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PARENTAL DISCIPLINE, NURTURANCE, AND THE PARENT-CHILD
ATTACHMENT RELATIONSHIP: ASSOCIATIONS WITH PRESCHOOL
CHILDREN'S TYPES OF DISRUPTIVE BEHAVIOR PROBLEMS

A Thesis Presented

by

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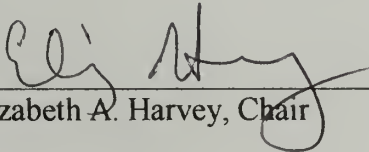
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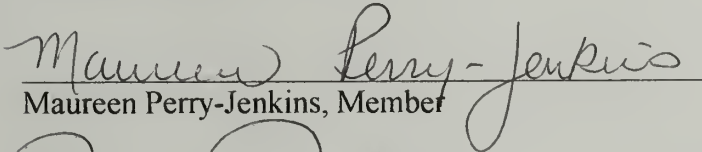
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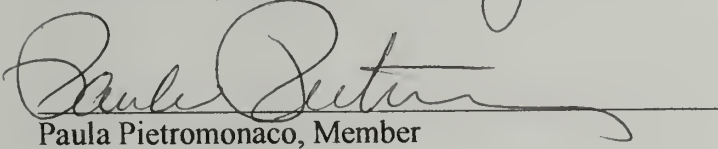
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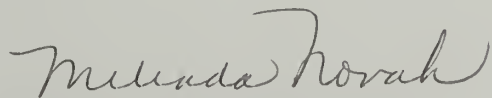
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CHAPTER 1

INTRODUCTION

Disruptive behavior problems, including hyperactivity, aggression, and defiance, are common among preschool-age children. In fact, most children will display one or more disruptive behaviors at some time or in some particular situations (Campbell, 1990). Although many young children outgrow these difficulties, 30 to 50% of preschool-age children with behavior problems continue to show such difficulties at age 6 (Campbell, Ewing, Breaux, & Szumowski, 1986). Disruptive behavior problems are typically not diagnosed until children reach school-age, but research suggests that the onset of impairment due to these problems is typically between ages 3 and 4, with symptoms appearing as early as age 1 (Applegate et al., 1997). It is therefore imperative that we better understand what factors contribute to and influence early behavior problems in order to inform prevention and intervention of disruptive behavior problems.

Negative parenting practices have been consistently linked to young children's disruptive behavior problems (see Kendziora & O'Leary, 1993, for a review), and have been demonstrated to be an important risk factor for poor long-term outcomes, including later deviant behaviors and delinquency (Simons, Chao, Conger, & Elder, 2001; Wells et al., 2000). However, this literature has largely treated disruptive behavior problems as a unidimensional construct. To better understand the etiological significance of parenting practices on children's disruptive behaviors, we must consider differences in how behavior problems are manifested. Loeber, Green, Lahey, Frick, & McBurnett (2000) note that by exploring specific subtypes of behavior problems we can try to unravel

whether the effects of negative parenting provide a risk for nonspecific child misbehavior or whether parenting practices lead to specific child misbehavior.

Disruptive Behaviors

Disruptive behavior disorders include Attention Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD). Children with ADHD are characterized as being hyperactive, impulsive, and inattentive; children with ODD have difficulties with hostility, defiance, and noncompliance, and often are physically aggressive; and children with CD demonstrate a pattern of behavior that violates the rights of others including bullying, lying, and cruelty to people or animals (American Psychiatric Association, 2000). ODD and CD are often grouped together in the literature on disruptive behavior disorders because the primary difference between the two is thought to be severity; ODD is a less severe disorder typically affecting younger children whereas CD involves more severe transgressions and is most common among adolescents. Approximately half of all clinic-referred children with ADHD develop comorbid ODD/CD (American Psychiatric Association, 2000). However, while many ADHD children do not develop comorbid ODD/CD, research suggests that ODD/CD in the absence of ADHD is relatively uncommon (Reeves, Werry, Elkind, & Zametkin, 1987).

Although there has been some debate about whether or not ADHD and ODD/CD represent distinct disorders (Biederman, Newcorn, & Sprich, 1991), studies suggest that they are separate, though related, disorders (Hinshaw, 1987; Pillow, Pelham, Hoza, Molina, & Stulz, 1998), which often lead to disparate outcomes (Barkley, 1990). For example, research has found that hyperactivity and aggression are differentially related to

peer rejection and peer popularity (Milich, Landau, Kilby, & Whitten, 1982), antisocial acts (Fergusson, Horwood, & Lynskey, 1993), cognitive ability (Szatmari, Boyle, & Offord, 1989), and family history of antisocial personality disorder and alcoholism (Lahey et al., 1988). Furthermore, comorbid hyperactivity and oppositional-defiance may contribute to a host of behavioral, social, and emotional problems and may provide an additional risk or vulnerability over each problem behavior alone (August, Realmuto, MacDonald, Nugent, & Crosby, 1996; Lahey et al., 1988). For example, children with comorbid oppositional-defiance and hyperactivity come from more dysfunctional families (Jensen, Martin, & Cantwell, 1997) and have a poorer prognosis later in life (Barkley, Fischer, Edelbrock, & Smallish, 1991; Kuhne, Schachar, & Tannock, 1997; Loney, Langhorne, & Paternite, 1978; McGee, Silva, & Williams, 1984). Loeber (1988) found that boys who displayed high levels of both aggression and ADHD symptomology were two to three times more likely to be criminal offenders than boys who displayed high levels of aggression only. Most research that has examined the differences among types of disruptive behavior problems, however, has focused on older children, but there is some evidence that disruptive behavior problems are also multi-dimensional in preschool-age children (Friedman, Doctoroff, Harvey, Goldstein, & Pierce, 2002).

