

TEMPERAMENTAL AND PARENTING INFLUENCES ON BEHAVIOR
PROBLEMS IN RURAL, AFRICAN AMERICAN CHILDREN

by

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(Under the direction of Dr. Gene Brody)

This study examined links among difficult temperament, harsh parenting, self-control, and behavior problems among rural, African American, single-parent families. I examined the mediating role of self-control and the moderating roles of temperament and parenting on self-control and behavior problems. Temperament was assessed using the Temperament Assessment Battery (TAB: Martin, 1984). Parenting was assessed using the Interactive Behavior Questionnaire (IBQ: Prinz, Foster, Kent, & O'Leary, 1979) and Ineffective Arguing Inventory (Kurdek, 1994). Child self-control was assessed using the Children's Self-Control scale (Humphrey, 1982), and behavior problems were assessed using the Child Behavioral Checklist (CBCL: Achenbach; 1991). The results revealed that self-control mediated the link between harsh parenting and difficult temperament at Wave 1 and behavior problems at Wave 3. Harsh parenting, difficult temperament, and gender did not moderate the links among parenting, temperament, self-control, and behavior problems. Relatively high and relatively low groups analyses revealed differing impacts of parenting and temperament.

INDEX WORDS: African American, Temperament, Parenting, Self-Control, Behavior Problems, Teacher ratings, School-age children, Gender Differences

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CHAPTER 1

REVIEW OF THE LITERATURE

The main goal of socialization is to teach children to regulate their own behavior. Parents must teach self-control in the contexts of their children's temperaments and many environmental factors. Although much of the recent research on child behavior problems focuses on this interplay between child temperament and the environment, little information is available about those relationships among African American children during middle childhood. In this study, I will examine child temperament, parenting style, child self-regulatory ability, and behavior problems in a sample of rural, African-American children living in single-parent households.

Temperament

Rothbart and Bates (1998) defined temperament as "inherent, constitutionally-based individual differences in emotional, motor, and attentional reactivity and self-regulation" (p. 109). Most theories of temperament stress its biological bases, influenced by genetic inheritance, maturation, and experience. According to Rothbart and Bates, reactivity and self-regulation are "umbrella" terms for psychological processes related to temperament. The processes identified vary among particular theories, ranging from specific constructs such as cardiac reactivity to general ones such as negative emotionality.

Nine temperament dimensions emerged from one of the earliest studies on temperament, the New York Longitudinal Study: infant activity level, approach/withdrawal, adaptability, mood, threshold, intensity, distractibility, rhythmicity, and attention span/persistence (Thomas, Chess, Birch, Herzig, & Korn, 1963). Digman (1989) later condensed these dimensions into the "Big Five" factors of extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. Rothbart and Bates (1998) examined several established temperament dimensions and condensed them into six representative facets for use in future research: fearful distress, irritable distress, positive affect, activity level, attention span/persistence, and rhythmicity.

The temperament factors in the present study are based on Martin's (1984) temperament factors of activity level, emotionality, and manageability. Children high in activity tend to engage in frequent, vigorous gross motor movement, have shorter attention spans, and persist less on difficult tasks. Children high in emotionality vigorously express their feelings, especially negative ones, and are difficult to distract from inappropriate behavior. Children high in manageability are easier to distract from inappropriate behavior.

In the current study, I focus in part on the concept of self-regulation, or self-control, and the role it plays in children's behavior. Rothbart (1989) viewed reactivity and regulation as the two main facets of temperament. Reactivity involves the arousability of motor activity, affect, and so forth; it is balanced by self-control, the processes that modulate reactivity. Attentional control, behavior inhibition, approach/avoidance, and volitional control are all expressions of self-control.

Children's genetically determined temperament characteristics can be shaped by environmental factors to influence the children's ability to regulate their own behavior. Poor self-regulatory ability puts children at risk for developing behavior problems. For example, Caspi, Henry, McGee, Moffitt, and Silva (1995) established links between lack of control and both internalizing and externalizing behavior problems, and Bates, Pettit, Dodge and Ridge (1998) found associations between impulsivity and externalizing behaviors. I therefore focused on child self-regulatory ability as a predictor of future behavior problems, specifically externalizing behaviors.

Different combinations of temperament characteristics have been implicated in the development of externalizing behavior problems, depending on the author's conception of difficult temperament. The list of temperament characteristics implicated includes high activity and low positive mood levels (Wills, DuHamel, & Vaccaro, 1995); low agreeableness, high neuroticism, and low conscientiousness (Harpur, Hart, & Hare, 1991); early-onset aggression, overactivity, impulsivity, and noncompliance (Campbell, Pierce, Moore, Marakovitz, & Newby, 1996); temperamental resistance to control (Bates et al., 1998); "difficult" temperament in the form of lack of control, irritability, distractibility, approach, and sluggishness (Caspi et al., 1995); and "difficult" temperament in the form of low approach, slow adaptability, irregular biological rhythmicity, high emotional intensity, and frequent negative mood (Guerin, Gottfried, & Thomas, 1997; Lerner & Vicary, 1984; Thomas & Chess, 1977; Windle, 1991). Although it is not known exactly how temperamental traits such as these may promote future behavior problems (Rothbart & Bates, 1998), Rothbart (1989) postulated that the

strength or weakness of the child's self-regulatory abilities plays a crucial role in translating temperamental traits into behavior.

Self-control

Wills, Sandy, and Shinar (1999) found that self-control mediated the relationship between certain temperamental traits and drug use. They hypothesized that the ability to exercise good self-control was linked to better outcomes because of better ability to plan activities and avoid problematic situations. In turn, poor self-control was linked to worse outcomes because of impulsivity and difficulty inhibiting behavior. Their study identified temperamental traits and established good and poor self-control as contributors to the behavioral expression of those traits. In the present study I follow their logic to examine the possible role of self-control in the associations among temperament, parenting, and behavior problems over time.

Self-control grows in increments as part of a child's natural development. Control of attention, the tendency to approach or withdraw, emotional tone, behavioral inhibition, and volitional control are aspects of control that develop during infancy. Later development draws more heavily on parental influence.

The maturation of attentional mechanisms is the first critical element of self-regulatory ability (Rothbart & Ahadi, 1994). The brain's attentional-orienting network matures around the third month of life, after which children with good cue-processing abilities and consequent good attentional control can change their levels of arousal by disengaging attention from distressing stimuli (Rothbart & Ahadi, 1994). The ability to disengage from a distressing stimulus is a major factor in infant self-soothing ability,

because infants who are better able to focus their attention are also better able to modulate their negative emotionality (Kochanska, Coy, Tjebkes, & Husarek, 1998; Rothbart, 1981).

By 4 to 6 months of age, infants show stable patterns of positive emotionality and sociability (Rothbart & Ahadi, 1994). These two factors are closely related to approach and activity level. Approach describes the level of activity with which infants explore their environments and, as a consequence, experience a wide range of people, objects, and events as pleasurable and safe. Individual differences in emotionality also are related to infants' sensitivity to reward. A child high in negative emotionality may be highly sensitive to punishment and experience a great deal of distress. In contrast, a child high in positive emotionality may be highly sensitive to reward (Rothbart & Bates, 1998). Children high in negative emotionality therefore may avoid potentially punishing approach behaviors and engage in avoidance behaviors. Children high in positive emotionality may experience difficulty inhibiting behaviors they enjoy and exhibit more approach behaviors. Emotionality can, therefore, either hinder or facilitate children's ability and willingness to follow parental instructions (Gray, 1982). Coupled with low sensitivity to punishment and a low level of social agreeableness, high sensitivity to intrinsic reward can contribute to low manageability, a precursor of behavior problems (Bates et al., 1998).

Other aspects of a child's natural emotional tone play a role in attentional control. Children who experience high emotional reactivity or habitually negative emotional tone may be easily overwhelmed and unable to process cues appropriately. These tendencies can interfere with the learning of appropriate social behavior.

Wachs and Gandour's (1983) findings support this idea. Mothers' ratings were used to classify infants as temperamentally "easy" or "difficult." Observers also rated the amount of physical and social stimulation in the infants' home environments. Infants with different temperaments responded differently to similar environmental stimuli, which were present in all the infants' homes. For example, temperamentally easy infants responded positively to social interactions, whereas difficult infants responded negatively. Wachs and Gandour (1983) concluded that the difference lay in neurophysiological differences between easy and difficult infants, which enabled easy infants to deal with the environmental stimulation better than the difficult infants could. Wachs and Gandour further speculated that overarousal in difficult infants may prevent them from attending to important environmental input, thereby fostering behavior problems.

At around 7 to 8 months of age, infants begin to display behavioral inhibition in response to novel objects, even if they were quick to approach novel objects in the past (Rothbart & Ahadi, 1994). Behavioral inhibition may be the beginning of anxiety, which, according to Gray's (1987) model of anxiety, reacts with differential sensitivity to in response to learned signals of punishment, novelty, and nonreward. Temperamentally fearful children are more likely than are less fearful children to inhibit behavior in response to novel objects (Rothbart, 1988). According to Newman's construct of response modulation (Patterson & Newman, 1993), behavioral inhibition arises from the processing of peripheral cues. Children's natural sensitivity (or insensitivity) to cues can affect their ability to perceive and process cues about consequences. When they can foresee a negative consequence, children are more likely to inhibit an action. Children

who are better able to understand cues about the consequences of their actions, therefore, are more likely to behave in a socially acceptable manner.

