may serve as a protective

factor against their propensity to engage in negativity that can eventually grow into a repertoire of aversive behaviors—e.g. hitting, disobedience, defiance, selfishness, jealousy, impatience, intolerance, and destroying things—that becomes the hallmark of early on-set behavior disorders (Achenbach, 1992). With children who easily become overwhelmed with negative emotion, mother's supportive response may intercede or ameliorate the buildup of negative behaviors. Thus, mother's positive, supportive parenting is expected to have both main effects on children's positive developmental outcomes, as well as a potential mediating effect for children who react to the world on the negative side of the continuum.

*Some methodological considerations*

One of the criticisms of the work linking temperamental risk factors in infancy and toddlerhood to later problem behavior is that information has been assessed mostly through the mother's report (Lahey, 2004). Correlations between temperament and psychopathology that are based on information from the same informant may be inflated due to reporter bias rather than to a true relationship between study constructs. Moreover, studies that rely solely on mother's report are also subject to what Lahey (2004) terms "implicit personality theory of the rater." In other words, a mother's ratings may represent her personality and expectations for her child to exhibit externalizing problems, such as the following mother: "He always was, and always will be, a bad child." (Shaw, 2000). The present study avoids this measurement difficulty by using independent observations of children's temperament.

Another difficulty in measuring temperament is the conceptual blurriness between temperament and psychopathology (Frick & Morris, 2004; Lahey, 2004). While some researchers see the two constructs as theoretically and empirically distinct, others conceptualize temperament and psychopathology as representing one dimension. In particular, variation in temperamental features is considered normal until behavior crosses over into extremes, at which point temperament morphs into psychopathology. Thus, a child may exhibit normal variation on "activity level" and "fearfulness", which are considered qualities of his or her temperament. However, if those characteristics were to develop into "hyperactivity" or "phobia", then they would be considered psychopathological—crossing the threshold on the continuum from normal variation to abnormal expression. In the current study, temperament and psychopathology are considered distinct concepts, with temperament measured as a child's propensity to react with negative emotionality, a characteristic present at birth, while externalizing is measured as specific behaviors associated with conduct problems (e.g., hits others, breaks things, etc.).

### *Ethnic differences in parenting*

The sample for the current study is comprised primarily of African American mothers and children who live in severely impoverished circumstances, a population that remains understudied in developmental and child clinical research. Shaw and colleagues (Shaw, Bell & Gilliom, 2000) have followed a sample of low-income mothers and young children for almost a decade and note the inequality, even within the

same income bracket, between African Americans (AA) and European Americans (EA) in terms of potential risk factors to mental health. Although matched on other SES markers, as compared to EA families, many AA families lived in segregated housing projects in neighborhoods marked by high crime and violence, low accessibility to resources (i.e., shopping, transportation, and medical care), and limited educational and employment opportunities. Forty years ago, Baumrind (1967) first suggested that an authoritarian parenting style that combines strictness and control may have an adaptive function for some AA families, the conjecture being that such a style is well-matched to the greater risks that AA families who live in dangerous, impoverished environments may face.

Currently, few studies have investigated racial differences in the quality of parenting associated with child outcomes. Deater-Deckard, Dodge, & Bates (1996) found that physical discipline, like spanking, experienced during the first 5 years of life was related to higher externalizing behavior for EA children and for mother's reports of externalizing behavior of AA children. However, there was no association between physical discipline and teacher or peer reports of externalizing for AA children. Also, Gunnoe & Mariner (1997) found that spanking predicted more fights for EA children in elementary school, but fewer for AA children. In an examination of adolescent externalizing behavior, Lansford, Deater-Deckard and Dodge (2004) found several significant interactions, although of small magnitude, between race and physical discipline. Specifically, the experience of physical discipline at three time points—during a child's first 5 years, during 6$^{th}$ grade, and during 8$^{th}$ grade—was found to be

related to greater externalizing for EA adolescents, but lower externalizing for AA adolescents.

To date, findings on racial and ethnic differences in parenting and child outcome have focused on older children and young adolescents, but have not yet been replicated with samples of similar aged children, or with younger children. It may be that as children gain independence, the need for stricter control becomes more salient in AA families, as Baumrind suggested, or is understood and accepted in a different way. As reviewed previously, for the purposes of the current study, harsh parenting is conceptualized as being deleterious to children's development, and thus is expected to be related to increases in externalizing behaviors in toddlers at ages 2 and 3, regardless of race or ethnicity.

### *Implications for Intervention*

Theoretically, as children's negative emotional reactivity and harsh parenting become reciprocally linked, children's risk for conduct problems will increase. It is important to identify mechanisms that are associated with risk for conduct problems in order to improve prevention and intervention efforts by concentrating efforts precisely on the processes that may increase children's risk for externalizing disorders. Transforming maladaptive parent-child interactional processes into more adaptive ones during early childhood should reduce children's risk for later conduct problems.

Parents who respond to children's emotions consistently and without negative emotions seem to have children who evidence reductions in negativity over time. van

den Boom (1994; 1995) directly evaluated the effects of improving maternal responsiveness on reductions in children's negativity. Unresponsive mothers with irritable babies were taught how to interpret their infant's behavior and to respond in an appropriate and timely manner. Importantly, improving both the quality and quantity of maternal parenting behaviors led to reductions in infants' negative and irritable emotionality and improvements in infants' self-regulation. Follow-up assessments demonstrated a snowballing effect: improved maternal responsiveness led to more secure child attachment, which predicted greater child cooperation and compliance (van den Boon, 1995). Parents' appropriate responses to children's negative arousal have important implications for children's developing abilities to moderate emotional arousal.

Parent training that focuses on teaching parents alternate ways of interacting with and managing their children is currently the most effective strategy for altering the course of early externalizing problems (e.g. Parent Effectiveness Training, Gordon, 2000; Parent Management Training, Feldman & Kazdin, 1995). The theoretical foundation of parenting training models is based on a social learning perspective (Patterson, Chamberlain & Reid, 1982), in which parents view appropriate responses to a variety of parent-child situations and are guided in practicing and implementing their own childrearing behaviors.

Clearly, timing is an important issue when considering intervention. Although there is relatively little research that looks systematically at interventions targeted to very young children, Dishion and Patterson (1992) found that treatment of conduct

problems is more successful when interventions start early, prior to school age. Similarly, Webster-Stratton (1998) developed a program of parent training which provides parents of young children with advice and modeling of good parent practices, e.g., praise, positive reinforcement, appropriate use of time-out, appropriate monitoring, clear communication and brief, nonphysical punishments, and found positive results with a 4-8 years-old sample. Given the stability of externalizing behavior from ages 2 to 3, this time period may represent an optimal window for affecting change.

In addition, consistent with interactional perspectives (e.g. Keenan & Shaw, 1997; Patterson, 1982; Patterson, Reid & Dishion, 1992), although they begin with parents, coercive cycles of interaction can be characteristic of children's relations with others in the home, like siblings, and with peers outside of the home. Children who are prone to high negative emotional arousal are at increased risk for experiencing social problems and peer conflicts during interactions with other age-mates, particularly upon entry into preschool, another compelling reason to direct intervention resources toward the early years.

### *Study Hypotheses*

The primary aim of the present study is to examine the mutual influence of children's emotional reactivity and mothers' parenting style on children's acquisition of externalizing behaviors during early childhood.