Parenting Styles

Three styles of parenting have emerged from research on parenting practices: authoritative, authoritarian, and permissive (Baumrind, 1966). The authoritative parent is directive and rational, controlling, yet warm and harmonious with his or her child. The authoritarian parent is controlling, forceful and punitive, and demonstrates less warmth and nurturance. The permissive parent, while relatively warm and nurturing, tends to be

non-controlling, non-demanding, and passive in disciplinary actions. Baumrind demonstrated that authoritarian and permissive parenting were associated with more child behavior problems such as aggression) and negative child outcomes, whereas authoritative parenting was associated with fewer problem behaviors (Baumrind, 1967, 1971).

Consistent with these findings, more recent research has found parallel dimensions of parenting styles to be linked to children's disruptive behavior problems. Disruptive behavior problems have been associated with harsh, overreactive parenting (e.g., Arnold, O'Leary, Wolff & Acker, 1993; Danforth, Barkley, & Stokes, 1991; Dodge, 2002; Denham, Renwick, & Holt, 1991; Wolfe, 1985); coercive parenting (e.g., Eddy, Leve, & Fagot, 2001; Patterson, 1982); and rejecting and unresponsive parenting (see Rothbaum & Weisz, 1994, for a review). Similarly, permissive and inconsistent parenting has been linked to later problem behaviors (e.g., Danforth et al., 1991; Gardner, 1989; Patterson, 1986). In addition, research on parental nurturance has found that a lack of maternal acceptance has been linked to disruptive behaviors (Rothbaum, Rosen, Pott, & Beatty, 1995), and in general, the more warm parents are toward their children, the better the developmental outcome is for their children (Maccoby, 1980; Maccoby & Martin, 1983). However, Baumrind (1978) argued that it is the combination of warmth and authoritative disciplinary techniques that provides the most positive outcome (i.e., the warm, but permissive parent is more likely to have a child who is socially and behaviorally maladjusted than the warm and authoritative parent). Although some researchers have found that the effects of harsh discipline operate independently of the effects of parental warmth (Pettit, Bates, & Dodge, 1997), most researchers have found

that low levels of parental warmth combined with high levels of harsh, punitive discipline is associated with the most oppositional and aggressive behavior in children (Simons et al., 2001; Stormshak, Bierman, McMahon, & Lengua, 2000).

While these studies have focused on parenting behavior, attachment theorists and researchers have attempted to study the parent-child relationship and its importance for child development. Attachment is the bond that occurs between a child and caregiver during the early years of a child's life, through which he or she learns that the world is a safe place and develops a secure base from which he or she can confidently and effectively explore the world (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1988). Attachment researchers agree that a negative parent-child relationship (one in which a parent is neither available nor receptive to his or her child's emotional needs) can create an environment filled with uncertainty and conflict for the child (Bowlby, 1988). According to Bowlby's theory of an internal working model of the self (Bowlby, 1988), children who sense this insecurity in their environments create cognitive representations, which serve as a model for later relationships. In an effort to control the uncertainty of their caregiver's availability, children misbehave (i.e., children have temper tantrums, argue, and become defiant), which tends to capture the attention of the inattentive caregiver. When these negative child behaviors are reinforced by the parent, a cycle of escalating child misbehaviors and ineffective parenting is created (Speltz, 1990). Many researchers have linked insecure attachment with disruptive behavior problems and delinquency (see van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999, for a recent review). Most research, however, has considered disruptive behavior problems as a unidimensional construct, and few researchers have looked at the relationship between

attachment classification and hyperactivity or comorbid hyperactivity and oppositional-defiance.

Most research in the area of parenting and its relationship to child disruptive behavior problems has focused on elementary school-age children (see Greenberg, Speltz, & DeKlyen, 1993, for a review). Research that has focused on preschool-age children has found results consistent with those found with older children: children's disruptive behavior problems are associated with negative parent-child interactions (Gardner, 1987) and poor disciplinary tactics (Campbell, March, Pierce, Ewing, & Szumowski, 1991; DeKlyen, Biernbaum, Greenberg, & Speltz, 1998), including overreactive and lax parenting (Arnold et al., 1993; Calkins, Smith, Gill, & Johnson, 1998; Gardner, 1989). However, none of these studies has considered the differential effects of parenting for children with different subtypes of behavior problems.

The vast majority of studies linking parenting and disruptive behavior problems have not examined whether parenting relates differently to hyperactivity and oppositional-defiance. Recent studies that have examined this question have found that poor parenting tends to be associated with aggression and defiance rather than with hyperactivity. Barkley (1990) and Barkley et al. (1991) found that comorbid behavior problems in adolescents were related to an increase in parent-child negativity and conflict. Furthermore, differences in parenting practices among parents of hyperactive children have been attributed to the presence or absence of ODD symptomatology (Loney, 1987; Stormont-Spurgin & Zentall, 1995).

Two studies have found that parents of purely hyperactive children have styles that are midway between parents of non-problem children and parents of

oppositional/aggressive or comorbid children. Johnston (1996) found that parent-child interactions were more negative and conflictual when ADHD children had higher levels of oppositional-defiance than when ADHD children had lower levels of oppositional-defiance or when children had no behavior problems. Parent-child interactions among ADHD children with lower levels of oppositional-defiance were also more negative than children with no behavior problems, but to a lesser degree. Stormshak et al. (2000) found that parents of oppositional, aggressive, and comorbid children were the least warm, most punitive, most physically aggressive, and least consistent. Parents of hyperactive children were midway between the parents of non-problem children and the parents of oppositional, aggressive, and comorbid children in punitive discipline, warmth, consistency, and physical aggression (though differences were not always significant). Thus, the few studies that have considered the differential effects of parenting styles on children with different types of behavior problems (e.g., hyperactive children who are not oppositional-defiant), including those children with more than one problem behavior (e.g., hyperactivity and oppositional-defiance) suggest that this line of research is critical to pursue. No studies have examined the differential relationship between parenting and specific types of behavior problems among preschool-age children.