At the end of the first year, innate attention-regulatory mechanisms develop into a higher form of voluntary control with a cognitive component. Prior to 8 or 9 months of age, infants have difficulty resisting an impulse to reach for an object behind a Plexiglas barrier. After that age, however, they are able to coordinate attention and movement to reach around the barrier (Diamond, Towle, & Boyer, 1994). Their developing ability to act in a means-end fashion is the beginning of learning socially appropriate behavior (Bronson, 2000).

As children grow, they develop greater control over their own thoughts and behaviors. By 3 to 5 years of age, children have developed sufficient inhibitory power and working memory to enable them to inhibit activity and to comply with complex instructions (Bronson, 2000). They also use language to regulate their own behavior via self-speech, which allows them to organize their thoughts and memories in a way that also helps them to structure their actions (Barkley, 1997; Berk, 1992; Bronson, 2000). As children's nervous systems mature, and as they begin to understand their emotions and the consequences of acting on those emotions, their ability to regulate their own emotions improves as well (Zahn-Waxler, Klimes-Dougan, & Slattery, 2000). The social environment is a strong influence at this age. For most children, parents and teachers are the chief models of positive behaviors, whereas peers and the media (for example, violent television programs) tend to model more undesirable behaviors (Bronson, 2000). Children at this age are changing from primarily external control, dependent upon reactions to the environment, to internal control, driven by their own understanding of the

consequences of their behavior. Nonetheless, the environment continues to be a strong influence on the development of self-control (Bronson, 2000).

From 6 to 8 years of age, children are consciously aware of their own self-regulatory skills and can learn direct strategies for controlling their behavior (Berk, 1992). Their self-speech becomes more internalized, and they become more responsible and aware of their actions and thoughts (Berk, 1992). A consistent, supportive environment is critical during this time in shaping prosocial behavior. School and peer associations become more central and the home environment's relative influence decreases (Bronson, 2000). Children at this age translate their experiences into generalized cognitive models for self-guidance (Rudolph, Hammen, & Burge, 1995) that affect their own behavior and their perceptions of others' behavior. These perceptions guide their expectations about the environment and their own abilities (Bronson, 2000). At later ages, their growing ability to make plans and follow through add to their repertoire of self-regulatory abilities (Brody et al., 2001).

The specific temperament dimensions measured in the current study are activity level, emotionality, and manageability. They affect the development of tendencies related to self-control, including the ability to engage and disengage attention, approach/withdrawal, behavioral inhibition, sensitivity to reward and punishment, and the ability to direct one's own behavior. Nevertheless, environmental variables, particularly parenting, also play a critical role in shaping the child's behavior (Bates et al., 1998). The parenting variable that is probably most relevant in facilitating child self-control is responsiveness to the child, which is influenced by both parent and child characteristics.

Parenting behaviors that promote good self-control

Parenting that encourages good self-control and good behavior involves motivating a child to exhibit good behavior and monitoring the child to promote and reinforce that good behavior. One crucial aspect of parenting is parental responsiveness, which is the parent's tendency to give attention, affection, and respect to the child. A parent's understanding of and respect for the child's temperament and abilities may be the most important aspect of effective parenting (Grusec, Goodnow, & Kaczynski, 2000). Pettit, Bates, and Dodge (1997) called this sensitive parenting and defined it as mother-to-child warmth, proactive teaching of social skills, inductive disciplinary techniques, and positive involvement and interest in the child's peer activities. This kind of supportive, involved parenting appears to be consistently correlated with child competence, even in the presence of family adversity. Zahn-Waxler, Iannotti, Cummings, and Denham (1990) called it proactive parenting, which includes respectful control, structure and organization for peer interaction, and consideration for the child's point of view. In their study, it was associated with a decrease in behavior problems across time during early childhood. Monitoring is especially important in order to prevent the association with deviant peers and involvement with delinquent activities (Patterson, DeBaryshe, & Ramsey, 1989; Brody et al., 2001). I measured this aspect of parenting in the present study with the construct of supportive, involved, and vigilant parenting as measured by the Interactive Behavior Questionnaire (IBQ: Prinz, Foster, Kent, & O'Leary, 1979) and the Monitoring Questionnaire (Patterson & Stouthamer-Loeber, 1984).

Supportive, involved, and vigilant parenting promotes the development of self-regulatory skills for several reasons. It creates a positive parent-child relationship that

motivates the child to exhibit good behavior, and it helps the child to develop a sense of right and wrong without arousing overwhelming negative emotions.

Parents can influence the development of self-regulatory tendencies by creating a mutually responsive orientation in which parent and child share affectively positive, cooperative interaction (Eisenberg, Fabes, & Murphy, 1996). Children in this kind of family relationship feel motivated to please their parents and exercise inhibitory control to maintain positive relationships with them (Kochanska, 1997). They are more likely to develop a positive sense of self and have better self-control (Sroufe & Fleeson, 1986). Mutually positive affect encourages children to identify with their parents and results in better internalization of parental rules. It fosters good self-control even under adverse environmental conditions and may predict committed compliance, in which children willingly follow parental instructions (Brody & Flor, 1997; Kochanska, 1995).

Supportive, involved, and vigilant parenting also encourages the development of conscience, which results in the desired self-control and prosocial behavior. Kochanska and colleagues (Kochanska, 1991; Kochanska, Murray, Jacques, Koenig, & Vandegest, 1996) proposed two temperamental systems that facilitate the development of conscience: the passive system, which includes anxiety, shyness, fearfulness, and inhibition to the unfamiliar, which contributes to feelings of discomfort associated with wrongdoing; and the active system, which involves effortful impulse control that strengthens self-control. The processes associated with the active system, which involve refraining from committing infractions and substituting acceptable actions for unacceptable behaviors, constitute Kochanska's definition of self-control (1991). Parents help children to develop self-control by providing consequences for misbehavior and by explaining the reasoning

behind those consequences at a developmentally appropriate level. From this support and guidance in the development of conscience, children begin to develop inner control over their actions.

Good parenting must also be sensitive to children's temperament. Kochanska (1997) found that maternal discipline that was strong enough to induce optimal anxious arousal and gentle enough to prevent the arousal from becoming excessive was associated with optimal internalization of parental rules among more fearful children. In contrast, less fearful children internalized parental rules as a function of their attachment security. Parenting that limits anxious arousal probably protects temperamentally at-risk children from developing internalizing disorders and the type of negative cognitive style that fosters depression. Part of limiting anxious arousal may involve limiting negative emotion directed at the child. In one study (Miller, Cowan, Cowan, Hetherington, & Clingempeel, 1993), positive parental emotion was associated with low levels of child behavior problems, while in other studies, negative parental emotion was associated with children's negative emotionality and low social competence (Eisenberg, Cumberland, & Spinrad, 1998) and children's internalizing and externalizing behaviors (Wertlieb, Weigel, Springer, & Feldstein, 1987). Supportive parenting also promotes self-control by teaching children ways in which to cope effectively with negative emotions (Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991), which is probably especially important for children high in negative emotionality or fearfulness. Eisenberg, Fabes, and Murphy (1996) found that children of sympathetic parents tended to be sympathetic to others' distress without becoming overly upset themselves; thus, they were more likely than children of unsympathetic parents to be helpful to other children in distress. Their

parents encouraged good emotional control by fostering children coping skills and by accepting, rather than minimizing or punishing, negative emotions. These children learned to feel competent and learned how to express their negative emotions appropriately, thus preventing them from turning their anger on themselves or others.

Other studies on the links between parenting and temperament have conflicting results. Several studies have linked supportive parenting to a decrease in inhibition among children up to two years of age (Belsky, Fish, & Isabella, 1991; Engfer, 1993; Matheny, 1986), while other studies have linked supportive parenting to an increase in child inhibition (Arcus, Gardner, & Anderson, 1992; Park, Belsky, Putnam, & Crnic, 1997). This finding may actually illustrate the differing impact of parenting on children with different temperaments. Supportive parenting that results in decreased inhibition may foster good emotional and behavioral control to less fearful or emotionally negative children. Supportive parenting that results in increased inhibition may in fact overarouse children's emotions or fail to teach the appropriate skills in self-control. In a different study, Carlo, Roesch, and Melby (1998) found that low levels of both anger and sociability among adolescents were indirectly linked, through highly supportive parenting, to low levels of aggression and antisocial behavior. Highly supportive parenting, however, did not mitigate the links from high levels of anger and low levels of sociability to high levels of aggression. It is possible that supportive parenting in this case failed to address the child's negative emotionality in encouraging the development of self-control.