*Hypothesis 1*: *Relation between mother-child negative contingent responses and children's externalizing.* Theoretically, a transactional approach stipulates that children's behavioral outcomes emerge from the continual interplay of parent and child,

rather than due to characteristics of either alone, as is demonstrated by Patterson's model of coercive behavior in children. Thus, it is hypothesized that mothers and children who have higher levels of negative contingent responses with each other—or in other words, engage in more coercive exchanges of child noncompliance followed by harsh parenting—will result in children's higher externalizing, concurrently and across time.

*Hypothesis 2*: *Relation between emotional reactivity and externalizing.* First, it is expected that children with a propensity towards negative emotional reactivity at age 2 will exhibit greater levels of concurrent externalizing behavior. In addition, as previously reviewed, early difficult temperament has been shown to predict later oppositional, aggressive behavior (Keenan, Shaw, Delliquadri, Giovannelli, & Walsh, 1998); thus, it is expected that children's negative emotional reactivity at age 2 will predict externalizing behavior at age 3, after accounting for externalizing at age 2.

*Hypothesis 3*: *Interaction between negative emotional reactivity and harsh parenting on children's externalizing behaviors.* It is hypothesized that mother's harsh parenting and children's negative emotional reactivity will interact such that children with the highest levels of reactivity and who have mothers who use greater levels of harsh disciplinary practices will show the greatest levels of externalizing behaviors. It is expected that this interaction will add a significant contribution to variance explained in externalizing behavior over and above the direct effects of parenting and emotional reactivity alone.

*Hypothesis 4*: *Relation between mother-child positive contingent responses, children's emotional reactivity, and children's social competence.* Given the powerful effect of supportive parenting on children's positive developmental outcomes documented in the literature, it hypothesized that mothers and children who have higher levels of positive contingent responses with each other—or in other words, engage in more exchanges of child compliance followed by supportive parenting—will result in children's development of greater social competence concurrently and across time, regardless of children's temperament. Moreover, it is hypothesized that mother's supportive parenting will serve a protective function for children who are highly emotionally reactive. That is, supportive parenting and children's negative emotional reactivity will interact such that children with the highest levels of reactivity and who have mothers who use greater supportive childrearing will show lower levels of externalizing behaviors.

*Hypothesis 5*: *Ethnic differences in harsh parenting*. In contrast to what has been found in older samples of children (Deater-Deckard & Dodge, 1997), the relationships among variables outlined in Hypothesis 1-4 are not expected to operate differently in African American families than in European American families. Given the early developmental period of study, child temperamental and parenting systems are expected to work together in a powerful way to influence children's externalizing behavior, rather than due to any differences in race. Unfortunately, the sample is too small to make a direct comparison between AA and EA families; however, results will be compared with previous studies whose samples are predominantly EA families.

## Method

### *Overview*

The goal of this research is to examine the early contributors to young children's externalizing behaviors. In this section, sample selection, parenting and child emotional reactivity measures, coding transformations, and statistical analytic plan are presented.

### *Sample*

In the current study, 2 year-old younger siblings (target child) of children enrolled in the West Bank Head Start (WBHS) and their mothers (primary caregivers) were recruited. The WBHS is located in Jefferson Parish, adjacent to the city of New Orleans. Annually, the WBHS center enrolls 600 3 to 5 year-old children.

Data collection began during the summer of 2003. Parents attending the parent orientation meeting for children enrolled at the West Bank Head Start (WBHS) were asked to complete a demographic eligibility screener in exchange for a $1 gift certificate to McDonalds. At that meeting, 165 parents (about 90% of parents in attendance) completed demographic screeners. Following the orientation meeting, and with permission from the Jefferson Parish Community Action Project, parents of children enrolled in the WBHS were contacted by telephone and asked to complete the demographic eligibility screener over the telephone ($n$ = 171). Parents who completed the screener over the phone were sent gift certificates by mail. Less than 1% of the contacted parents refused to complete the screener. Of the interested participants, 31% had an eligible child ($n$ = 94).

Level 2 recruitment, or recruiting families with eligible 2-year-old children, occurred from September through October of 2003. Of the 94 eligible children, 75 children who were not yet 2 years old were selected. Children were deemed eligible if they were within 2 weeks of their second birthday at the time they were contacted or if they would turn 2 by August 30, 2004. This criterion ensured that all of the children in this cohort were eligible to enroll in the WBHS at the same time; in other words, all of the children would be in the same "grade". Of the 75 recruited families, 17 were not able to participate in the project. One parent refused to be videotaped and another parent had scheduling problems that the project staff was not able to overcome. Fifteen additional families had outdated contact information, and contact could not be re-established, leaving a final sample of 55 mothers and children.

Data were collected from all families who participated in the study during two annual assessments that coincided with their children's birthdays. The sample includes 20 boys and 35 girls. Mothers averaged 26.3 years of age at the first assessment and had an average of 3.2 children. Approximately 20% of mothers reported having a high school diploma or GED. Families' total income per year averaged about $13,737, which supported an individual household of 4.82 people: this translates to an annual per capita income of $3,166. Approximately 28% of respondents were married. Over one-third of the respondents who completed the screener were unemployed; of those who were working, most reported working 21 hours/week on average. Finally, the sample is primarily African American (83.6%).

Wave 1 data collection and coding occurred between the summer of 2004 and the spring of 2005. Wave 2 data collection began the summer of 2005, and was two thirds completed by August 29, 2006, when Katrina, a Category 5 hurricane, hit the Gulf Coast of New Orleans, devastating the families, homes and lives of the Jefferson Parish community. The reduced sample of 35 families in Wave 2 reflects the abrupt halt in data collection due to this historic event that has forever changed the city and surrounds of New Orleans.

### *Procedure*

Two research assistants, an interviewer and a camera person went to the mothers' homes to collect data. Upon arrival, the interviewer reviewed the procedures with the mother and obtained consent while the camera person set up the interview and the play area in another room. A tablecloth was placed on the floor to designate the play area. A 'spot' was designated for the child and was marked with black tape. After the equipment was set up, the interviewer asked the mother to seat the target child on the tablecloth with attractive free play toys. While the target child played with some toys alone (3 min.), the interviewer gave the mother a packet of questionnaires to begin working on and provided any necessary explanations. At the end of the visit, interviewers helped mothers complete the questionnaires, if necessary (e.g., reading help).

Children's emotional reactivity was measured using the gentle arm restraint task (e.g., Goldsmith, Reilly, Lemery, Longley & Prescott, 1999). During this task, children

were presented with an attractive musical toy. Mothers were asked to sit behind their child on the floor. After playing for 30 seconds, mothers were instructed to hold their child's arms gently but firmly to his/her sides so that their child could not break free. After a 30-second restraint, mothers released their child's arms and the child resumed play with the musical toy. This restraint and release sequence occurs twice.

Last, harsh and supportive parenting was measured from observational ratings of mother's and children's behavior during a clean-up task. Near the end of the hour-long assessment, interviewers and children played with a set of toys for five minutes. Toys included: a telephone, a stuffed toy, a lighted musical stacker, a 4 piece stacking toy, and 12 stacking cups. Interviewers were instructed to play with all toys, making sure to put out toys in order to standardize children's mess for the clean-up period. At the end of this free play period, mothers were instructed to have children clean up all of the toys and, while mothers could offer any necessary guidance, children were required to clean up the toys on their own. The interviewer then left the room and returned after five minutes and thanked the children for cleaning up the toys.