Few studies have examined whether the parenting dimensions described above are similarly important among ethnic minority families. Kilgore, Snyder, and Lentz (2000) found that parents who rated their 4 ½-year-old African-American children as having clinically significant behavior problems were more likely to use coercive discipline strategies and poor parental monitoring. In another study, African-American and Latino parents of boys at high risk for disruptive behaviors were found to be more punitive and

less nurturant than parents of low-risk boys (Florsheim, Tolan, & Gorman-Smith, 1996). However, Deater-Deckard, Dodge, Bates, and Pettit (1996) found that corporal punishment was related to behavior problems among White children, but not among African-American children. Similarly Stormshak et al. (2000) found that punitive parenting was significantly more associated with oppositional behavior among European-American than among African-American families. There is also some evidence of differences in parenting styles among parents belonging to different ethnic groups. For example, Florsheim et al. (1996) found that Latino parents were more controlling than African-American parents. On the other hand, Fagan (2000) found that Puerto Rican parents reported being significantly more responsive/consistent and nurturing than African-American parents. Similarly, Calzada and Eyberg (2002) found that Puerto Rican and Dominican mothers engaged in high levels of praise and physical affection and low levels of harsh, inconsistent, and punitive parenting behaviors. These inconsistent findings suggest that there are likely ethnic differences in parenting behavior and differences in the impact parenting styles have on their children, but limited research with ethnic minority families makes it difficult to fully understand the relationship.

Children's behavior problems are disproportionately distributed between boys and girls, with ADHD occurring almost three times more often in boys than in girls (Barkley, 1990), and ODD occurring up to 10 times more often in boys than in girls (Reeves et al., 1987). As such, much research examining early predictors of children's behavior problems only considers boys. Research has also found that gender differences are less apparent in preschool-age children than in children school-age and older (Campbell, 1990). Despite this, researchers that have considered girls as well as boys in younger

samples have generally found no gender differences in the relationship between parenting styles and children's disruptive behaviors (Eddy et al., 2001). There is some evidence, however, that parenting styles are related to children's behavior problems differently in boys and girls. For example, McFadyen-Ketchum, Bates, Dodge, and Pettit (1996) found that coercive parenting was initially associated with high levels of aggressive behavior in boys and girls. However, over time, high levels of coercive parenting was associated with increasingly high levels of aggressive behavior in boys, but decreasing levels of aggressive behavior in girls. The authors suggest that this may be due to disapproval of girls' aggressive behaviors from teachers as they get older, but they also assert that more research is needed to better understand girls' behavior development. Research also has tended to focus on mothers' parenting. Fathers, however, certainly play an important role in child development, and the limited research on fathers' parenting has found results similar to that of mothers: more negative, punitive, and unavailable fathers tend to have children with more disruptive behaviors (see Loeber, 1990, for a review).

The Present Study

In order to better understand how different parenting practices relate to different child behavior problems, this study examined how parental discipline, parental nurturance, and parent-child attachment style vary across purely hyperactive, hyperactive and oppositional-defiant, and non-behavior problem children. Purely oppositional-defiant children were not examined in this study because examination of the data revealed that there were few children in this group. This is consistent with previous research on ODD in preschool-age children (August et al., 1996). In addition, this study did not examine children with purely inattentive symptoms because the onset of ADHD-Inattentive Type

is later than for other subtypes (American Psychiatric Association, 2000), and research suggests that inattentive children are considerably different in their patterns of development, comorbidity, and impairment than the other subtypes (Barkley, 1997; Barkley, DuPaul, & McMurray, 1990).

Few studies have considered the differential effects of mothers' and fathers' parenting practices on children with different types of behavior problems and none have done so with preschool-age children. The present study examined these differential effects, as well as the combined effects of parental nurturance and discipline on children's behavior problems, and the moderating effects of parent ethnicity, marital status, SES, and child gender. Specifically, the following questions were addressed:

- 1) Are parental overreactivity, laxness, nurturance, and parent-child attachment differentially related to different types of children's behavior problems, and is this relationship different for mothers and fathers? Parents of children who are both hyperactive and oppositional-defiant were hypothesized to be the harshest, most lax, and least nurturing. Parents of children who are purely hyperactive were hypothesized to be less harsh, less lax, and more nurturing, followed by parents of children who have no behavior problems (who were hypothesized to be the least harsh, least lax, and most nurturing). In addition, children with comorbid behavior problems were thought to have the most insecure attachment relationships with their parents, followed by children who are purely hyperactive, and then children who have no behavior problems (who were thought to have the most secure attachment relationships with their parents).

- 2) Do high levels of warmth mitigate the effects of harsh discipline on children's behavior problems? It was hypothesized that the relationship between parental overreactivity and children's behavior problems would be moderated by parental nurturance such that high levels of parental overreactivity would be associated with high levels of children's behavior problems when parental nurturance was low, but high levels of parental overreactivity would be associated with low levels of children's behavior problems when parental nurturance was high.
- 3) Is the relationship between child behavior problems and mother's and father's overreactivity, laxness, nurturance, and parent-child attachment moderated by child gender, parent ethnicity, marital status, or SES? Because research on how these factors may lead to differences in the relationship between parenting practices and children's specific behavior problems is limited, these analyses were exploratory. Based on the limited research, it was hypothesized that parenting would be less strongly related to behavior problems (i.e., fewer differences among children with different behavior problems) among girls and ethnic minority parents.

CHAPTER 2

METHOD

Participants

The sample consisted of 186 children, aged 38 to 50 months, and their mothers (n = 186) and fathers (n = 131). One hundred six children (57%) were male and 80 children were female (43%). One hundred thirty three mothers and 104 fathers identified themselves as European-American, 19 mothers and 9 fathers identified as African-American, and 34 mothers and 18 fathers identified as Latino (mostly Puerto Rican). There were 30 single, divorced, separated, or widowed mothers and 156 mothers who were married or living with a partner. For mothers, median annual income was \$20,000 and average years of education was 13.96 years. For fathers, median annual income was \$41,000 and average years of education was 13.78 years. Median combined annual family income was \$61,000.