Parenting behaviors that promote poor self-control

Environmental factors that can contribute to behavioral, academic, and emotional problems include early deprivation in the form of low socioeconomic status, changes in the number and identity of caregivers, overcrowding in the home, residence changes, and single-parent family structure (Henry, Caspi, Moffit, & Silva, 1996). Parenting factors such as parental psychopathology, criminality, punitiveness, and general harsh parenting are also influential (Crockenberg, 1987; Farrington, 1989; Maziade et al., 1985).

Parenting that involves aversive parenting behaviors and low levels of monitoring appears to exert a consistently negative impact on children's self-control and behavior (Patterson et al., 1989). Children of unsupportive parents tend to display externalizing behavior problems, including defiance, destructive behavior, tantrums, and impulsivity (Denham et al., 2000). They are aggressive toward their peers (Strassberg, Dodge, Pettit, & Bates, 1994), angry, and noncompliant toward their parents and other adults (Crockenberg, 1987; Patterson et al., 1989). Among the many variables associated with behavior problems, parenting behavior is probably the most important environmental contributor (Bates, et al., 1998).

Reactive parenting, characterized by anger, excessive prohibitions, shouting, and physical discipline, has been found to exacerbate conduct problems (Zahn-Waxler et al., 1990). Such parenting, which features little involvement, few positive affectional ties, and harsh discipline, strongly predicts later behavior problems (Nix et al., 1999; Pettit et al., 1997) and is extremely different from the supportive, involved, and vigilant parenting discussed in the previous section. Ineffective, harsh parenting is another contributor to externalizing behavior problems. Maziade and associates (Maziade, Capéreaà, et al.,

1985; Maziade, Caron, et al., 1990) found that children who had difficult temperaments at 7 years of age experienced more clinical disorders at 12 years of age if they lived in dysfunctional rather than well-functioning families. These children tended to be oppositional at home but worried, unhappy, and solitary at school. Campbell et al. (1996) found negative maternal control to mediate the relationship between family stress and children's externalizing behavior problems.

A lack of supportive, involved, and vigilant parenting may foster behavior problems by interfering with the development of the positive parent-child relationship that encourages prosocial behavior and self-control. It may also contribute to poor child emotional control and may actually escalate and reward inappropriate behavior.

One major role poor parenting may play in the development of behavior problems is in the disruption of positive parent-child relationships and their many benefits. Securely attached children trust their caregivers and develop feelings of self-worth, whereas insecurely attached children are less trusting and may experience low self-esteem (Bretherton, 1985). Secure attachment fosters social competence and enhances cognitive development (Bates, Olson, Pettit, & Bayles, 1982; Crockenberg, 1987). The quality of a child's attachment to the primary caregiver influences the child's later relationships and behavior (Thompson, 1993). Therefore, insecure attachment created by an unsupportive parent-child relationship may result in little motivation to please the parent as well as inadequate skills in self-control. Social learning theory (Patterson et al., 1989) also predicts that parenting that fails to provide emotional support deprives children of a primary source of socialization in values and prosocial behavior, making them more likely to engage in antisocial behavior (Brody et al., 2001).

Unsupportive parenting may also contribute to children's inability to regulate negative emotions and as such strongly influence their development of behavior problems. Children with better emotional control tend to respond in a more socially appropriate manner even in highly emotional situations with peers (Fabes et al., 1999). Dealing with negative emotions is particularly difficult for children who are temperamentally at risk, because such situations often require children to control very strong, long-lasting feelings in a variety of social settings (Denham et al., 2000). Unsupportive parenting not only provides few opportunities for children to learn socially appropriate ways to express negative emotions, it may actually encourage hostility and externalizing behavior problems (Eisenberg, Fabes, Schaller, et al., 1991; Pettit et al., 1997).

The reaction of parents to children's temperament is an important variable in the impact of poor parenting behavior on children's self-control. Ideally, a sensitive caregiver will provide responsive care to any child (Thompson, 1993). Some caregivers, however, have difficulty in responding positively to children who are highly reactive, difficult to soothe, and erratic in their sleeping and eating patterns (Rothbart & Ahadi, 1994). In one study, mothers responded more negatively to children who they perceived to be higher in negative emotionality or lower in the ability to regulate attention (Eisenberg & Fabes, 1994). Caregivers may ignore temperamentally difficult children more often over time, prompting these children to develop ways to soothe themselves without the caregiver's help. This results in avoidant attachment (Bretherton, 1985) and may interfere with the child's internalization of parental values, as discussed previously (Kochanska, 1997). Parents may also act according to their children's gender, as will be

discussed in the next section. These negative parent reactions to children's temperament exacerbate the already-negative effects of the child's temperament alone.

Another aspect of unsupportive parenting that interferes with self-control is the use of coercion. Parents who use coercion encourage hostility, which interferes with children's development of internal motivation to follow parental demands (Pettit et al., 1997). In the coercive cycle, family members inadvertently train children to escalate their antisocial behaviors. Parents do not consistently reward prosocial behavior or punish antisocial behavior, resulting in frequent inappropriate behavior to which parents respond with coercive measures. In these circumstances, children learn escape-conditioning contingencies in which they intensify their own aggression to terminate aversive interactions with other family members. These children exhibit many antisocial and few prosocial behaviors; experience school failure, peer rejection, and mood disorders; and associate with deviant peers (Patterson et al., 1989).

Influence of gender on parenting and temperament factors

Certain parenting behaviors and temperamental traits have been demonstrated to coincide with poor child self-control and externalizing behavior problems. However, parents' treatment of children and the temperamental traits that foster behavior problems have been shown to vary by child gender. For example, Klein (1984) found that mothers gave more physical contact to boys with high emotional intensity than to boys low in emotional intensity. These mothers also gave more distal, vocal stimulation to girls with high emotional intensity than to girls low in emotional intensity. Rendina and Dickersheid (1976) found that fathers engaged in more social activities with difficult

boys than with easy boys. These fathers were less involved with difficult girls than with easy girls. In another study, mothers made less vigorous teaching efforts with difficult sons but not with easy sons, and they made more vigorous teaching efforts with difficult daughters but not with easy daughters (Maccoby, Snow, & Jacklin, 1984).

A few temperament traits have been linked to behavior problems differently according to child gender. For example, early approach to new objects and people predicts subsequent externalizing behaviors among boys but not girls (Caspi et al., 1995). Sluggishness, which involves a combination of low positive affect, passivity, and wariness toward novel experiences, predicts both internalizing and externalizing behaviors among girls but not boys. It also predicts a lack of positive competencies among children of both genders. In another study, a combined rating of difficult temperament at 1 year of age and parenting problems at 3 years of age predicted child behavior problems, but only for girls (Cameron, 1978). Low manageability, which involves high activity level, early impulsivity, lack of self-control, irritability, and distractibility, is probably the most significant predictor of behavior problems in both genders (Caspi et al., 1995; Hagekull, 1994). Defined by Bates et al. (1998) as resistance to control, low manageability also involves strong attraction to rewarding stimuli and low social agreeableness.

It is unclear whether the development of behavior problems is the same among girls and boys, since much of the existing research has focused on behavior problems among boys (Kim, Hetherington, & Reiss, 1999). Boys tend to develop aggressive behaviors during elementary school, while girls tend to develop these behaviors during adolescence (Loeber & Stouthamer-Loeber, 1998). Girls' antisocial behaviors also tend

to be more indirect and verbal than boys', and they more often occur alongside other disorders such as attention deficit hyperactivity disorder or alcoholism (Kim et al., 1999). There is some evidence that parental caregiving and disrupted family relationships affects boys more strongly than girls and are more closely linked to externalizing behaviors in boys than in girls (Harold & Conger, 1997; Kim et al., 1999; Rothbaum & Weisz, 1994). However, research on gender differences is inconsistent and unclear (Kim et al., 1999), and as such the influence of gender was included but controlled for in the present study.

Rothbart and Bates (1998) suggested a way in which parenting may influence the expression of child temperament, in this case negative affectivity. They maintained that, if two children with the same temperamental style experience different degrees of stress, their subsequent responses to stress may differ. In addition, Wachs (1994) stated that children whose temperaments elicit "stabilizing" responses are more likely to retain those temperamental characteristics over time. Given a difficult temperament, or high negative affectivity, unresponsive parenting can act as a stressor that perpetuates the negative affectivity. In an environment in which stress on the child is moderate, he or she will become better adjusted, whereas in an environment in which stress is severe, the child will become poorly adjusted. Accordingly, children who display less negative affectivity will fare better in both high- and low- stress situations than will children who experience more negative affectivity.

Rothbart and Ahadi (1994) view temperament as a developing construct that is influenced by both experience and maturation. In the context of a supportive parent-child relationship, children of all temperaments may acquire the tools necessary to develop their self-regulatory ability, including coping and social skills. Factors that interfere with

the acquisition of these tools, such as family stress, difficult temperament, and unsupportive parenting, foster the development of behavior problems.

Hypotheses

I propose two sets of hypotheses. First, I propose that, in the current sample of African American families, Self-Control will mediate the relationship between Difficult Temperament and Behavior Problems over time and between Harsh Parenting and Behavior Problems over time.