### *Measures*

Constructs were measured using different methods including observations and mothers' reports. Although constructs were not multi-method, multi-agent, the use of different methods is a more conservative approach in terms of minimizing shared method variance than obtaining data from the same reporter. Mothers and children were videotaped for observational measures of child emotional reactivity and parenting style. In addition, mothers were asked to complete questionnaires about themselves and

their children's behaviors. Independent variables included (1) child gender, (2) child emotional reactivity, and 3) harsh and supportive parenting. Dependent variables include children's externalizing behavior and social competence at Wave 1 and Wave 2.

*Selecting a coding methodology*

Hypotheses outlined in this proposal are well-suited for micro-social coding because of the theoretical expectation that social interactions are contingently linked (Patterson, 1982). In particular, the behavior of parents is investigated at a microanalytic level in the moment-by-moment interplay between the child and the parent. However, while micro-social coding has the ability to test for contingent responses, this advantage is offset by a fundamental disadvantage of micro-social coding: discrete behaviors are rare events. For instance, one mother may respond to a child's throwing a toy by yelling, another by criticizing, and still another with laughter. Further complicating the matter, no two children are likely to respond to the same maternal behavior (e.g. yelling, criticism, laughter) in precisely the same way. Thus, one central challenge of the micro-social coding method is that once a behavior is broken down to its most simple parts, there is very little variance within each behavioral code and substantial between subject variance in behavior-response sequences. In contrast, global coding procedures often produce good variability within each code; however, the data cannot be analyzed sequentially because a single rating encompasses the entire interaction.

The coding systems attempted to capitalize on the strengths of both micro-social and global coding approaches, while still generating data that can be analyzed for

contingent response sequences. Specifically, more inclusive "macro" behavioral categories were coded in an attempt to overcome the low base rate problem, or low within code variability, of traditional micro-social approaches. Instead of coding and analyzing micro-social sequences like, "mother grabs child's hand," "child pulls away," "mother picks up child," and "child kicks", the proposed plan is to code general, or macro-social, sequences, such as "mother negative physical," "child resistant," "mother negative physical," and "child negative physical." For example, the code "negative physical" could be defined to include both "mother grabs child's hand" and "mother picks up child." By coding more inclusively, the variability within codes should increase, while leaving the ability to test theoretical hypotheses unaltered. Thus, these results may have important applications for intervention by identifying general patterns of behavior that lead to externalizing problems. The specific measures and coding procedures to be used to measure each study construct are described below.

*Independent Variables*

*Child gender.* Child gender was dummy coded with a '0' representing girls and a '1' representing boys.

*Child Emotional Reactivity.* Observer ratings measured target children's emotional reactivity at using a modified version of the Laboratory Temperament Assessment Battery (Lab-TAB; Goldsmith et al., 1999). The intensity and duration of children's emotional distress was elicited during a gentle arm restraint.

A procedure to code children's negative emotional reactivity was developed in a previously funded study (Scaramella & Sohr-Preston, 2003) Using a computerized coding system, coders mark, in real time, the onset and termination of three mutually exclusive levels of distress: 1) ambiguous distress, noises that were not clearly positive or negative; 2) mild distress, definite protest, mild fussing, whining, and low intensity crying; and 3) moderate/high distress, clear and definite crying or screaming. Distress vocalizations lasting less than 2 seconds in duration were not coded. To measure inter-rater agreement, 25% of all temperament tasks were double coded. Inter-observer reliability estimates indicated adequate agreement, with an average kappa of .78.

To create the negative emotional reactivity score, the proportion of time children spent in moderate/high distress during each task was calculated by summing the total time of each episode of moderate/high distress. Scores reflect the average amount of time children spent in moderate/high distress during the arm restraint tasks. Overall, children were in distress for a mean of 8% of the task; however, the standard deviation was 10.6, suggesting considerable variability around the mean, with a range of 0 to 34. In addition, the scores were skewed; thus the final step in computing the negative emotional reactivity score was to add 1 to each distress score and compute the log transformation. The mean of the log transformed scores is presented in Table 1.

Table 1.

*Means and Standard Deviations of Study Constructs*

| Construct | Mean | SD | Range |
|---|---|---|---|
| Emotional Reactivity | 1.32 | 1.40 | 0.0 –3.56 |
| Externalizing Behavior Wave 1 | 15.20 | 8.52 | 1.0 – 34.0 |
| Externalizing Behavior Wave 2 | 13.05 | 8.08 | 0.0 - 31.0 |
| Social Competence Wave 1 | 8.53 | 3.29 | 1.0 – 15.0 |
| Social Competence Wave 2 | 7.97 | 3.48 | 0.0 – 16.0 |
| Harsh Parenting | .26 | .32 | 0.0 – 1.00 |
| Supportive Parenting | .13 | .13 | 0.0 – 0.50 |

*Harsh and supportive parenting.* Ratings of mothers' harsh and supportive parenting were derived from videotaped mother-child interactions during the clean-up task. The task is designed to be moderately frustrating and challenging for mother and child and elicit variability in maternal behaviors and emotions. In this task, mothers must supervise their children's cleaning up an assortment of toys when children are potentially tired.

Harsh parenting is operationalized as mother's behaviors that are overly controlling and restrictive as well as emotionally negative. Harsh parenting scores were derived from mothers' use of negative physical behaviors, restrictive commands, and criticisms (see Appendix A). Coders marked the occurrence of parenting behaviors in real time and codes were mutually exclusive. Separate trained coders rated videotape from the observed parenting sequence. Twenty-five percent of the interactions were double-coded and inter-rater estimates of observed parenting indicated high reliability, kappa=.80. Contingency scores were computed to estimate the likelihood that children's noncompliance was followed by a harsh parenting behavior. The General Sequential Querier program (GSQ; Bakeman & Quera, 1995) was used to compute the probability of mothers' use of harsh parenting in response to children's active noncompliance. Scores range from 0.0 to 1.0, with a 0 meaning that a mother never responded to her child's noncompliance with harsh parenting and a 1.0 meaning that a mother always responded to noncompliance with harsh parenting.

Ratings of mothers' supportive parenting were also derived from videotaped mother-child clean-up task. Supportive parenting is operationalized as mothers' behaviors that are nurturing, encouraging, and reassuring, as well as emotionally positive. Supportive parenting scores were derived from mothers' use of positive physical behaviors, why commands, and positive reinforcement (see Appendix B). Twenty-five percent of the interactions were double-coded and inter-rater estimates of observed parenting indicated high reliability, kappa=.80. Contingency scores were computed for supportive parenting using the same GSQ procedure detailed above.

Scores range from 0.0 to 1.0, with a 0 meaning that a mother never responded to her child's compliance with supportive parenting and a 1.0 meaning that a mother always responded to compliance with supportive parenting (see Table 1).

*Dependent Variables*

*Children's Externalizing Behavior.* Children's behavior problems were assessed using mothers' reports on the Child Behavior Checklist (CBCL; 2-3 year-old version, Achenbach, 1992; Achenbach, Edelbrock, & Howell, 1987). Mothers rated their child on each item that describes the child currently or within the last 2 months. Children's negative reactivity seems to be primarily related to reactive forms of aggression (Frick & Morris, 2004), which is adequately tapped by the CBCL. The CBCL has high internal consistency and test-retest reliability and has been shown to discriminate between clinic and nonclinic samples (Achenbach, 1992, 1994). The 2–3 year version of the CBCL yields two broad-band factor scores—internalizing and externalizing—as well as a total score. The current study focuses on the children's T scores on the broadband Externalizing (EXT) factor. Alphas computed on Externalizing were .90 for Wave 1 and .92 for Wave 2.