Children and parents were participants in a longitudinal study of young children with behavior problems. The measures collected for this study were administered during the first of four home visits in which each family participated. Families were recruited through state birth records, as well as pediatrician offices and community centers throughout Western Massachusetts. Parents completed a screening packet consisting of the Behavioral Assessment System for Children – Parent Report Scale (BASC-PRS; Reynolds & Kamphaus, 1992) and a questionnaire containing demographic information and a question asking parents if they were concerned about their children's activity level, defiance, aggression, or impulse control. One hundred fifty six children (84%) scored at least 65 on the Aggression and/or Hyperactivity subscales of the BASC during the

screening, and their parents indicated concern about their children's behavior. Thirty children (16%) showed no signs of behavior problems on the BASC-PRS during the screening, and their parents indicated no concern about their children's behavior. In addition, participating children were limited to those with no evidence of cognitive impairment, deafness, blindness, language delay, cerebral palsy, epilepsy, autism, or psychosis, based on parental interviews and questionnaires, and child observations.

Procedure and Measures

Children who met the criteria as indicated above were invited to participate in comprehensive child and family assessments in the families' homes. During the home visits, parents completed a number of measures, including questionnaires containing demographic information, measures of their parenting styles, and measures of their child's attachment and behavior. Each parent who participated was paid \$200 for his or her time.

Behavioral Assessment System for Children. Children's behavior problems were initially measured during a screening on the Behavioral Assessment System for Children – Parent Report Scale (BASC-PRS; Reynolds & Kamphaus, 1992). The BASC-PRS is a comprehensive rating scale that yields scores for a variety of subscales measuring child behavior problems, including hyperactivity and aggression, in children ages 2 years 6 months and older, and it has demonstrated good reliability and validity (Reynolds & Kamphaus, 1992). This measure was used only as a screening tool in this study.

Disruptive Behavior Rating Scale. During the home visits, parents completed the Disruptive Behavior Rating Scale - Parent Version (DBRS; Barkley & Murphy, 1998), a 26-item questionnaire using a 4-point Likert scale to measure parents' reports of their

children's behavior problems. This measure was developed on elementary school-age children and yields scores for hyperactivity/impulsivity, inattention, and oppositional-defiance. A factor analysis conducted on children in the present study suggested that the DBRS yields factor scores for hyperactivity/impulsivity, inattention, and oppositional-defiance and has demonstrated good convergent and construct validity in this sample of behavior problem and non-behavior problem 3-year-old children (Friedman et al., 2002). The items for the opposition-defiant factor were identical to that found in older children. Two of the 9 hyperactive-impulsive items did not load on the hyperactive-impulsive factor for 3 year old children and therefore were not used in this study. Thus, for each child a DBRS oppositional-defiant score was calculated by averaging across all 8 oppositional-defiant items, and a hyperactive-impulsive score was calculated by averaging across the 7 items that loaded on the hyperactive-impulsive factor in this sample. High scores indicated more behavior problems and scores could range from 0 to 3.

Parenting Scale. To measure discipline styles, parents completed the Parenting Scale (Arnold et al., 1993), a 30-item self-report scale, which yields factor scores for laxness and overreactivity. Parents indicated their use of different discipline techniques using a 7-point Likert scale. Scores were calculated by averaging across items that loaded on each factor according to the Arnold et al. (1993) factor structure, where high scores indicated dysfunctional parenting. The Parenting Scale has demonstrated good reliability and validity both in a preschool and elementary school sample (Arnold et al., 1993; Harvey, Danforth, Ulaszek, & Eberhart, 2001).

Child Rearing Practices Report. Nurturance was measured using the nurturance factor of a modified version of the Child Rearing Practices Report (CRPR; Block, 1965). The modified CRPR consists of 40 items taken from a 91-item Q-sort and yields factor scores for nurturance and restrictiveness (Rickel & Biasatti, 1982). The 18 items that loaded on the nurturance factor were administered in the present study using a 7-point Likert scale. Scores were calculated by averaging across items on the nurturance factor, where high scores indicated a willingness of parents to listen to and share feelings and experiences with their children. The nurturance factor has demonstrated high internal consistency and test-retest reliability with parents of different income levels and ethnicities (Rickel & Biasatti, 1982).

Attachment Questionnaire. Parents completed an attachment questionnaire, which was a modified version of the Attachment Q-Sort (Waters & Deane, 1985). This 23-item questionnaire used a 5-point Likert scale and consisted of items that loaded highest and lowest on the security factor of the Q-Sort. This questionnaire was reliable in predicting attachment security in two studies of Romanian orphans and comparison children (Chisholm, 1998; Chisholm, Carter, Ames, & Morrison, 1995), and findings from both studies were consistent with literature on the relationship between attachment security and child behavior problems. Scores were calculated by averaging across items that loaded on the security factor, where high scores indicated a secure attachment style.

CHAPTER 3

RESULTS

Behavior Group Classifications

Children were categorized into one of four groups (purely hyperactive, purely oppositional-defiant, hyperactive/oppositional-defiant, and non-behavior problem) based on the average number of symptoms endorsed by parents on the Disruptive Behavior Rating Scale – Parent Version¹ (DBRS; Barkley & Murphy, 1998). Children were categorized into groups once based on mothers' reports of their children's behaviors and again based on fathers' reports. Children were classified as purely hyperactive if their DBRS scores fell in the top half on the hyperactivity factor and the bottom half on the oppositional-defiance factor, and if their hyperactivity factor score was at least ½ SD higher than their oppositional-defiance factor score. Children were classified as purely oppositional-defiant if their DBRS scores fell in the top half on the oppositional-defiance factor and the bottom half on the hyperactivity factor, and if their oppositional-defiance factor score was at least ½ SD higher than their hyperactivity factor score. Children were classified as comorbid hyperactive/oppositional-defiant if their DBRS scores fell in the top third on both the hyperactivity factor and the oppositional-defiance factor. Children were classified as non-behavior problem² if their DBRS scores fell in the bottom half on

¹ The DBRS was used instead of the screening BASC to determine group status because children's behavior tended to change by the time of the home visit. Being the more recent measure administered, the DBRS is a more accurate measure of the children's current behavior problems.