Second, I propose two moderating hypotheses: first, I propose that Difficult Temperament will moderate the relationship between Harsh Parenting and Self-Control and between Harsh Parenting and Behavior Problems in these families over time. When temperament is difficult, Harsh Parenting will be linked to Self-Control. The links from Harsh Parenting to Self-Control will be stronger for boys than for girls. Second, I propose that Harsh Parenting moderate the relationship between Difficult Temperament and Behavior Problems in these families over time. When parenting is harsh, Difficult Temperament will be linked to Behavior Problems. The links from Harsh Parenting and Difficult Temperament to Behavior Problems will be stronger for boys than for girls.

CHAPTER 2

METHOD

Participants

139 African American single-mother-headed families with an 11-year-old target child were recruited from nonmetropolitan counties in Georgia. According to the U.S. Bureau of the Census, nonmetropolitan counties may include urbanized areas with populations of 20,000 or less. Only counties in which 25% or more of the population was African American were sampled to ensure that a viable African American community existed in the county. Families were recruited through community contacts. An African American staff member contacted African American community members, such as pastors and teachers, and explained the research project to them. After community members understood the purposes of the project and developed trusting relationships with the staff member, the community members contacted prospective participant families and informed them about the project. Each community contact gave to the research staff member the names of families who expressed interest in the project, and the staff member contacted the families. Each family was paid \$100 for their participation in the study.

The mean family per capita income for the sample was \$2,568, with 82% of the families earning a per capita income of \$3,300 or less. This, according to criteria established by the Census Bureau (U.S. Bureau of the Census, 1992), placed them in the first quintile for household income, which the bureau defines as poverty status. Slightly

more than half of the mothers had less than a high school education, 34% had received a high school diploma, and 8% had completed an associate of arts or bachelor's degree; 41% of them were employed. Total family annual income ranged from \$2,532 to \$62,412, and annual per capita income ranged from \$636 to \$9,648.

To enhance rapport and cultural understanding, African American students and community members served as home visitors to collect data from the families. Prior to data collection, the visitors received 1 month of training in administering the self-report instruments and conducting the observational procedures. The instruments and procedures were developed and refined with the help of a focus group of 40 African American community members who were representative of the population from which the sample was drawn. This focus group and its activities have been described in detail elsewhere (Brody & Flor, 1997, 1998; Brody & Stoneman, 1992; Brody, Stoneman, & Flor, 1995, 1996a, 1996b; Brody, Stoneman, Flor, McCrary, Hastings, & Conyers, 1994).

Procedure

Three waves of data collection were conducted at 1-year intervals. During each of the waves, two home visits, each lasting 2 hours, were made to each family within a 7-day period. During the first visit, informed consent forms were completed. The mother consented to her own and her child's participation in the study. The mother also provided the name and location of the child's school and authorized the child's teacher to provide the researchers with information concerning the child's functioning at school.

At each home visit, self-report questionnaires were administered to the mother and child in an interview format. Each interview was conducted privately between each

family member and a researcher, with no other family members present or able to overhear the conversation. At no time during the presentation of the self-report measures did the researchers assume that a family member could read. This literacy concern was one of the reasons for presenting the questionnaires in an interview format. When responses to a Likert-type scale were required, the family member was shown a card with a series of dots in graduated sizes that corresponded to the magnitude of the responses from which he or she was to choose, and was asked to indicate his or her feelings using the dots on the card.

Measures

At Wave 1, the mothers completed scales relating to their parenting practices and teachers rated the children's temperaments. The children's Wave 2 teachers reported on the children's self-control, and the Wave 3 teachers reported on the children's externalizing behavior problems. Because of the children's progression through school grades, different teachers rated their temperaments, self-control, and behavior problems at each of the three waves.

Wave 1: Child's temperamental activity level, emotionality, and manageability; involved, supportive, and vigilant parenting; ineffective parent-child communication
Teacher rating of child temperament.

The Temperament Assessment Battery (TAB) (TAB: Martin, 1984), which is based on the work of Thomas and Chess (1977), is appropriate for use with both preschool and school-age children. The Negative Emotionality subscale, for which a Cronbach's alpha of .83 and a 6-month test-retest reliability of .68 have been reported, was used in this

study. A child who is rated high on this dimension tends to express, with vigor, negative emotions such as anger and frustration and is difficult to distract from inappropriate behavior. Ratings on this subscale have been found to be related to classroom behaviors such as distractibility (Martin, Nagle, & Paget, 1983) and ease of management (Martin, 1984). Martin (1984) also reported moderate correlations across school and home contexts, as well as across a 1-year period.

A lack of involved, supportive, and highly vigilant parenting.

The Harsh Parenting measure was constructed using two scales consisting of three subscales (Table 2.1). The first scale was used to detect a lack of involved, supportive, and highly vigilant parenting using mothers' reports on the short form of the Interactive Behavior Questionnaire (IBQ; Prinz, Foster, Kent, & O'Leary, 1979) and the 17-item Monitoring Questionnaire (Patterson & Stouthamer-Loeber, 1984; Steinberg, Lamborn, Dornbusch, & Darling, 1992). The IBQ assesses the level of support and involvement that characterizes the parent-child relationship. The short form includes the items with the highest phi coefficients and the highest item-to-total correlations from the 75 items in the original form. It is correlated at .96 with the long form. The 15 true-false items in the short form include questions such as "You listen when your child needs somebody to talk to," "You understand your child," and "You think you and your child get along well." Cronbach's alpha for this scale was .85. The Monitoring Questionnaire assesses parents' knowledge about various areas of their children's lives, as well as the extent to which they try to influence their children's lives in those areas. Items such as "choice of friends, who they are, what they are like," "activities outside of school (e.g., sports, jobs, clubs, etc.)," "health habits, such as amount of sleep, diet, exercise," "use of tobacco or

cigarettes,” “who the child’s teachers are and what they think of him/her,” and “where child is and what s/he is doing when away from home” are rated on a 4-point Likert-type scale, ranging from 1 (never) to 4 (always). Cronbach’s alpha for this scale was .91.

Following a procedure that Brody and Flor (1998) used, the two scales were combined to derive the parenting score. Preliminary analyses indicated little difference between results using raw numbers and using standardized scores. Therefore, all scores were standardized for ease of analysis and clarity of results. The mothers’ IBQ and Monitoring Questionnaire scores were ranked from highest to lowest. Each distribution was divided into high (top third of the distribution), middle (central third) and low (bottom third) groups. A value of 3 was assigned to scores in the high groups, a 2 to scores in the middle groups, and a 1 to scores in the low groups. The values from the two distributions were added, yielding an overall parenting score for each mother. Scores ranged from 6 (high group in both distributions) to 2 (low group in both distributions). The combined involved, supportive, and vigilant parenting variable was then reverse-coded and standardized.

Ineffective parent-child communication.

The second Harsh Parenting indicator was the Ineffective Arguing Inventory (Kurdek, 1994), which was used to assess ineffective parent-child communication. For children and their parents, chronic enactment of the ineffective arguing pattern that the inventory indexes has been shown to promote more disengaged and hostile family relationships, as well as higher levels of externalizing and internalizing problems among the children (Conger et al., 1992; Rutter, 1990.) Each mother ($\alpha = .87$) rated the way in which parent-child arguments were handled. The ineffective arguing scale was then

Table 2.1

Intercorrelations Among Wave 1 Parenting Measures

Study Measures	1	2	3
1. Interactive Behavior Questionnaire (IBQ)	---		
2. Monitoring Questionnaire (MCQ)	.25**	---	
3. Destructive Arguing Inventory (DAI)	-.47**	-.44**	---

Note: * $p < .05$, ** $p < .01$

standardized and added to the reverse-coded involved, supportive, and vigilant parenting scale to create a single Harsh Parenting score.

Wave 2: Child self-control

Teacher rating of child self-control.

Child's self-control was assessed using the Self-Control and Lack of Self-Control subscales of the Children's Self-Control Scale (Humphrey, 1982), which in the present study were highly negatively correlated ($r = -.77, p < .001$). Each subscale includes five items that teachers rated on a five-point scale. Examples of items on the Self-Control subscale include: "thinks ahead of time about the consequences of his or her actions," "plans ahead before acting," "pays attention to what he or she is doing," and "works toward goals." Examples of items from the Lack of Self-Control subscale include: "talks out of turn," "has trouble keeping promises to improve his/her actions," and "knows when he/she is misbehaving without being told." Cronbach's alphas were .85 for the Self-Control subscale and .87 for the Lack of Self-Control subscale.

Both Self-Control and Lack of Self-Control were standardized. Lack of Self-Control was then reverse coded, and the two scales were summed to create a single measure of Self-Control.

Wave 3: Child aggressive, delinquent, and inattentive/anxious behavior problems

Teacher ratings of child behavior problems.

Three indicators made up the construct of externalizing behavior problems. The indicators were teachers' reports of externalizing problems using the Aggressive,

Delinquent, and Inattentive/Anxious Behavior subscales from the Child Behavior Checklist (CBCL; Achenbach, 1991). Each of these scales had a Cronbach's alpha that exceeded .70. Intercorrelation data for these scales in the present study may be found in Table 2.2. The Aggressive, Delinquent, and Inattentive/Anxious subscales were each standardized, and the three scores were added to create a single Behavior Problems score.