*Social Competence.* Children's social competence was assessed using teachers' reports on the Preschool Socioaffective Profile (PSP; La Freniere, Dumas, Capuano & Dubeau, 1992). The Social Competence subscale of the PSP was designed to capture behavioral tendencies that reflect children's strengths, such as social adaptation. The PSP, created for preschool children aged 2 ½ to 6 years old, has high internal consistency, with Cronbach's alphas ranging from .79 to .91, and high test-retest

reliability ranging from .74 to .87 (La Freniere, et al, 1992). For the current data, alphas computed on Social Competence were .74 for Wave 1 and .83 for Wave 2. The Social Competence subscale is comprised of an eight positive item-cluster, including: accepts compromise, looks out for younger child, comforts other child, cooperates, careful with toys, helpful, takes pleasure in accomplishments, and considers other point of view. Factors loadings for items ranged from.58 to .81. Also, La Freniere, et al. (1992) report sex differences, with boys showing less Social Competence than girls.

# Results

Two preliminary steps were taken before conducting data analytic procedures. First, the small sample size had to be taken into account before specifying a model in order to ensure that the sample size is adequate to detect statistical significance. Cohen (1988) defines small, medium, and large effect size (ES) as .02, .15, and .35, respectively. Large effects are typically those that can be estimated even in very small samples, whereas small effects require very large sample sizes to detect the effect. Using GPOWER (Erdfelder, Faul & Buchner, 1996), the number of participants required to detect a medium effect using regression analyses with 5 predictors was estimated. This analysis lends support that the sample size was adequate to test analyses. In addition to the GPOWER analyses, a common guideline for an acceptable sample size to variables ratio ranges from 7:1 to 10:1 (Cohen & Cohen, 1983). According to both criteria, the study data fall within the acceptable limit and are assumed to have adequate power to detect significance.

Second, given that approximately 1/3 of the sample at Wave 2 was no longer able to be located due to the Katrina hurricane, analyses were conducted to ensure that the families with missing data were not significantly different than the families for whom complete data were collected. Given that Katrina was a random event, no differences were anticipated. Chi-square and ANOVA procedures were used to compare Wave 1 and Wave 2 participants. True to expectations, there were no

significant differences in demographics or study constructs across the two groups, except for total income. Correlations were conducted between income and the main study constructs, and no significant relation with income emerged.

Table 2

*Comparisons of Wave 1 (age 2) characteristics between families completing two assessments and families completing only one assessment by child gender, family ethnicity, and mothers' marital and employment status*

| | Full sample Sample | | Complete data | | Wave 1 only | | | |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Chi sq | Sig. |
| Child gender | | | | | | | 2.15 | .14 |
| Boys | 20 | 36.4 | 11 | 29.7 | 9 | 50.0 | | |
| Girls | 35 | 63.6 | 26 | 70.3 | 9 | 50.0 | | |
| Family ethnicity | | | | | | | .79 | .67 |
| African Am | 46 | 83.6 | 30 | 81.1 | 16 | 88.9 | | |
| White | 8 | 14.5 | 6 | 16.2 | 2 | 11.1 | | |
| Indian | 1 | 1.8 | 1 | 2.7 | 0 | 0.0 | | |
| Hispanic | | | | | | | 1.48 | .48 |
| Non-Hispanic | 46 | 83.6 | 30 | 81.1 | 16 | 88.9 | | |
| Hispanic | 2 | 3.6 | 2 | 5.4 | 0 | 0.0 | | |
| Not answered | 7 | 7.3 | 5 | 13.5 | 2 | 11.1 | | |
| Mother marital status | | | | | | | 1.63 | .80 |
| Single, never married | 26 | 47.3 | 19 | 51.4 | 7 | 38.9 | | |
| Single, widowed | 2 | 3.6 | 1 | 2.7 | 1 | 5.6 | | |
| Married | 19 | 34.5 | 12 | 32.4 | 7 | 38.9 | | |
| Separated | 7 | 12.7 | 4 | 10.8 | 3 | 16.7 | | |
| Divorced, not mar. | 1 | 1.8 | 1 | 2.7 | 0 | 0.0 | | |
| Mother employment status | | | | | | | .01 | .93 |
| Currently working | 27 | 49.1 | 19 | 51.4 | 9 | 50.0 | | |
| Not cur. Working | 28 | 50.9 | 18 | 48.6 | 9 | 50.0 | | |

Table 3

*Comparisons of wave 1 (age 2) characteristics between families completing two assessments and families completing only one assessment by mothers' age, hours worked per week, and income*

| | Whole Sample Mean | *SD* | Complete data Mean | *SD* | Wave 1 only Mean | *SD* | *F* | *Sig.* |
|---|---|---|---|---|---|---|---|---|
| Mother's age | 26.3 | 5.1 | 26.1 | 5.4 | 26.7 | 4.7 | .13 | .72 |
| Number of children | 3.2 | 1.3 | 3.3 | 1.4 | 3.1 | 1.2 | .24 | .63 |
| Hours worked/week | 36.1 | 6.5 | 35.8 | 6.4 | 36.7 | 7.1 | .12 | .74 |
| Income/year from primary job | 6,804 | 8,174 | 7,315 | 8,168 | 5,752 | 8,320 | .44 | .51 |
| Total income/year | 13,737 | 10,648 | 15,320 | 10,670 | 8,642 | 9,221 | 4.95 | .03* |
| Number of persons supported | 4.8 | 1.8 | 5.0 | 2.0 | 4.5 | 1.5 | .85 | .36 |
| Per capita income/yr | 3,166 | 3,085 | 3,635 | 3,367 | 1,935 | 2,199 | 3.34 | .07 |

Next, correlations among variables were calculated to examine patterns of within and across wave associations and are presented in Table 4.

Table 4

*Correlations among Wave 1 and Wave 2 variables*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| 1 Child gender-W1 | 1.00 | | | | | | | |
| 2 Emotional Reactivity-W1 | -.29* | 1.00 | | | | | | |
| 3 Harsh Parenting-W1 | -.11 | .03 | 1.00 | | | | | |
| 4 Supportive Parenting-W1 | .17 | -01 | -.17 | 1.00 | | | | |
| 5 Externalizing Behavior-W1 | .26+ | .21 | .29* | -.03 | 1.00 | | | |
| 6 Externalizing Behavior-W2 | .31+ | .38* | .12 | -.21 | .68** | 1.00 | | |
| 7 Social Competence-W1 | .18 | -.07 | .13 | .14 | .03 | -.25 | 1.00 | |
| 8 Social Competence-W2 | -.06 | -.23 | .06 | .14 | -.05 | -.13 | .47** | 1.00 |

+ p = .06; *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

Coefficients suggest moderate to high across wave correlations between Wave 1 – Wave 2 externalizing behavior and Wave 1-Wave 2 social competence of .68 and .47, **$p \leq .01$, respectively. Across wave correlations of Wave 2 externalizing behavior and social competence with Wave 1 observational parenting measures were low to moderate, and ranged from .06 to .31. Children's emotional reactivity was significantly correlated with age 2 externalizing, and boys were more emotionally reactive than girls.