² The non-behavior problem children included children who were originally recruited into the non-behavior problem control group, as well as children who were originally recruited into the behavior problem group, but no longer displayed elevated levels of behavior problems at the time of the home visit. The analyses below were re-run using

both the hyperactivity factor and the oppositional-defiance factor. Those children who did not fit into one of these four groups were excluded from this study. These cutoffs were chosen for both theoretical and practical reasons. Clinically significant behavior problems are typically identified as those falling in the top 5 or 10% of a normative sample; however, because most children in this study were selected because they were showing behavior difficulties, the top half was used instead. Group sizes for mothers and fathers classifications are presented in Table 1. In addition, demographic information for children and parents of children classified in each of the behavior categories are presented in Table 1. These classifications resulted in few children being categorized in the purely oppositional-defiant group, so these children were dropped from the analyses.

Descriptive Statistics and Intercorrelations

Means and standard deviations for all child and parent measures for the entire sample are presented in Table 2. Intercorrelations among the parent/child variables are presented in Table 3 and Independent t-tests examining how each contextual variable relates to the parenting/attachment measures and to DBRS scores are presented in Table 4. Intercorrelations among the parenting/attachment measures and between the parenting/attachment measures and SES were generally low. Relatively higher correlations were found among the child behavior measures, as well as between the child behavior measures and attachment. Mothers' overreactivity was significantly and negatively correlated with mothers' nurturance and her reports of parent-child attachment, as well as between mothers' laxness and her reports of parent-child

only those children originally recruited for the control group (n=26). Results were consistent with those results reported with the full sample of non-behavior problem children.

attachment. In addition, mothers' reports of parent-child attachment were significantly, positively correlated with her nurturance. For fathers', a significant, positive correlation was found between fathers' overreactivity and fathers' laxness, and significant negative correlations were found between fathers' overreactivity and his nurturance and reports of parent-child attachment. In addition, fathers' reports of parent-child attachment were also significantly and positively correlated with fathers' nurturance and negatively correlated with fathers' laxness. Using both mothers and fathers reports, high positive correlations were found between children's hyperactivity and oppositional-defiance.

Parenting, Attachment, and Children's Behavior Problems

A series of 2x3 (Parent Gender x Behavior Group) Repeated Measures ANOVAs were conducted to determine if parental overreactivity, laxness, nurturance, and parent-child attachment were differentially related to different types of children's behaviors problems, and how this relationship differs for mothers and fathers. One set of ANOVAs was conducted using mother's reports of behavior problems to create the behavior problems groups and one set of ANOVAs was conducted using fathers' classification of children. Each set consisted of four ANOVAs, one for each parenting/attachment measure. Parent Gender was entered as a repeated measures factor to examine differences for mothers' and fathers' parenting reports (see Table 5). There were no Parent Gender effects for any of the analyses. There was a significant Parent Gender x Behavior Group interaction for attachment ($F = 3.18, p < .05$) using mothers' reports of behavior problems. Therefore, the mothers' Behavior Group effect for attachment was evaluated by conducting one-way ANOVAs separately for mothers' and fathers' attachment. Mothers of purely hyperactive and non-behavior problem children rated their children as

more secure than mothers of comorbid behavior problem children, and mothers of non-behavior problem children rated their children as more secure than purely hyperactive children. Fathers of purely hyperactive and non-behavior problem children rated their children as more secure than fathers of comorbid behavior problem children.

Based on fathers' reports of their children's behavior problems, there was a significant effect of Behavior Group on attachment. Children reported by their fathers as being non-behavior problem or as purely hyperactive were significantly more secure in their attachments than children reported by their fathers as having comorbid behavior problems. In sum, both mothers and fathers who rated their children as having comorbid behavior problems also rated these children as the least secure, followed by children rated as purely hyperactive, and then children rated as non-behavior problem.

There was a significant Parent Gender x Behavior Group interaction for laxness ($F = 3.18, p < .05$) using fathers' reports of behavior problems. Therefore, the fathers' Behavior Group effect for laxness was evaluated by conducting one-way ANOVAs separately for mothers' and fathers' laxness. Fathers of comorbid behavior problem children were more lax than fathers of purely hyperactive and non-behavior problem children. There was no effect of Behavior Group for mothers' laxness using fathers' reports of Behavior Group.

Using both mothers' and fathers' reports of behavior problems, there were significant effects of Behavior Group for overreactivity. In both cases, parents of children with comorbid problems were significantly more overreactive than parents of children with no behavior problems. Based on fathers' reports of behavior, parents of children

with comorbid problems were also significantly more overreactive than parents of purely hyperactive children.

Overreactivity x Nurturance Interaction

In considering whether or not warmth (nurturance) mitigates the effects of harsh discipline (overreactivity), a series of Multiple Regression analyses were conducted to examine the interaction between overreactivity and nurturance in predicting children's hyperactive and oppositional behaviors using children's DBRS hyperactive and oppositional-defiant factor scores. The interaction term was calculated for mothers and fathers by centering the overreactivity and nurturance variables and then multiplying them together. A series of multiple regression equations with interaction terms were computed in which children's average frequencies of hyperactivity or oppositional-defiance were regressed on overreactivity, nurturance, and the interaction term. The equations were computed separately for mothers' and fathers' reports of their children's behaviors. No significant interactions were found for mothers or fathers.

Contextual Variables

To determine if the relationships between children's behavior problems and parenting and attachment are accounted for by certain demographic, contextual variables, a number of exploratory analyses were run.

In order to determine whether participants' ethnic minority status or socioeconomic status (SES) affected whether or not parenting style and attachment were related to children's behavior problems, variables were created to denote minority status and SES. Parents identified themselves as European-American, African-American, or Hispanic. Because few parents identified themselves as biracial or multi-racial, these

parents were placed in one of the above groups based on which race/ethnicity they identified with the most based on an interview. Next, due to limited numbers of participants from ethnic minority populations, African-American and Hispanic participants were combined to create an ethnic minority group. The children classified as purely hyperactive were then dropped from these analyses because few children remained in this group for the ethnic minority population. A series of 2x2x2 (Parent Gender x Ethnicity x Behavior Group) Repeated Measures ANOVAs were conducted to determine if there was an Ethnicity x Behavior Group interaction for mothers' or fathers' ethnicity and reports of children's behavior. There were no significant interaction for mothers' or fathers' ethnicity and reports of behavior problems.