Data Analysis

Plan of Analysis

This study was designed to test two hypotheses: first, that Difficult Temperament and Harsh Parenting will be linked over time, both directly and indirectly through Self-Control, to children's Behavior Problems; and second, that Harsh Parenting will moderate the links between Difficult Temperament and Self-Control and between Difficult Temperament and Behavior Problems.

Path analysis using ordinary least squares procedures was used to test the first hypothesis. The second hypothesis was tested using hierarchical multiple regression. Because large sample sizes are required for detecting effects using this procedure (McClelland & Judd, 1993), it is possible that the hypothesized moderational analyses will not detect effects. To determine whether the hypothesized moderational effects may exist, correlations were executed between the study variables of interest (i.e. Harsh Parenting and Behavior Problems, Harsh Parenting and Self-Control, Difficult Temperament and Behavior Problems, Difficult Temperament and Self-Control) for families who were above or below the median on the moderational variables, Difficult Temperament and Harsh Parenting.

Table 2.2

Intercorrelations Among Wave 3 Behavior Problems Measures

Study Measures	1	2	3
1. Delinquent Behaviors	---		
2. Aggressive Behaviors	.79**	---	
3. Inattentive/Anxious Behaviors	.69**	.66**	---

Note: * $p < .05$, ** $p < .01$

CHAPTER 3

RESULTS

Descriptive Data

The means, standard deviations, and ranges for all study variables, for the total sample and separately by gender, are presented in Tables 3.1 and 3.2. Independent *t*-tests were conducted to determine whether significant gender differences existed for Difficult Temperament, Harsh Parenting, Self-Control, and Behavior Problems. The results are presented in Table 3.3. Significant gender differences emerged for three of the four observed variables at the .05 level of statistical significance. Teachers' reports showed that boys had significantly higher levels of Difficult Temperament than did girls ($t(127) = 3.47, p < .001$). There was no difference in the amount of Harsh Parenting received by gender ($t(153) = 1.09, p > .05$). Girls had significantly higher levels of Self-Control than did boys ($t(141) = -4.23, p < .001$). Boys had significantly higher levels of Behavior Problems than did girls ($t(121) = 4.41, p < .001$.)

Correlations

Table 3.4 presents correlations among study variables for the total sample. The variables were chosen to examine the relationships tested in Hypothesis 1, which states that Difficult Temperament and Harsh Parenting at Wave 1 will be linked both directly

Table 3.1

Means, Standard Deviations, and Ranges for Study Variables by Total Sample

<u>Variable</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>Range</u>
Total Sample				
Wave 1				
Difficult Temperament	129	0	2.68	-3.78 - 7.71
Harsh Parenting	155	0	1.73	-3.42 - 4.99
Wave 2				
Self-Control	143	0	1.88	-4.59 - 3.68
Wave 3				
Behavior Problems	123	0	2.70	-3.08 - 8.09

Table 3.2

Means, Standard Deviations, and Ranges for Study Variables by Gender

<u>Variable</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>Range</u>
Males				
Wave 1				
Difficult Temperament	65	.78	2.79	-3.79 – 7.71
Harsh Parenting	77	.15	1.62	-3.42 – 3.77
Wave 2				
Self-Control	72	-.62	1.93	-4.59 – 3.47
Wave 3				
Behavior Problems	56	1.09	2.99	-3.08 – 8.09
Females				
Wave 1				
Difficult Temperament	64	-.79	2.34	-3.77 – 7.60
Harsh Parenting	78	-.15	1.84	-3.42 – 4.98
Wave 2				
Self-Control	71	.63	1.61	-3.96 – 3.68
Wave 3				
Behavior Problems	67	-.91	2.04	-3.08 – 5.80

Table 3.3

t-Test Comparisons of Study Variables by Gender

Variable	<u>T</u>	<u>P</u>
Wave 1		
Harsh Parenting	1.09	.28
Difficult Temperament	3.47	.00***
Wave 2		
Self-Control	-4.23	.00***
Wave 3		
Behavior Problems	4.27	.00***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3.4

Intercorrelations Among Study Variables by Total Sample

Study Measures	1	2	3	4
Wave 1				
1. Difficult Temperament	---			
2. Harsh Parenting	.252**	---		
Wave 2				
3. Self-Control	-.450**	-.297**	---	
Wave 3				
4. Behavior Problems	.356**	.322**	-.511**	---

Note: * $p < .05$, ** $p < .01$

and indirectly via their link to Self Control at Wave 2 a year later to children's Behavior Problems at Wave 3 two years later.

Difficult Temperament at Wave 1 was correlated with Harsh Parenting at Wave 1 ($r = .25, p < .01$) and Behavior Problems at Wave 3 ($r = .36, p < .01$) and negatively correlated with Self-Control at Wave 2 ($r = -.45, p < .01$). Harsh Parenting at Wave 1 was negatively correlated with Self-Control at Wave 2 ($r = -.30, p < .01$) but positively correlated with Behavior Problems at Wave 3 ($r = .32, p < .01$). Self-Control at Wave 2 was negatively correlated with Behavior Problems at Wave 3 ($r = -.51, p < .01$). As expected, the Wave 1 variables of Harsh Parenting and Difficult Temperament were negatively correlated with Self-Control at Wave 2 and positively correlated with Behavior Problems at Wave 3. Self-Control at Wave 2 was also negatively correlated with Behavior Problems at Wave 3.

Table 3.5 presents the correlations among variables by gender. Among boys only, Difficult Temperament correlated positively with Harsh Parenting ($r = .25, p < .05$) and Behavior Problems ($r = .29, p < .05$) but negatively with Self-Control ($r = -.46, p < .01$). Harsh Parenting correlated negatively with Self-Control ($r = -.35, p < .01$) and positively with Behavior Problems ($r = .39, p < .01$). Self-Control correlated negatively with Behavior Problems ($r = -.48, p < .01$).

Among girls only, Difficult Temperament at Wave 1 correlated positively with Harsh Parenting ($r = .26, p < .05$) and negatively with Self-Control ($r = -.27, p < .05$). The correlation between Difficult Temperament and Behavior Problems approached but did not reach significance ($r = .25, p > .05$). Harsh Parenting correlated negatively with

Table 3.5

Intercorrelations Among Study Variables by Gender

Study Measures	1	2	3	4
Wave 1				
1. Difficult Temperament	---	.264*	-.266*	.254
2. Harsh Parenting	.253*	---	-.269*	.283*
Wave 2				
3. Self-Control	-.464**	-.347**	---	-.405*
Wave 3				
4. Behavior Problems	.292*	.392**	-.478**	---

Note: * $p < .05$, ** $p < .01$

Note: Lower triangle values represent male subjects; upper triangle values represent female subjects.

Self-Control ($r = -.27, p < .05$) and positively with Behavior Problems ($r = .28, p < .05$). And Self-Control correlated negatively with Behavior Problems ($r = -.41, p < .01$).

The correlations using the entire sample were consistent with the hypothesized relationships among the variables. Difficult Temperament and Harsh Parenting were negatively correlated with Self-Control and positively correlated with Behavior Problems. Self-Control was negatively correlated with Behavior Problems. As hypothesized, poor temperament and parenting are associated with poor ability to self-regulate and poor behavior.

The pattern of correlations was similar for the individual genders. For boys, Difficult Temperament and Harsh Parenting were negatively correlated with Self-Control and positively correlated with Behavior Problems. Self-Control was negatively correlated with Behavior Problems, as expected. For girls, Difficult Temperament and Harsh Parenting were negatively correlated with Self-Control. However, Behavior Problems were significantly correlated with Harsh Parenting but not with Difficult Temperament. The failure of this correlation to reach significance may be a result of the low sample size and resulting lack of power in this analysis. With this one exception, which approached significance, the results are consistent with hypothesized relationships. Poor temperament and parenting are associated with poor ability to self-regulate among both genders and poor behavior among boys.

Hypothesis 1: Path analysis

Based on the research hypotheses, a model was constructed illustrating the direct and indirect effects of Harsh Parenting and Difficult Temperament at Wave 1 on Self-Control at Wave 2 and Behavior Problems at Wave 3.

To establish mediation, three relationships must be significant: the relationship between the independent variable and the mediator, between the independent variable and the dependent variable, and between both the independent variable and mediator and the dependent variable. Perfect mediation occurs when the significant relationship between the independent and dependent variables disappears in the presence of the mediator.

Applied to the current study, the relationships among variables can be organized into three sub-hypotheses: first, that Harsh Parenting and Difficult Temperament at Wave 1 will explain the variation in Self-Control at Wave 2; second, that Harsh Parenting and Difficult Temperament at Wave 1 will explain the variation in Behavior Problems at Wave 3; and third, that an examination of the influence of Harsh Parenting, Difficult Temperament, and Self-Control on the variation in Behavior Problems at Wave 3 will identify Self-Control as the mediator among Harsh Parenting, Difficult Temperament, and Behavior Problems. Each hypothesis was tested with a separate ordinary least squares multiple regression analysis using the SAS program.