*Regression models*

Both dependent and independent variables were continuous in nature, thus, regression techniques were deemed most appropriate for data analysis. The main analytic phase included several stepwise regression models designed to investigate the study hypotheses regarding the impact of mothers' parenting, both harsh and supportive, along with child emotional reactivity, as they influence children's externalizing behavior and social competence. First, within wave models were computed to estimate contemporaneous effects of parenting and temperament on children's current behavior. This included both main effects of parenting and temperament, as well as an interaction term of parenting x temperament. In addition, child gender also was considered in the model as a main effect.

Second, across wave models were estimated to examine change in child outcome from age 2 to age 3. This was accomplished by entering Wave 1 behavior, e.g. Wave 1 externalizing behavior, first before entering other independent variables as they predict Wave 2 externalizing behavior. Within wave regression results are summarized below followed by across wave results.

*Within time regression analyses: Age 2.* Models were specified using a series of stepwise multiple regressions to address the hypothesis of whether mother's contingent harsh parenting predicted children's externalizing behavior after considering child's level of emotional reactivity. Additionally, regressions were computed to examine the effect of mother's contingent supportive parenting as it may protect children, especially those most emotionally reactive, from externalizing and/or promote prosocial behavior in children.

Independent variables were entered in three steps. The first step included child gender; the second set included child emotional reactivity and mother's contingent harsh parenting, and the third step included the interaction term of emotional reactivity x harsh parenting as they predict Wave 1 externalizing behavior. Second, a similar model was computed with mother's contingent supportive parenting instead of harsh parenting. Table 5 presents the results from both regression models.

Table 5.

*Predictors of Children's Externalizing Behavior, Wave 1*

| Harsh Parenting | Wave 1 Externalizing | | |
|---|---|---|---|
| | *B* | *SE B* | B |
| Step 1 | | | |
| Child gender | 6.77** | 2.32 | .39 |
| $R^2$ for step1 .07+ | | | |
| Step 2 | | | |
| Emotional reactivity | 2.52** | .99 | .42 |
| Contingent harsh parenting | 13.21* | 5.28 | .50 |
| $R^2$ Δ for step2 .19** | | | |
| Step 3 | | | |
| Emotional reactivity x Contingent harsh parenting | -2.68 | 2.69 | -.25 |
| $R^2$ Δ for step3 .02 | | | |
| $R^2$ for Final Model .28** | | | |

+$p$ = .06; *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

| Supportive Parenting | Wave 1 Externalizing | | |
|---|---|---|---|
| | *B* | *SE B* | B |
| Step 1 | | | |
| Child gender | 6.54** | 2.51 | .37 |
| $R^2$ for step1 .07+ | | | |
| Step 2 | | | |
| Emotional reactivity | 1.51 | 1.21 | .25 |
| Contingent supportive parenting | -10.23 | 13.11 | -.16 |
| $R^2$ Δ for step2 .09+ | | | |

| | | | |
|---|---|---|---|
| Step 3 | | | |
| Emotional reactivity x | | | |
| Contingent supportive parenting | 3.82 | 7.85 | .12 |
| $R^2$ Δ for step3 | .01 | | |
| $R^2$ for Final Model | .17 | | |

+ $p = .06$; *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

Consistent with previous findings (Achenbach, 1992), results indicate an effect of child gender on externalizing behavior, with boys acting out more than girls. In addition, children's emotional reactivity significantly predicted concurrent externalizing behavior, with higher levels of reactivity related to greater externalizing. Also, as hypothesized, mothers whose contingent response to their child's noncompliance was with harsh parenting had children with greater behavior problems. There were no main effects of mother's contingent supportive parenting on children's externalizing behavior at age 2. This null finding suggests that, in this context, supportive parenting did not serve a protective function for children's externalizing behavior.

The second set of contemporaneous regression models included children's social competence as the dependent variable. Models were computed for both contingent harsh and supportive parenting. Similar to the regression models already described, models for social competence were conducted in three steps as follows: the first block included child gender; the second set included child emotional reactivity and mother's contingent harsh parenting, and the third block included the interaction term of emotional reactivity x harsh parenting as they predict Social Competence at age 2. A similar model was computed that includes mother's contingent supportive parenting in

place of harsh parenting. Table 6 presents the regression results predicting children's Social Competence at age 2.

Table 6.

*Predictors of Children's Social Competence, Wave 1*

| Harsh Parenting | Wave 1 Social Competence | | |
|---|---|---|---|
| | *B* | *SE B* | B |
| Step 1 | | | |
| Child gender | 1.31 | 1.01 | .19 |
| $R^2$ for step1 .03 | | | |
| Step 2 | | | |
| Emotional reactivity | -.28 | .46 | -.12 |
| Contingent harsh parenting | -.05 | 2.51 | -.01 |
| $R^2$ Δ for step2 .02 | | | |
| Step 3 | | | |
| Emotional reactivity x Contingent harsh parenting | .92 | 1.17 | .22 |
| $R^2$ Δ for step3 .01 | | | |
| $R^2$ for Final Model .07 | | | |

*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

| Supportive Parenting | Wave 1 Social Competence | | |
|---|---|---|---|
| | *B* | *SE B* | B |
| Step 1 | | | |
| Child gender | 1.02 | 1.03 | .15 |
| $R^2$ for step1 .03 | | | |
| Step 2 | | | |
| Emotional reactivity | .04 | .50 | .02 |
| Contingent supportive parenting | 3.77 | 5.43 | .15 |
| $R^2$ Δ for step2 .01 | | | |
| Step 3 | | | |
| Emotional reactivity x Contingent supportive parenting | -.83 | 3.25 | -.07 |
| $R^2$ Δ for step3 .00 | | | |
| $R^2$ for Final Model .05 | | | |

+$p \leq .06$, *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

Notably, unlike models for children's externalizing behavior, the regressions considering the contemporaneous effects on children's social competence did not yield any statistically significant results, and $R^2$'s for the final models were quite low. There were no gender differences, effects of harsh/supportive parenting, or emotional reactivity on children's social competence at Wave 1. The lack of main effect findings between mother's supportive parenting and children's social competence was particularly surprising given that this relationship has been fairly well established in the literature.

*Across time Wave 1 to Wave 2 regression analyses.* Across time analyses were conducted to explore the hypotheses that contingent harsh parenting in combination with high emotional reactivity will predict changes in children's externalizing behavior over time. Specifically, the following models are constructed to determine possible longitudinal effects of parenting and children's emotional reactivity at age 2 on their changes in their externalizing from age 2 to age 3. As in the first set of regressions, a series of hierarchical models were computed. Independent variables were entered in four blocks. The first block included Wave 1 externalizing; the second block included child gender; child emotional reactivity and harsh parenting were entered in the third block; and finally, the interaction of reactivity and parenting were entered as they predict externalizing behavior at age 3. A similar model also was computed for mothers' contingent supportive responses to children. Table 7 presents results from these regression models.

Table 7.