To explore whether or not parents' income and education were related to the parenting or parent-child variables, a socioeconomic status (SES) variable was created. Each participant's SES was calculated by combining their reported annual income and their education level. Self-report of annual combined family income was based on all combined family income, including AFDC and child-support payments received. Scores were transformed by square-root to correct for skewness of the income distribution. Education level was computed by calculating the number of years participants had been in school. Participants reported the highest level of education they had completed, and this level was converted into years (e.g., 12th grade = 12 years, Master's Degree = 18 years). Finally, both income and education variables were converted to Z-scores and averaged to create a single SES variable.

SES was then divided into high SES and low SES based on a median split, and a series of 2x2x3 (Parent Gender x SES x Behavior Group) Repeated Measures ANOVAs

were conducted to explore the SES x Behavior Group interaction. No significant SES x Behavior Group interactions were found.

Child gender was similarly explored to look for interactions with children's behavior group status. No significant interactions were found for any of the parenting/attachment measures for mothers' or fathers' reports.

Parental marital status was explored as another potential moderator. Marital status was only analyzed for mothers because there were few single fathers in the sample. The sample included 30 single, divorced, separated, or widowed mothers, and 156 mothers who were married or were living with their partners. When children were categorized into the different behavior groups based on mothers' reports, only three children of single mothers were classified as purely hyperactive, so the purely hyperactive group was dropped from the analyses. A series of 2x2 (Behavior Group x Marital Status) ANOVAs were run (one for each parenting/attachment measure). No significant interactions were found for any of the mothers' parenting/attachment measures.

CHAPTER 4

DISCUSSION

The present study examined the relationships between different types of preschool children's behavior problems and mothers' and fathers' overreactivity, laxness, and nurturance, and parent-child attachment. While research in this area has focused on elementary school-age children (see Greenberg, Speltz, & DeKlyen, 1993, for a review), parents have reported that symptoms of disruptive behavior disorders, become apparent when children are much younger (Applegate et al., 1997). In addition, studies with older children that have looked at different subtypes of children's behavior problems suggest that there may be important differences in children and families of children with different subtypes of behavior problems. It is therefore important to study the relationships between children's specific types of behavior problems and parental discipline, nurturance, and parent-child attachment.

As hypothesized, both mothers and fathers who rated their children as having comorbid behavior problems also rated these children as the least secure, followed by children rated as purely hyperactive, and then children rated as non-behavior problem. These findings are consistent with the attachment literature that has found that less secure parent-child attachment relationships are associated with a number of child problems, including aggressive and defiant behaviors (van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999).

A relationship was also found between children's behavior problems and parents' overreactivity. Parents of children with comorbid problems were significantly more overreactive than parents of non-behavior problem children. Results for parents of purely

hyperactive children were mixed. Using mothers' reports of behavior problems, parents of purely hyperactive children were less overreactive than parents of comorbid children and were more similar to the non-problem group; using fathers' reports of behavior problems, overreactivity in the purely hyperactive group was not significantly different from either the comorbid or non-problem groups and fell midway between the two groups.

Laxness was not significantly related to children's behavior problems when using mothers' reports of behavior problems. When using fathers' reports, however, children's behavior problems were related to fathers' laxness, but not to mothers' laxness. Fathers who rated their children as having comorbid behavior problems were more lax than fathers who rated their children as purely hyperactive or non-behavior problem. These findings are in contrast with research using the Parenting Scale (Arnold et al., 1993), which found that both mothers' overreactivity and laxness are related to children's disruptive behavior problems, with higher levels of mothers' overreactive and lax discipline being related to higher levels of children's behavior problems. This discrepancy may be due to the fact that while Arnold et al. (1993) found a significant correlation between mothers' overreactivity and laxness ($r = .35$), the present study did not find a significant correlation ($r = .05$). Since the Arnold et al. study did not look at the relationship between laxness and behavior problems while holding overreactivity constant, the laxness/child behavior problems relationship may have been largely accounted for by mothers' overreactivity.

Parental nurturance was not found to mitigate the effects of overreactive discipline (i.e., regardless of parents' levels of nurturance, overreactivity was related to

children's behavior problems). This may be due to the limited variability in scores on the CRPR-Nurturance Factor. However, it also may be that parents who display high levels of overreactive discipline are more likely to have children with more behavior problems whether or not these parents are also warm and nurturant. Future research should explore how the nurturance x overreactivity interaction may vary across parents (i.e., a child with one parent who is warm and nurturant and another parent who is harsh and overreactive).

The significant correlation between SES and children's behavior problems is consistent with previous research, which has found that low SES tends to put children at risk for more disruptive behavior problems, and parents tend to be less effective in their discipline strategies (Bank, Forgatch, Patterson, Fetrow, 1993). SES, ethnicity, and marital status were not found to moderate the parenting/attachment and child behavior problems relationship, suggesting that the relationships found in this study between children's behavior problems and parental overreactivity and parent-child attachment appear to generalize to parents and children of a variety of backgrounds. In addition, child gender was not found to moderate any of the relationships. However, there still may be other variables that could influence the relationship, including the amount of time parents spend with their children, parent stress and psychopathology, and social support. These factors were not examined in this study, but may be important for future research in this area.

The findings presented should be considered in the context of the limitations of this study. First, this study is based solely on parent-report measures. While research has shown that some of the measures used in this study correlate with observational measures (including the Parenting Scale and the Attachment Questionnaire), observational data was

not examined in this study. Another consideration is the limited number of children that were classified as purely hyperactive, which may have limited power to detect differences between this group and the other two groups. In addition, by dropping the purely oppositional-defiant group (because few children were classified as purely oppositional-defiant) this study may have missed some important finding about children and parents of children who display these symptoms.