The first hypothesis, that Difficult Temperament and Harsh Parenting at Wave 1 would predict variation in Self-Control at Wave 2, was confirmed using multiple regression, with significant paths from both Difficult Temperament ($\beta = .40, p < .05$) and Harsh Parenting ($\beta = .22, p < .05$) to Self-Control (see Figure 3.1). The second hypothesis, that Difficult Temperament and Harsh Parenting at Wave 1 would predict

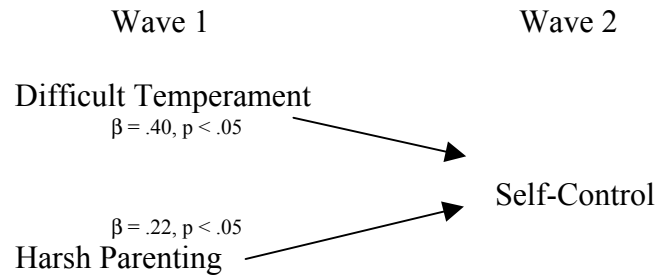


Figure 3.1. Multiple regression: Difficult Temperament and Harsh Parenting at Wave 1 are significantly related to Self-Control at Wave 2.

variation in Behavior Problems at Wave 3, was confirmed with significant relationships from Difficult Temperament at Wave 1 ($\beta = .29, p < .05$) and Harsh Parenting at Wave 1 ($\beta = .24, p < .05$) to Behavior Problems at Wave 3 (see Figure 3.2). The third hypothesis states that in the presence of Wave 1 Harsh Parenting and Difficult Temperament and Wave 2 Self-Control, only the relationship between Wave 2 Self-Control and Wave 3 Behavior Problems will attain significance. This hypothesis was also confirmed, with a significant relationship between Self-Control at Wave 2 and Behavior Problems at Wave 3 ($\beta = -.42, p < .05$), but nonsignificant relationships from Difficult Temperament ($\beta = .18, p > .05$) and Harsh Parenting at Wave 1 ($\beta = .14, p > .05$) to Behavior Problems at Wave 3 (see Figure 3.3). Self-Control was therefore established as the mediator between Difficult Temperament and Harsh Parenting at Wave 1 and Behavior Problems at Wave 3.

Hypothesis 2: Moderational correlations

Model 1: The moderational influence of child gender, difficult temperament, and harsh parenting on child self-control.

Hierarchical multiple regression analyses were employed to examine the influence of child gender, child Difficult Temperament, and Harsh Parenting on child Self-Control over time.

Child gender was hypothesized to moderate the effect of Difficult Temperament and Harsh Parenting on child Self-Control (Figures 3.4 and 3.5). Specifically, parenting and temperament were hypothesized to be strongly negatively related to child

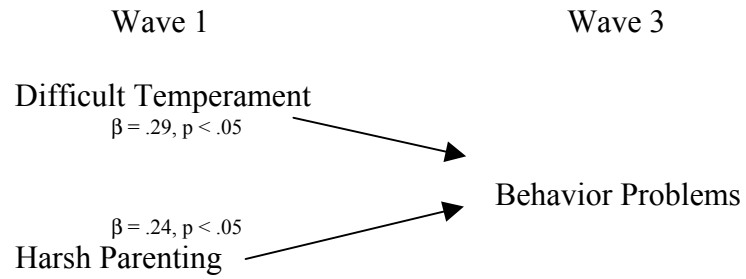


Figure 3.2. Multiple regression: Difficult Temperament and Harsh Parenting at Wave 1 are significantly related to Behavior Problems at Wave 3.

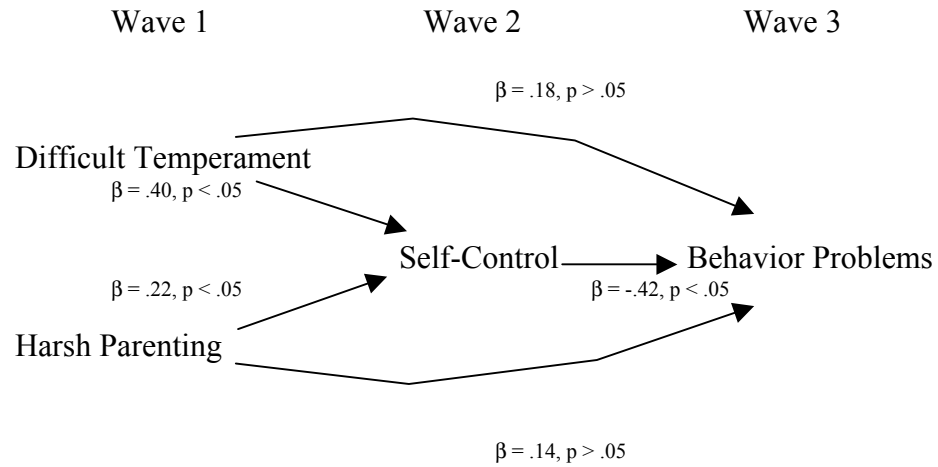


Figure 3.3. Path analysis: Mediation through Self-Control at Wave 2 of the relationship between Difficult Temperament and Harsh Parenting at Wave 1 and Behavior Problems at Wave 3. Relationship between Wave 1 and Wave 3 variables becomes nonsignificant in the presence of Wave 2 Self-Control.

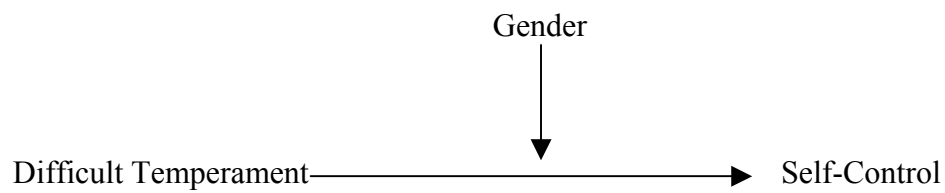


Figure 3.4. Hierarchical regression: Gender is hypothesized to moderate the relationship between Difficult Temperament and Self-Control.

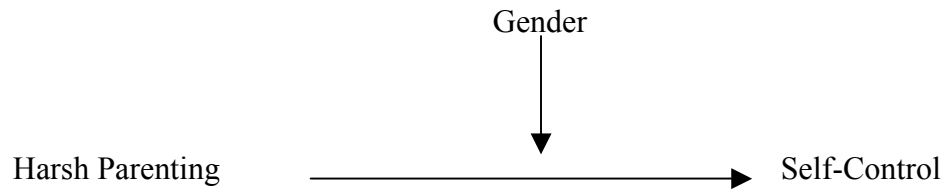


Figure 3.5. Hierarchical regression: Gender is hypothesized to moderate the relationship between Harsh Parenting and Self-Control.

Self-Control for boys. Child Difficult Temperament was hypothesized to moderate the effect of Harsh Parenting on child Self-Control and Behavior Problems (Figure 3.6). Specifically, high levels of Difficult Temperament were hypothesized to amplify the impact of Harsh Parenting, resulting in more Behavior Problems. Harsh Parenting was hypothesized to moderate the effect of Difficult Temperament on child Self-Control (Figure 3.7). Specifically, high levels of Harsh Parenting were hypothesized to amplify the impact of Difficult Temperament, resulting in more Behavior Problems.

The variables were entered hierarchically into the model in the following order: (a) child gender; (b) Difficult Temperament; (c) Harsh Parenting; (d) the interaction between child gender and Difficult Temperament; (e) the interaction between child gender and Harsh Parenting; (f) the interaction between Difficult Temperament and Harsh Parenting; and (g) the interactions among child gender, Difficult Temperament, and Harsh Parenting. Calculations of R^2 changes were used to determine whether the last variable entered into the model contributed significantly in predicting Self-Control at Wave 2 beyond the variables entered previously in the model. The cumulative F s, R^2 , and R^2 changes for each model are presented in Table 3.6. Gender was significant in predicting Self-Control at Wave 2 ($\beta = .21$, $p < .05$), with boys having lower levels of Self-Control. Difficult Temperament at Wave 1 was also significant in predicting Self-Control at Wave 2 ($\beta = -.33$, $p < .05$), with higher ratings of Difficult Temperament predicting lower degrees of Self-Control. Harsh Parenting at Wave 1 was significant in predicting Self-Control at Wave 2 ($\beta = -.23$, $p < .05$) as well, with higher levels of Harsh Parenting linking to lower levels of Self-Control. No interaction effects were significant in Model 1.