*Predictors of Children's Externalizing Behavior, Wave 2*

| Harsh Parenting | Wave 2 Externalizing | | |
|---|---|---|---|
| | *B* | *SE B* | B |
| Step 1 | | | |
| Wave 1 Externalizing | .53*** | .13 | .56 |
| $R^2$ for step1 .47*** | | | |
| Step 2 | | | |
| Child gender | 4.34+ | 2.31 | .26 |
| $R^2$ Δ for step2 .02 | | | |
| Step 3 | | | |
| Emotional reactivity | 1.58 | 1.03 | .28 |
| Contingent harsh parenting | -3.03 | 5.55 | -.12 |
| $R^2$ Δ for step3 .10* | | | |
| Step 4 | | | |
| Emotional reactivity x Contingent harsh parenting | 1.46 | 2.49 | .14 |
| $R^2$ Δ for step4 .01 | | | |
| $R^2$ for Final Model .59*** | | | |

+$p \leq .06$, *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

| Supportive Parenting | Wave 2 Externalizing | | |
|---|---|---|---|
| | *B* | *SE B* | B |
| Step 1 | | | |
| Wave 1 Externalizing | .49*** | .12 | .52 |
| $R^2$ for step1 .47*** | | | |
| Step 2 | | | |
| Child gender | 5.30* | 2.15 | .32 |
| $R^2$ Δ for step2 .02 | | | |
| Step 3 | | | |
| Emotional reactivity | 2.12* | .97 | .37 |
| Contingent supportive parenting | -14.09 | 10.58. | -.23 |
| $R^2$ Δ for step3 .16** | | | |
| Step 4 | | | |
| Emotional reactivity x Contingent supportive parenting | -.37 | 6.31 | -.01 |
| $R^2$ Δ for step4 .00 | | | |
| $R^2$ for Final Model .64*** | | | |

*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

Similar to previous within-wave analyses seen in Table 4, child gender predicts externalizing at age 3, with boys acting out more than girls. However, across time there were no effects for parenting or emotional reactivity on children's externalizing behavior. As can be seen in the stepwise $R^{2's}$ progression, Wave 1 externalizing, entered first, accounts for the largest portion of variance. It may be that the small sample size precluded the possible effects of other predictors once the highly correlated variables of Wave 1 and Wave 2 externalizing were accounted for. Across time analyses for mother's supportive contingent parenting also yielded no statistically significant effects which is consistent with previous research that did not ascertain protective effects of prosocial parenting on children's externalizing (Nicholson, Fox, & Johnson, 2005). However, unlike the harsh parenting model, when using supportive parenting, children's emotional reactivity at age two predicted their later externalizing behavior. Because supportive parenting was less strongly correlated with children's externalizing than is harsh parenting, there was less overlap in variance; thus, the construct of children's emotional reactivity has more likelihood of emerging as a significant predictor.

Across time analyses were also conducted to consider how mother's contingent harsh and supportive parenting is related to children's development of social competence. The following models were computed to determine possible longitudinal effects of parenting and children's emotional reactivity at age 2 on their social competence at age 3. As with the longitudinal externalizing behavior models,

independent variables were entered in four blocks. The first block included Wave 1 externalizing; the second block included child gender; child emotional reactivity and harsh contingent parenting were entered in the third block; and finally, the interaction of reactivity and parenting were entered as they predict social competence behavior at age 3. A similar model was also run for mother's supportive contingent parenting. Table 8 presents results from these regression models.

Table 8.

*Predictors of Children's Social Competence, Wave 2*

| Harsh Parenting | Wave 2 Social Competence | | |
|---|---|---|---|
| | *B* | *SE B* | B |
| Step 1 | | | |
| Wave 1 Social Competence | .52** | .17 | .49 |
| $R^2$ Δ for step1 .22** | | | |
| Step 2 | | | |
| Child gender | -1.65* | 1.21 | -.23 |
| $R^2$ Δ for step2 .02 | | | |
| Step 3 | | | |
| Emotional reactivity | .72 | .44 | .29 |
| Contingent harsh parenting | -1.13 | 2.93 | -.10 |
| $R^2$ Δ for step3 .06 | | | |
| Step 4 | | | |
| Emotional reactivity x Contingent harsh parenting | .54 | 1.38 | .12 |
| $R^2$ Δ for step4 .00 | | | |
| $R^2$ for Final Model .31* | | | |

*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

| Supportive Parenting | Wave 2 Social Competence | | |
|---|---|---|---|
| | *B* | *SE B* | B |
| Step 1 | | | |
| Wave 1 Social Competence | .49*** | .13 | .46 |
| $R^2$ Δ for step1 .22** | | | |
| Step 2 | | | |
| Child gender | -2.09* | .92 | -.29 |

| | | | |
|---|---|---|---|
| | $R^2$ Δ for step2 .02 | | |
| Step 3 | | | |
| | Emotional reactivity | -.79 | .54 -.31 |
| | Contingent supportive parenting | 18.86*** | 4.80 .73 |
| | $R^2$ Δ for step3 .08 | | |
| Step 4 | | | |
| | Emotional reactivity x | | |
| | Contingent supportive parenting | -12.61*** | 2.86 -.98 |
| | $R^2$Δ for step4 .28*** | | |
| $R^2$ for Final Model .60*** | | | |

*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

Similar to Wave 1, in both harsh and supportive parenting models, child gender was significantly associated with social competence, with girls displaying more socially competent skills than boys. Mother's harsh parenting, or the lack thereof, did not affect children's prosocial behaviors. Although mother's contingent supportive parenting was not related to children's concurrent prosocial behavior at age 2, there were significant main effects of positive parenting on the change in children's social competence from age 2 to age 3. Also, the regression model revealed a significant interaction between children's emotional reactivity and mother's supportive parenting on social competence.

While main effects of supportive parenting were found, results indicate that this relationship is conditioned by children's emotional reactivity. Further analyses were conducted on the interaction of supportive parenting x emotional reactivity in order to interpret direction of effects. First, supportive parenting was dichotomized into low and high supportive parenting based on a 50% split. Second, a set of partial correlations was run, controlling for Wave 1 social competence. Correlations between emotional reactivity and social competence were computed separately for both low and high supportive parenting. Results suggest that when supportive parenting is low, there is no

statistically significant correlation between reactivity and competence ($r$=.08). However, for mothers who were above the mean on supportive parenting, reactivity and social competence were negatively and significantly correlated (r=-.44, $p < .04$). This finding suggests that in the context of supportive parenting, less reactivity is associated with more social competence one year later. Thus, children who are not emotionally reactive benefit maximally from their mother's supportive parenting in their development of social competence than do children who are more difficult temperamentally.

# Discussion

## *The transactional model*

One of the primary purposes of the present study was to examine the downward extension of a parent-child transactional model with mothers and their toddlers (Scaramella & Leve, 2004). Patterson's (1992) work with school-aged families has demonstrated that parents and children can engage in negative, coercive chains of interaction. Based on operant and social modeling, parent-child interchanges escalate in negativity, during which parents abdicate control in response to children's noncompliance and oppositionality, which reinforces children's use of coercion in subsequent communication (Dishion & Patterson, 1992.). Over time, a pattern of negative, reciprocal communication becomes habitual and detrimental, not only to the parent-child relationship, but as it spills over into peer and other-adult relationships (Dishion, Duncan, & Eddy, 1994; Dishion, Patterson & Greiesler, 1994; Schrepferman & Snyder, 2002). Importantly, children who use and rely on coercive patterns of communication also tend to have greater behavioral problems, especially aggressive, acting-out behaviors.