Another limitation to this study is the cross-sectional nature of the data. This study did not examine the direction of the relationship between parenting/attachment and children's behavior problems. It may be that parents who are more overreactive, for example, cause their children to display more behavior problems. Equally possible, however, is that children with more behavior problems cause their parents to be more overreactive. In addition, there may be a third variable not examined in this study that may be accounting for the relationships found. Research has shown that it is likely that the relationship between parenting and children's behavior problems in general is bidirectional (Greenberg & Speltz, 1988). However, longitudinal research on the relationship between parenting and child behavior is needed to examine specific types of behavior problems.

This study was also limited in its analyses of parent ethnicity and how ethnicity interacts with behavior problems in the relationship with the different parenting/attachment measures. No significant interactions were found. However, the effects of ethnicity may have been masked by combining African-American, Hispanic, and biracial parents into one "ethnic minority" group, thereby eliminating any within-group analyses from being conducted.

Despite these limitations, this study adds to the literature in several ways. This is the first study to examine how parenting is related to different subtypes of behavior problems in preschool-age children. The findings of this study provide evidence of the importance of distinguishing children who have comorbid hyperactivity/oppositional-defiance from those who only have difficulties with hyperactivity. This finding has been found with older children (Barkley, 1990), and these results suggest that the distinction may be important early on as well.

Research also has shown that parents who are more overreactive or lax in their discipline are more likely to have children with behavior problems, particularly multiple behavior problems (e.g., Danforth, Barkley, & Stokes, 1991; Stormshak et al., 2000). In addition, research has found that many factors thought to be associated with hyperactivity (e.g., negative parenting, family stress, etc.) are actually attributed to the presence of oppositional-defiant behavior (Loney, 1987; Stormont-Spurgin & Zentall, 1995). Research on disruptive behavior disorders suggests that there is a biological basis to ADHD, and the behaviors associated with ADHD, such as hyperactivity and impulsivity, may elicit negativity from ADHD children's environments. This negativity may come in the form of poor child management strategies, a lack of positive parental involvement, marital conflict, and/or family hostility. In turn, these factors can lead ADHD children to develop aggressive, oppositional behaviors (Barkley, 1990). The findings of this study are consistent with research on older children that has shown that children with comorbid ADHD and ODD show greater family dysfunction (Jensen, Martin, Cantwell, 1997). Moreover, the results of this study further reinforce the importance of a "goodness-of-fit" environment in order for children with behavioral difficulties to be able to effectively

negotiate the demands placed on them from the environment with their abilities as children struggling with ADHD/ODD.

The present study's finding that high levels of nurturance combined with high levels of overreactivity do not seem to influence parents' reports of their children's behavior problems highlights the negative impact of harsh discipline and the importance of teaching parents to use appropriate discipline strategies. In addition, given the tendency of research to focus on mothers when examining parenting and children's behavior, this study also adds to the limited research on fathers' parenting styles, and the influence of various contextual variables on the relationship between children's behavior problems and parenting and attachment.

This study highlights the importance of studying preschool children's behaviors, and it provides evidence of the multidimensional nature of children's behavior problems. More research needed to further explore how children's specific behaviors develop and change as children get older and what other parental, familial, and environmental factors influence children's behavior development.

Table 1

Demographics of children and parents of children classified according to children's behavior problems as measured by parents on the DBRS.

	HYP ^a		O-D		COM		NON		OTHER	
	n	%	n	%	n	%	n	%	n	%
Mothers' Reports of behavior problems										
Single mothers	1	3.3	1	3.3	17	56.7	5	16.7	6	20.0
Married mothers	20	12.8	6	3.8	28	17.9	48	30.8	54	34.6
Minority mothers	4	7.5	2	3.8	21	39.6	13	24.5	13	24.5
Non-minority mothers	17	12.8	5	3.8	24	18	40	30.1	47	35.3
Boys	15	14.2	1	0.9	27	25.5	33	31.1	30	28.3
Girls	6	7.5	6	7.5	18	22.5	20	25.0	30	37.5
Fathers' Reports of behavior problems										
All fathers	19	14.5	4	3.1	44	33.6	40	30.5	24	18.3
Minority fathers	3	11.1	0	0.0	14	51.9	5	18.5	5	18.5
Non-minority fathers	16	15.4	4	3.8	30	28.8	35	33.7	19	18.3
Boys	10	12.8	3	3.8	29	37.2	22	28.2	14	17.9
Girls	9	17.0	1	1.9	15	28.3	18	34.0	10	18.9

^a HYP = purely hyperactive, O-D = purely oppositional-defiant, COM = comorbid hyperactive/oppositional-defiant, NON = non-behavior problem, OTHER = children who did not fit into one of the four groups.

Table 2

Descriptive Statistics.

	Mothers			Fathers
	All	Single	Married	
	<u>M (SD)</u>	<u>M (SD)</u>	<u>M (SD)</u>	<u>M (SD)</u>
	N = 186	N = 30	N = 156	N = 131
Overreactivity	2.67 (0.84)	2.80 (1.20)	2.65 (0.75)	2.59 (0.81)
Laxness	2.85 (0.94)	3.15 (1.12)	2.79 (0.89)	2.81 (0.75)
Nurturance	6.16 (0.54)	6.16 (0.49)	6.16 (0.55)	5.95 (0.67)
Attachment	3.45 (0.46)	3.20 (0.40)	3.50 (0.45)	3.55 (0.42)
DBRS-HYP (Frequency)	1.34 (0.65)	1.70 (0.79)	1.27 (0.60)	1.13 (0.61)
DBRS-O-D (Frequency)	1.06 (0.70)	1.55 (0.82)	0.96 (0.63)	0.83 (0.60)
BASC-HYP (T-score)	65.86 (13.00)	72.33 (16.46)	64.62 (11.89)	NA
BASC-AGG (T-score)	67.69 (16.16)	78.00 (19.74)	65.71 (14.64)	NA

Table 3

Intercorrelations among parenting styles and attachment for mothers (N = 186) and fathers (N = 131).