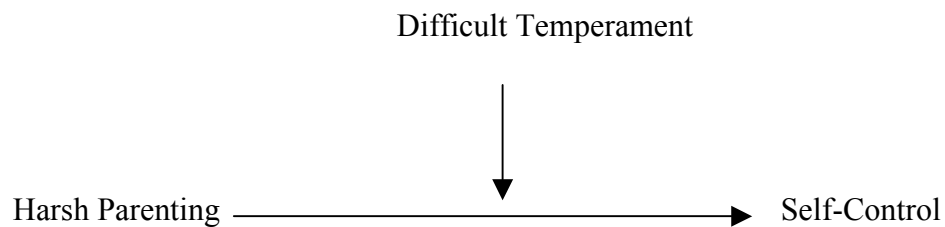


Figure 3.6. Hierarchical regression: Difficult Temperament is hypothesized to moderate the relationship between Harsh Parenting and Self-Control.

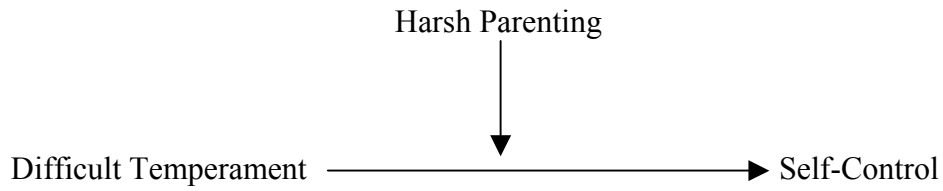


Figure 3.7. Hierarchical regression: Harsh Parenting is hypothesized to moderate the relationship between Difficult Temperament and Self-Control.

Table 3.6

Hierarchical Regression Analyses Predicting Self-Control at Wave 2

Variable	Cumulative F	R ²	R ² change
1. Child gender.....	13.04	.10	.10***
2. Difficult Temperament.....	17.77	.24	.14***
3. Harsh Parenting.....	15.17	.29	.05**
4. Gender x Temperament.....	11.55	.30	.01
5. Gender x Parenting.....	9.16	.30	.00
6. Temperament x Parenting.....	7.60	.30	.00
7. Gender x Temperament x Parenting	6.64	.31	.01

Note: ** $p < .01$, *** $p < .001$.

Model 2: The moderational influence of gender, difficult temperament, and harsh parenting on child behavior problems.

The second model included gender, Difficult Temperament, and Harsh Parenting at Wave 1 as predictors of child Behavior Problems at Wave 3 (Figures 3.8-3.11). The variables for Model 2 were entered hierarchically into the model in the following order: (a) child gender; (b) Difficult Temperament; (c) Harsh Parenting; (d) the interaction between gender and Difficult Temperament; (e) the interaction between gender and Harsh Parenting; (f) the interaction between Difficult Temperament and Harsh Parenting; and (g) the interactions among gender, Difficult Temperament, and Harsh Parenting.

As with Model 1, R^2 changes were calculated to determine whether the last variable entered into the model contributed significantly in predicting Behavior Problems beyond the variables entered previously in the model. The cumulative F s, R^2 , and R^2 changes for each model are presented in Table 3.7. Gender was significant in predicting Behavior Problems at Wave 3 ($\beta = -.30, p < .05$), with boys having more Behavior Problems than girls. Difficult Temperament was also significant in predicting Behavior Problems at Wave 3 ($\beta = .20, p < .05$), with higher ratings of Difficult Temperament predicting more Behavior Problems. Finally, Harsh Parenting was significant in predicting Behavior Problems ($\beta = .27, p < .05$), with higher levels of Harsh Parenting at Wave 1 predicting more Behavior Problems at Wave 3. No interaction effects were significant in Model 2.

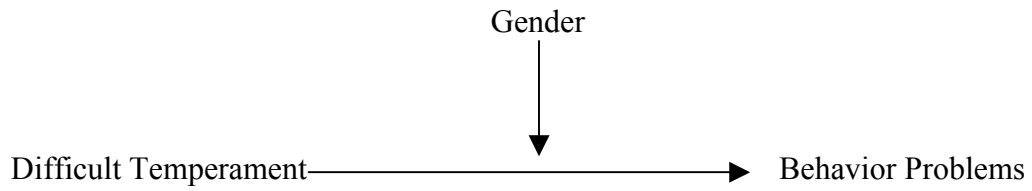


Figure 3.8. Hierarchical regression: Gender is hypothesized to moderate the relationship between Difficult Temperament and Behavior Problems.

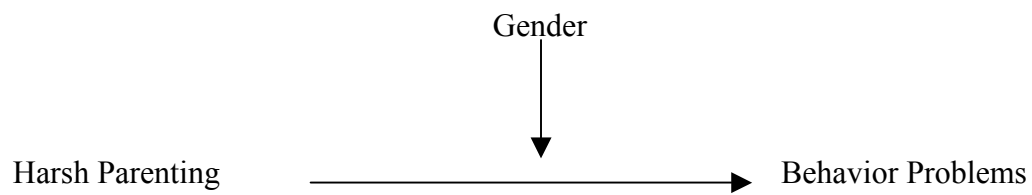


Figure 3.9. Hierarchical regression: Gender is hypothesized to moderate the relationship between Harsh Parenting and Behavior Problems.

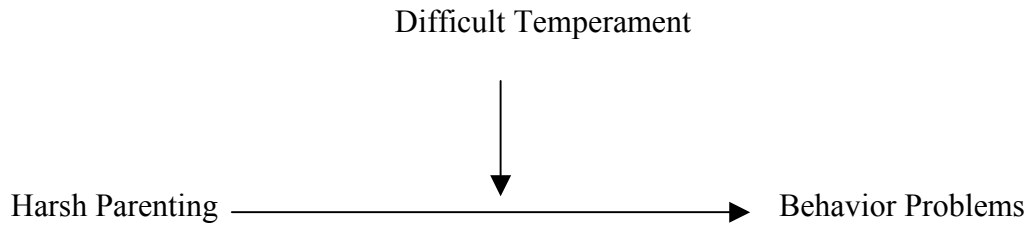


Figure 3.10. Hierarchical regression: Difficult Temperament is hypothesized to moderate the relationship between Harsh Parenting and Behavior Problems.

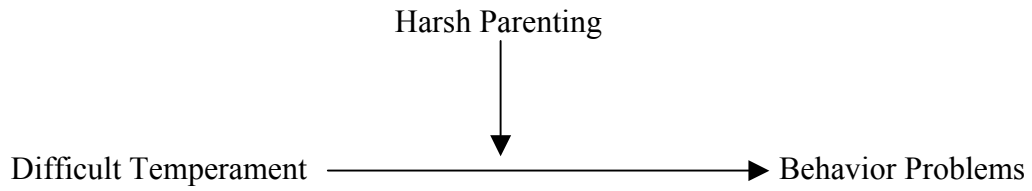


Figure 3.11. Hierarchical regression: Harsh Parenting is hypothesized to moderate the relationship between Difficult Temperament and Behavior Problems.

Table 3.7

Hierarchical Regression Analyses Predicting Behavior Problems at Wave 3

Variable	Cumulative F	R ²	R ² change
1. Child gender.....	13.95	.13	.13***
2. Difficult Temperament.....	11.66	.20	.07**
3. Harsh Parenting.....	11.10	.26	.06**
4. Gender x Temperament.....	8.27	.26	.00
5. Gender x Parenting.....	7.26	.28	.02
6. Temperament x Parenting.....	6.02	.28	.00
7. Gender x Temperament x Parenting	5.30	.29	.01

Note: ** $p < .01$, *** $p < .001$.

Relatively high and low groups moderational analyses

Because the analyses did not uncover any of the hypothesized moderational relationships, exploratory post hoc correlational analyses were executed to detect their possible presence. Given the difficulty in identifying such relationships in field research (McClelland & Judd, 1993), the following approach was undertaken for heuristic purposes.

Relatively high and low groups correlational analyses were conducted by dividing Harsh Parenting and Difficult Temperament at Wave 1 into higher and lower groups split at the median. Specifically, correlations were executed among the study variables separately for families in the high and low Harsh Parenting groups and the high and low Difficult Temperament groups. The hypothesized moderational effects could be operating if the longitudinal associations between Difficult Temperament and Behavior Problems were significant for the high Harsh Parenting group but not for the low Harsh Parenting group. The same implication would be indicated if the correlations between Harsh Parenting and Behavior Problems for the high Difficult Temperament group, but not for the low Difficult Temperament group, were significant. The results of these analyses are laid out in Table 3.8.

Correlations of Harsh Parenting at Wave 1 with Self-Control at Wave 2 and Behavior Problems at Wave 3 were executed for the high and low Difficult Temperament groups. The analyses for the high Difficult Temperament group revealed that Harsh Parenting was not significantly correlated with Self-Control ($r = -.24, p > .05$) but was significantly correlated with Behavior Problems ($r = .40, p < .05$), as expected. A different pattern emerged for the low Difficult Temperament group. Although a

Table 3.8

Relatively High and Relatively Low Groups Analyses

	Self-Control <u>R</u>	Behavior Problems <u>R</u>
<u>High Difficult Temperament</u>		
Harsh Parenting and:	-.24	.40*
<u>Low Difficult Temperament</u>		
Harsh Parenting and:	-.33*	.17
<u>High Harsh Parenting</u>		
Difficult Temperament and:	-.48**	.47**
<u>Low Harsh Parenting</u>		
Difficult Temperament and:	-.42**	.19

Note: * $p < .05$, ** $p < .001$

significant association between Harsh Parenting at Wave 1 and low levels of Self-Control at Wave 2 emerged ($r = -.33, p < .05$), the association between Harsh Parenting at Wave 1 and Behavior Problems at Wave 3 was not significant ($r = .17, p > .05$).