How soon does a negative transactional process begin within the mother-child relationship, and how early can it be linked to possible behavioral difficulties? According to the data in this study, mothers and their two-year old toddlers already respond to each other in a contingent, negative way. Moreover, mother's contingent negative responses to their toddlers' noncompliance at age 2 were linked to significantly

greater levels of concurrent externalizing. This corroborates other research that is just beginning to map the role of proximal negative disciplinary strategies in fostering aggressive behavior in toddlers (Del Vecchio & O'Leary, 2006).

Analyses that looked at change from age 2 to age 3 did not find a significant link between mother's continent harsh parenting at age 2 and children's externalizing at age 3. However, the lack of a relationship may be due to the stringent criteria set forth in the regression models that were conducted, as well as the small sample size at Wave 2. Specifically, in order to assess change in externalizing from age 2 to 3, age 2 externalizing must be controlled. Given the strong correlation of .70 between age 2 and age 3 externalizing, much of the variability in the model is already accounted for in the first step of the four-step regression. The effect size of subsequent variables would have to be quite large to result in significance. Regardless, there is evidence to suggest that when mothers and children engage in reciprocally negative interactions, children exhibit higher levels of externalizing. It is still unclear whether such early proximal patterns are strong enough to influence externalizing one year later in age. Also, the timeframe of one year, from age 2 to 3, is an arbitrary cutoff, and it may be that a larger developmental window is needed before longitudinal effects can be detected.

Analyses that examined supportive parenting and children's social competence also revealed a pattern of influential, reciprocal interaction between mothers and children. Specifically, mothers who use positive reinforcement, physical affection, and explanations in response to their toddlers' compliance tend to shape later prosocial behavior in their children. Interestingly, the findings for supportive parenting as they

predict children's social competence were not detected as contemporaneous effects, but across time effects. That is, mothers who respond supportively to their children's positive behavior at age 2 have children who exhibit more social competence at age 3 after controlling for age 2 levels of competence. In terms of development, social competence tends to increase from age 2 to age 3 (La Freniere, et al, 1992), and the current data suggest that some of the change can be attributed to mothers' supportive parenting. This finding reflects the conceptualization of supportive parenting as an investment in children's later healthy development (Kochanska, 1995). In particular, the significance of supportive parenting may not be instantly measurable, and the payoff, in terms of children's prosocial behavior, comes further down the line in development as children grow in their ability to express feelings, negotiate, compromise, cooperate, and be helpful.

While main effects of supportive parenting were found, it is conditioned by the interaction of children's emotional reactivity. Specifically, when mothers are not supportive, neither high nor low reactive children benefit in terms of greater social competence. When mothers are supportive, there is a significant correlation between emotional reactivity and social competence. Children who are the least emotionally reactive have the highest social competence levels. In addition, this finding has important implications for clinical intervention. Aside from parenting strategies that may reduce externalizing behaviors, which is often the focus of current clinical interventions, this data has demonstrated that positive parenting has important effects on

children's emerging skills of sharing, cooperating, being patient, comforting others, accepting compromises, and even being joyful.

*Temperament*

*Externalizing Behavior*

Another primary study hypothesis was that children who have difficult temperaments, specifically, those who are more emotionally reactive, will elicit the highest levels of harsh parenting, which in turn, will translate into more externalizing behavior. There was a clear main effect of temperament on externalizing, with highly reactive children exhibiting greater concurrent behavior problems at age 2. In addition, there was an indication that change in behavior problems from Wave 1 to Wave 2 can also be accounted for by emotional reactivity; thus, children's fussy, distressed behavior at age 2 is related to their aggressive behavior problems at age 3, even after accounting for levels of behavior problems at age 2. This effect emerged within the supportive parenting model, although not in the harsh parenting model. One reason may be the high intercorrelation of harsh parenting and externalizing; in their fight for variance, the temperament effect was masked. Give the small pool of participants in Wave 2, this finding may re-emerge with more strength using a larger sample size.

Contrary to study hypotheses, there was no interaction of emotional reactivity and harsh parenting. It was surprising that children who were more emotionally reactive with more punitive, harsh mothers did not have higher externalizing behavior scores. Unfortunately, sample size precluded the use of structural equation modeling, which is

helpful in ascertaining pathways of influence among variables. Future research would benefit from examining children's emotional reactivity as both a main influence on children's externalizing, as well as an indirect path through parenting.

*Social Competence*

A relationship between children's temperament and social competence was not hypothesized; however, an interaction was found wherein children with low emotional reactivity and whose mothers used more positive parenting practices had the highest levels of social competence. It could be that low emotionally reactive children are the easiest to parent. Emotional reactivity aside, there is still a strong main effect of positive parenting. Specifically, mothers who are affectionate, responsive, and reinforcing to their children have children who are more socially competent than mothers who do not use supportive parenting practices.

*Gender differences*

Although the current study did not specify hypotheses related to gender, a couple of interesting differences emerged for boys and girls. Contrary to past research, gender differences emerged for children's externalizing behaviors, with boys showing more aggressive, acting out behaviors than girls. This finding was stable at both Wave 1 and Wave 2 timepoints. Unlike externalizing and internalizing scales created for school aged children and adolescents, Achenbach and colleagues (Achenbach, Edelbrock, & Howell, 1987) did not find gender differences for children early in development; rather, 2 to 3-year olds showed similar rates of behaviors across the CBCL. The unexpected gender differences within the externalizing analyses may be a

function of the uniqueness of the current sample. Conversely, findings for gender as related to social competence were consistent with previous findings. Specifically, girls exhibited greater prosocial, adaptive behavior at age 3 than did boys, which is corroborated by La Frenieire, et al.'s (1992) findings on the Preschool Socioaffective Profile.

*Uniqueness of the sample*

The present study is unique in a few ways, perhaps none more important than the mothers and children who participated in the study. Specifically, this study represents mothers and toddlers who live in abject poverty in dangerous neighborhoods, a population that is very much understudied in terms of family process in the psychological literature. Although there are several studies that come from survey, population and census data, studies that go into the homes and lives of women and children in poverty are rare. Accordingly, the tools with which investigators possess to study and analyze family process have been shaped primarily by data from middle-class samples. Do these tools fit universally for parents and children? Are they ecologically valid?

The rates of behaviors coded from microsocial observations of mothers and children suggest that there may be real differences in the parenting of this sample compared to other samples (Shaw, Keenan & Vondra, 1994) as illustrated by the exceptionally low levels of supportive parenting that was observed. From the current study, there is initial evidence that supportive parenting can have powerful main effects on the development of children's social competence. With such low levels of

supportive parenting to start, in terms of intervention, it may be that only minor increases in supportive parenting demonstrate a positive effect on children's social competence. In combination with already established programs, such as Webster-Stratton's parent training protocol (Webster-Stratton, Reid & Hammond, 2004), it may be helpful to add modules with the specific goal of increasing the level of positive parenting, i.e. how and when to show affection, how to share experiences joyfully, how and when to give positive reinforcement, and how to use communication as a tool to build positive parent-child relationships.