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Overreactivity		.20*	-.23**	-.34***	.15	.23*	.33***	---	---
2. Laxness	.05		-.12	-.20*	-.08	.27**	.34***	---	---
3. Nurturance	-.17*	-.19**		.30***	-.02	-.10	-.16	---	---
4. Attachment	-.18*	-.25**	.27***		.11	-.46***	-.60***	---	---
5. SES	-.03	-.15*	-.07	.13		-.11	-.09	---	---
6. DBRS-HYP (Frequency)	.13	.11	.02	-.50***	-.20**		.67***	---	---
7. DBRS-O-D (Frequency)	.28***	.13	-.04	-.66***	-.18*	.70***		---	---
8. BASC-HYP (T-score)	.08	.16*	-.01	-.49***	-.32***	.60***	.46***		---
9. BASC-AGG (T-score)	.16*	.15*	-.05	-.51***	-.26**	.45***	.60***	.61***	

Correlations for mothers are below the diagonal and for fathers are above the diagonal.

* $p < .05$

** $p < .01$

*** $p < .000$

Table 4

Relationships among measures of parenting/attachment, child behavior problems, and contextual variables.

	Child Gender				Marital Status			Parent Minority Status		
	Male M (SD) n	Female M (SD) n	t	Single M (SD) n	Married M (SD) n	t	Non- Minority M (SD) n	Minority M (SD) n	t	
Mothers (N = 186)	DBRS-HYP	1.38 (.63) n = 106	1.29 (.68) n = 80	.95	1.56 (.72) n = 50	1.26 (.61) n = 136	2.85**	1.29 (.59) n = 133	1.46 (.79) n = 53	-1.37
	DBRS-O-D	1.02 (.71) n = 106	1.11 (.68) n = 80	-.88	1.33 (.84) n = 50	.96 (.61) n = 136	2.88**	1.00 (.65) n = 133	1.21 (.79) n = 53	-1.71
	Overreactivity	2.66 (.82) n = 105	2.71 (.85) n = 81	-.40	2.69 (1.08) n = 48	2.67 (.74) n = 133	.13	2.69 (.75) n = 132	2.63 (1.04) n = 49	.45
	Laxness	2.79 (.93) n = 105	2.92 (.94) n = 81	-.90	3.01 (.99) n = 48	2.79 (.91) n = 133	1.41	2.67 (.75) n = 132	3.32 (1.20) n = 49	-3.53**
	Nurturance	6.14 (.57) n = 104	6.18 (.50) n = 77	-.44	6.22 (.63) n = 50	6.13 (.50) n = 130	1.04	6.15 (.49) n = 131	6.17 (.66) n = 49	-.22
	Attachment	3.45 (.45) n = 105	3.47 (.46) n = 79	-.29	3.34 (.46) n = 50	3.50 (.45) n = 133	-2.16*	3.48 (.45) n = 132	3.38 (.47) n = 51	1.29
Fathers (N = 131)	DBRS-HYP	1.23 (.62) n = 78	.99 (.56) n = 53	2.25*				1.08 (.58) n = 104	1.32 (.67) n = 27	-1.82
	DBRS-O-D	.89 (.62) n = 78	.75 (.55) n = 53	1.31				.77 (.58) n = 104	1.09 (.62) n = 27	-2.53*
	Overreactivity	2.57 (.79) n = 77	2.55 (.84) n = 55	.17				2.58 (.78) n = 103	2.50 (.91) n = 29	.48
	Laxness	2.77 (.79) n = 77	2.78 (.72) n = 55	-.08				2.77 (.70) n = 103	2.80 (.97) n = 29	-.19
	Nurturance	5.96 (.66) n = 78	5.94 (.67) n = 53	.15				5.97 (.62) n = 103	5.91 (.84) n = 27	.32
	Attachment	3.51 (.38) n = 76	3.62 (.47) n = 53	-1.51				3.58 (.41) n = 103	3.45 (.42) n = 26	1.38

* p < .05

** p < .01

Table 5

Comparison of purely hyperactive, comorbid hyperactive/oppositional-defiant, and non-behavior problem children.

	1 ^a HYP		2 COM		3 NON		Behavior Group F	Behavior Group X Parent F	HSD Test for Behavior Group
	M (SD)	n	M (SD)	n	M (SD)	n			
Mothers' Reports of behavior problems		n = 15		n = 26		n = 40			
Overreactivity	2.50 (0.58)		2.58 (0.97)		2.64 (0.71)		2.34 (0.59)	5.47**	1.11
Laxness	2.81 (0.88)		2.49 (0.73)		3.06 (0.96)		2.71 (0.87)	2.50	0.85
Nurturance	6.07 (0.58)		5.93 (0.85)		6.00 (0.73)		6.18 (0.57)	0.23	0.03
Attachment	3.55 (0.40)		3.59 (0.51)		3.38 (0.30)		3.84 (0.43)		3.18*
SES	0.17 (0.73)		0.03 (0.75)		-0.42 (0.85)		0.26 (0.68)	5.32**	Mothers: 1, 3 > 2***; 3 > 1** Fathers: 1, 3 > 2***
Fathers' Reports of behavior problems		n = 18		n = 43		n = 38			
Overreactivity	2.24 (0.71)		2.40 (0.92)		2.92 (0.78)		2.52 (0.61)	12.39***	1.52
Laxness	2.78 (0.86)		2.56 (0.63)		3.10 (0.80)		2.72 (0.79)		3.35*
Nurturance	6.08 (0.55)		6.18 (0.62)		5.85 (0.76)		6.19 (0.60)	0.35	2.29
Attachment	3.70 (0.42)		3.82 (0.35)		3.26 (0.34)		3.69 (0.43)	30.34***	1.16
SES	0.13 (0.60)		-0.06 (0.52)		0.06 (1.00)		0.38 (0.69)	0.98	1, 3 > 2***

^a 1 = purely hyperactive, 2 = comorbid hyperactive/oppositional-defiant, 3 = non-behavior problem.

* p < .05

** p < .01

*** p < .001

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