For the analyses involving the high Harsh Parenting group, Difficult Temperament at Wave 1 was correlated with Self-Control at Wave 2 ($r = -.48, p < .001$) and Behavior Problems at Wave 3 ($r = .47, p < .001$). A different pattern of correlations emerged for the low Harsh Parenting group. The association between Difficult Temperament at Wave 1 and Self-Control at Wave 2 was significant ($r = -.42, p < .001$); however, the correlation between Difficult Temperament at Wave 1 and Behavior Problems at Wave 3 did not attain significance ($r = .19, p > .05$).

Taken together, these findings suggest that moderational relationships in the hypothesized directions may exist, especially among the high Harsh Parenting group, and that future research should continue to explore this possibility.

CHAPTER 4

DISCUSSION

This study was designed to examine the interplay between child temperament and the environment, specifically parenting, on the development of child behavior problems. One of the important goals of parenting is teaching children to regulate their own behavior, because good self-control is vital to children's academic and social success. The development of children's self-control depends partly upon their own temperaments and partly upon the parenting they receive. This study was designed to examine the impact of parenting and temperament upon this developmental process and the behavior problems that may result. Little information is available about the relationships among these variables with a sample of rural, African American, single-parent families. As such, I hope that the present study adds useful information to the current knowledge about this population.

Hypothesis 1: Mediation

The first hypothesis stated that Self-Control at Wave 2 would mediate the relationship between Difficult Temperament and Harsh Parenting at Wave 1 and Behavior Problems at Wave 3. The results of a Path analysis confirmed this hypothesis. When the relationships among Difficult Temperament and Harsh Parenting at Wave 1, Self-Control at Wave 2, and Behavior Problems at Wave 3 were examined, Self-Control

was found to mediate the link between Difficult Temperament and Harsh Parenting at Wave 1 and Behavior Problems at Wave 3. In other words, difficult temperament and harsh parenting may result in behavior problems because children fail to learn self-regulatory skills and therefore act inappropriately.

Our results agree with a 1999 study by Brody, Flor, and Gibson, in which child self-control was found to mediate the link between supportive parenting and child academic achievement and psychosocial competence. This study was conducted with a sample of single-parent African American families, much like our sample. Our results are also consistent with the study by Wills, Sandy, et al. (1999) in which poor self-control was found to mediate the link between parenting factors, temperament factors, and later behavior problems. In this study, the parenting factors of parent-adolescent conflict and parental substance abuse resemble the ineffective arguing and lack of involved, supportive, and vigilant parenting of our Harsh Parenting construct. Its temperament factors of harm avoidance and novelty seeking may resemble the negative emotionality and poor manageability of our Difficult Temperament construct. These parenting and temperament factors were mediated through poor self-control to result in less effective coping motives and more negative life events, and later to adolescent substance abuse. In a similar study by Wills, DuHamel, et al. (1995), self-control again mediated the relationship between temperament factors, in this case mood and activity level, and substance abuse.

Several possible explanations may clarify how temperament and parenting influence the development of self-control and behavior problems. Physiological aspects of Difficult Temperament may interfere with the child's ability to learn skills necessary

to exercise self-control. High activity level may make it difficult for a child to inhibit behavior (Diamond et al., 1994), and high negative emotionality may cause him to become overwhelmed by parental punishment (Wachs & Gandour, 1983), preventing him from internalizing parental rules (Kochanska, 1997). Harsh parenting may interfere with the development of self-control through its failure to establish a positive relationship (Eisenberg, Fabes, & Murphy, 1996), its use of coercion to gain compliance (Patterson et al., 1989), and its failure to teach appropriate social behavior (Eisenberg, Fabes, Schaller, et al., 1991). These influences may have been responsible for the negative relationship between difficult temperament, harsh parenting, and self-control in the present study. And in turn, as has been demonstrated in the literature (Brody, Flor, & Gibson, 1999; Wills, DuHamel, et al., 1995; Wills, Sandy, et al., 1999), self-control is negatively related to behavior problems in the present study.

Hypothesis 2: Moderation and relatively high and low groups

Two moderating hypotheses were tested. First, I hypothesized that Difficult Temperament would moderate the relationship between Harsh Parenting and Self-Control over time. When temperament is difficult, Harsh Parenting will be related to Self-Control. Second, Harsh Parenting will moderate the relationship between Difficult Temperament and Behavior Problems over time. When parenting is harsh, Difficult Temperament will be related to Behavior Problems. Hierarchical regression failed to uncover any moderational relationships among the variables. However, it was hypothesized that in spite of these results, which may have resulted from inadequate power (McClelland & Judd, 1993), relatively high and low group correlations may

emerge among the variables that would suggest that moderational relationships could exist.

Relatively high and relatively low groups correlations indicated that, in families where children have a high level of Difficult Temperament, the negative correlation between Harsh Parenting and Self-Control approaches significance, and the correlation between Harsh Parenting and Behavior Problems reaches significance. An especially difficult temperament may create more stress for a parent, causing the parent to engage in more arguing and to offer even less emotional support to the child. Parent and child may also engage in the coercive cycle described by Patterson et al. (1989), in which the child escalates bad behavior until the parent gives up, reinforcing the child's bad behavior.

In families where children possess low levels of Difficult Temperament, Harsh Parenting correlates negatively with Self-Control, suggesting that poor parenting behaviors may contribute strongly to the child's poor ability to self-regulate. Harsh Parenting for children with low levels of Difficult Temperament was not correlated with Behavior Problems. It seems that good temperament may protect children against some of the harmful effects of poor parenting, resulting in relatively good behavior.

I also examined the correlations with high and low levels of Harsh Parenting behaviors. In families where parents used high levels of Harsh Parenting, Difficult Temperament was strongly negatively correlated with Self-Control and strongly positively correlated with Behavior Problems. Harsh parenting may involve low levels of emotional support, little supervision, large amounts of arguing, or any combination of these parenting behaviors (Patterson et al., 1989). For a child with difficult temperament, an environment offering less structure and emotional support may not foster a sense of

responsibility or respect for the parent's rules, and it may also foster associations with delinquent peers (Brody et al., 2001). The results may be poor self-control and more aggressive and delinquent behavior problems.

In families where parents used low levels of Harsh Parenting, Difficult Temperament was strongly negatively correlated with Self-Control but not correlated with Behavior Problems. It may be that parents low in Harsh Parenting behaviors succeed in creating a positive parent-child relationship but fail to provide adequate discipline. It may also be that while these children tend to have poor self-control, better parenting, including more proactive teaching of self-control, monitoring to ensure that the child learns responsibility and discipline, and child motivation to please the parent, results in better behavior.

Implications for practitioners

The results of this study highlight the importance of the parent-child relationship in child self-control and behavioral outcomes. In the context of a supportive relationship, parents can motivate their children and teach them responsibility and self-control (Brody et al., 1999). As such, practitioners can teach parents behaviors that will create the kind of supportive, involved, and highly vigilant parenting that results in better parent-child relationships and better child behavior.

The results also illustrate the importance of the environment in the development of good self-control. While this primarily applies to parents, it provides good guidance for teachers and others who work with children. In infancy and later, children need warm, sensitive, and predictable environments that are also interesting, responsive, and

routine. During the preschool years, adults should help children be aware of their ability to control behavior and create an environment in which responsibilities, expectations, and consequences are clear and age-appropriate. Redirection should focus on teaching problem-solving rather than punishment. In school children, most self-regulatory functions that enable volitional control are in effect, although they may not be fully internalized. Adults should encourage skills that enable the child to succeed in school and to conform to social rules necessary in school and other settings (Bronson, 2000).

Limitations and future research

I hope that future research will address some of the limitations of this study and improve upon them. As stated before, the small sample size of this project may not have afforded us the power to find significant relationships among our variables that may actually exist. I hope that future research will examine the relationships among these variables and succeed in finding those significant relationships. The inclusion of a relatively small number of variables in our study may have prevented us from identifying other possible influences among the variables such as child IQ, supportive relationships with adults outside the family, or presence of environmental stressors. Future research may examine the influence of more variables on the relationships among temperament, parentings, self-control, and behavior problems. In addition, the current sample is not random, having been recruited by community leaders such as pastors and teachers. It is therefore possible that the families may have been functioning better than the larger population because of self-selecting processes. Little research has been done on the interplay between child temperament and the environment with African American

children during middle childhood, particularly in single-parent, rural households such as our sample. I hope that future research will add to the current knowledge on these families and by doing so, will show whether the results of this study can be generalized to apply to other African American, single-parent families. Similar research will reveal the degree to which our results can be generalized to other ethnic groups. Finally, although we have interpreted the links among variables to suggest causality, in reality, we can only document the existence of links without drawing strong conclusions about the direction of effects.

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