Another example of a possible ecological misfit of the observational measurement in this study comes from the gentle arm restraint task. Although this procedure has been used with success by previous researchers (Kochanska, 1995) for the purposes of eliciting mild distress from children (Kochanska, 1995; van der Mark, Bakermans-Kranenburg & van Ijzendoorn, 2002), in the current study it seemed to function somewhat differently. Specifically, coders noted that oftentimes when a At the same time, it gives a poignant glimpse into the dearth of physical affection felt by this sample of children. mother held down her child's arms, the child would lean into her touch, rather than showing distress at being restricted. Such a reaction might be expected from children who do not receive much tactile affection and misperceive their mother's attempt to hold them back as something different, specifically, a bid for affection—a hug. Accordingly, levels of children's observed distress may be lower due to the inability of the task to tap into children's emotional reactivity. To the investigators' surprise, a task that has performed well previously with other samples in

tapping emotional reactivity appeared to be a mismatch for generating brief distress in this sample. It seems there is still much to learn about the ecological fit of mainstream psychology into the unique niches of family functioning that exist throughout our country and beyond.

*Unique contributions of the current study*

In recent years, several compelling studies have addressed, variously, the linkage among temperament, parenting and children's problem behaviors (Weiss, Dodge, Bates, & Pettit, 1992). The current research builds upon the existing literature through several unique contributions. First, this study extends upon previous work by inclusion of unique sample characteristics. This study includes children who are 2 years of age at the first wave of data collection, whereas the majority of past studies have focused on school-aged (Weiss, Dodge, & Pettit, 1992) and adolescent samples (Windle, 1992). In addition, the study is one of few to consider the main research question with a sample of seriously economically disadvantaged children and mothers. Moreover, existing studies of very young children of poverty-stricken families have included only boys (Keenan, et al., 1998; Shaw, Owens, Giovannelli, & Winslow, 2001), whereas this study investigates both boys and girls.

One of the limitations of this study, that it includes primarily African Americans and thus is less generalizable to other groups, is another of its strengths. Recent studies have begun to suggest that the link between harsh parenting and children's behavior problems is qualitatively different in African American families than in Caucasian families (Deater-Deckard & Dodge, 1997). However, this finding has not been well-

replicated, and has not been investigated with younger children. The current study investigated how parenting and child variables relate within an African American culture in the Deep South. Findings indicate that, similar to studies done with EA samples, harsh parenting among AA families has comparable effects in this young age group, with negative parenting leading to children's greater externalizing behavior. Moreover, results suggest that supportive parenting has the expected positive effect on children's emerging social competencies. However, the literature cited above seems to suggest that somewhere along the line in development, the relationship among these variables may change for EA and AA families. Future research is needed to better understand the interplay of development, SES, and race as they impact children's behavior.

Finally, this study looks at the relation between child temperament, parenting and child behaviors in a way that is less contaminated by rater bias, as is seen in many previous studies. Commonly, studies have included mothers' ratings of their own parenting, child's temperament and/or externalizing as the primary or sole indictor of those measures (e.g. O'Leary, Slep & Reid, 1999). In this study, in addition to maternal report, observational ratings provide independent measures of children's temperament and mothers' parenting. Further, as mentioned previously, microsocial coding allows additional information on parent-child interaction processes that make findings more amenable to future intervention planning. That is, minute-by-minute analysis of process allows the possibility of identifying a threshold at which behaviors cross into becoming more problematic in promoting children's externalizing behaviors.

For the current study, mothers who responded to their children's noncompliance with harshness contributed to the shaping of their child's externalizing behavior. Since this behavior was identified as part of a cause-effect loop very early on in development, intervention can be targeted directly at disempowering the negative loop, and thus, neutralizing the potential deleterious effect of habitual mother-child negative interactions.

*Study Limitations*

The hypotheses discussed previously have focused on the mother-child relationship because original data collection included only mothers and children. This does not minimize the impact of the father-child relationship on child outcome or the importance of understanding the contributions that both parents make jointly to children's development. The mother-child relationship is worth studying in this sample, given that the majority of mothers are single parents and are the primary caregivers to their children.

Another limiting factor is the sample size. Multiple regressions were used to analyze the data. Since the sample is constrained to 55 dyads at Wave 1 and 36 at Wave 2, it is possible that the assumptions of multivariate normality may be violated. While the relationship between various independent variables and predicted Y is expected to be linear and fairly heteroscedastistic, the sample is not random, hence findings must be treated with caution. In the present case, the probability of making a Type I error is not exactly known, but it is assumed that this probability is close to the level of significance ($p \leq .05$). It is clear that most research studies are, at best, dealing

with approximate inferential tests. Consequently, research should be concerned with the replication of findings with larger, more random samples.

Finally, the sample size also limits the addition of other, potentially important predictors of early externalizing, for example, neighborhood (Ingoldsby & Shaw, 2002), parental depression (Zahn-Waxler, Iannotti, Cummings, & Denham, 1990), interparental conflict (Ingoldsby, Shaw, Owens & Winslow, 1999), parenting hassles (Crnic & Greenberg, 1990), genetic risk (O'Connor, Deater-Deckard & Fulker, 1998) and family history of psychopathology, as well as child characteristics such as attention deficits, hyperactivity or developmental delays (Shaw, Owens, Giovanelli, & Winslow, 2001). However, this study provides information on the variables that, although basic, are primary in the conceptualization of powerful influences on externalizing behavior in young children, and thus, are worth investigation.

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*Appendix A: Microsocial observational parent codes for harsh parenting*

| Microsocial code | Description | Examples |
|---|---|---|
| Negative physical | Unwelcome physical contact | * taking objects from child<br>* slapping child<br>* Physically forcing compliance |
| Restrictive commands | Tells child what not to do | * "Stop kicking those!"<br>* "Don't step on the car!"<br>* " Don't touch that!" |
| Criticism | Demeaning statements | * "You're so stupid!"<br>* " You keep getting it wrong!"<br>* "That was mean." |

*Appendix B: Microsocial observational parent codes for supportive parenting*

| Microsocial code | Description | Examples |
|---|---|---|
| Positive physical | Physical affection or Soothing | * Hugging<br>* Accepting a bid for a hug<br>* Kissing |
| Why explanation | Tells child why to do or not do something | * "It's time to cleanup"<br>* "If you throw that, it could break."<br>* " The lady wants us to play with this." |
| Positive reinforcement | Praises, encourages, or acknowledges child behavior | * "good job!"<br>* " Yay!"<br>* "You got it right!" |

*Appendix C: Microsocial observational codes for child compliance and noncompliance*

| Microsocial code | Description | Examples |
|---|---|---|
| Compliance | Carrying out any maternal command | * Handing a toy to mother after she says," Give that to me."<br>* Dropping stack of cups into toy bin<br>* Freezing in place when mother shouts, "Stop!" |
| Noncompliance | New behavior in response to maternal command that goes against the command | * Child throws toys at wall after mother says, "Put those in the the bin<br>* Child walks away after mother shouts, "Clean them up, now!"<br>* Child spits at mother after she she says, "Give me that car."<br>* Child starts dancing withmaracas after mother says, "Leave those in the bin." |
| Restrictive commands | Tells child what not to do | * "Stop kicking those!"<br>* "Don't step on the car!"<br>* " Don't touch that!" |
| Criticism | Demeaning statements | * "You're so stupid!"<br>* " You keep getting it wrong!"<br>* " That was mean." |

# Vita

Sandra H. Henderson was born in Somerset County in New Jersey. She received a Bachelor of Arts degree in English and Psychology from the University of Richmond in May 1984. She received a Master of Arts in Child Development from Catholic University in May 1989 and a Doctor of Philosophy in Child Development from Catholic University in May 1991. She lives with her husband and three children in Richmond, VA.