PARENT BEHAVIORS AS PREDICTORS OF PEER ACCEPTANCE IN CHILDREN WITH AND WITHOUT ATTENTION DEFICIT-HYPERACTIVITY DISORDER

Sarah L. Durrant, B.A., M.S.

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APPROVED:

Patricia L. Kaminski, Major Professor
Kenneth W. Sewell, Committee Member
Diane Graves Oliver, Committee Member
Lori Byers, Committee Member
Ernest Harrell, Chair of the Department of Psychology
C. Neal Tate, Dean of the Robert B. Toulous School of Graduate Studies

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It has been theorized that parents indirectly influence children's peer functioning through aspects of the parent-child relationship. One specific group of children that exhibit significant problems with peers and in interactions with parents is children diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD). Given the limited research examining family-peer links in children with ADHD, the purpose of the current study was to examine the association between aspects of the parent-child relationship and peer functioning in boys and girls with and without ADHD. In the current study, participants included 91 boys and girls between the ages of 7 and 11 years old and their parents. Fifty-four of these children were previously diagnosed with ADHD, Combined or Hyperactive/Impulsive Type. Parents and children participated in a parent-child interaction and then completed several measures assessing the parent-child relationship and peer acceptance. Teacher reports of peer acceptance were also obtained. The results of a multiple regression indicate some support for a family-peer links in children with ADHD. Positive parental affect expressed during a parent-child interaction was the strongest predictor of child-reported peer acceptance in children diagnosed with ADHD. However, parents making positive comments about the child or giving physical affection to the child during parent-child interactions did not predict children's peer acceptance. Negative parenting behaviors showed trends toward significance in predicting lower level's of child-reported peer acceptance in both children with ADHD and undiagnosed children. Parents making negative comments about the child appeared to be the most important predictor of low peer acceptance. Parent and child reports of parental rejection failed to show a significant effect for peer acceptance in both

children with ADHD and undiagnosed children. However, among children with ADHD, child-reported parental rejection approached significance as a predictor of peer acceptance. Overall, the results of the current study lend some support to the theory that parents of children with ADHD indirectly affect their children's peer acceptance through parent behaviors. Clinically, these results suggest that interventions with children with ADHD could also focus on parents expression of positive affect and decreasing negative comments. The limitations of the current study and directions for future research will be presented.

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CHAPTER 1

INTRODUCTION

Socialization with peers has been viewed as one of the most important developmental tasks in childhood (Cohn, Patterson, & Christopoulos, 1991). Individuals who are rejected by their peers in childhood have been found to have poorer outcomes in adolescence and early adulthood, including being at greater risk for criminality, psychopathology, and dropping out of school (see Kupersmidt, Coie, & Dodge; Parker & Asher, 1987, for a review). Further, there is empirical support for the notion that parents indirectly influence children's peer functioning through the parent-child relationship (e.g., Armentrout, 1972; Carson & Parke, 1996; Harrist, Pettit, Dodge, & Bates, 1994; Isley, O'Neil, & Parke, 1996; Roff, Sells, & Golden, 1972). One group of children that exhibit considerable problems with peers (Henker & Whalen, 1999; Whalen & Henker, 1985) and in interactions with parents (Danforth, Barkley, & Stokes, 1991) is children with Attention-Deficit/Hyperactivity Disorder (ADHD). Given that peer relationship problems in children with ADHD are of significant concern and negative peer relationships are predictive of negative outcomes in adolescence and early adulthood, the current study examined the association between parent-child relationship characteristics and peer acceptance in an ADHD population.

Family-Peer Relationships

Given the predictive importance of peer relationships in childhood, research has attempted to identify factors that are associated with peer functioning. The influence of the parent-child relationship on peer functioning is one area that has received attention. Specifically, Parke and his colleagues (Boyum & Parke, 1999; Parke, Cassidy, Burks, Carson, & Boyum, 1992; Park, Neville, Burks, Boyum, & Carson, 1994; Parke & O'Neil, 1999; Parke et al., 1998)

have proposed the Tripartite Model of Family-Peer Linkages to explain the association between parent-child relationships and peer relationships. The Tripartite Model states that there are three ways by which parents can influence children's peer functioning. The first two modes of influence that parents have on children's peer relationships are conceived as "direct" effects. In the first mode of parental influence, parents act as "instructors or educators," who directly influence the child's peer environment (Parke et al., 1998). Direct actions include supervising and assisting early peer encounters, advice giving, and educating children regarding specific strategies for interacting with peers (Parke et al., 1998). The second "direct" mode of influence is through the "management of their children's social lives" (Parke et al., 1998, p. 90). Through social management, parents control when peer interactions take place and they also provide access to peers. The third mode by which parents influence their child's peer relationships is viewed as having an "indirect" pathway because the goal of the parents is not to specifically affect the child's social relationships (Parke et al., 1998). Rather, the child's peer functioning is "indirectly" affected by aspects of the parent-child relationship and the parent's interaction style (e.g., warmth versus hostility in parent-child interactions, expression of positive versus negative emotions in parent-child interactions) (Parke et al., 1998). This third mode of influence in the Tripartite Model will be the primary focus of the present study.

Parke and colleagues (1988) state there are two major research traditions that have emerged in the study of the indirect parent-peer links: parent-child attachment in infancy and current parent-child relationships (Parke et al., 1988). Although the Tripartite Model specifically focuses on current parent-child relationships, it is important to consider both views. First, research has examined the influence that early mother-infant attachments have on later peer functioning. According to Attachment Theory (Bowlby, 1982), it is posited that a secure

attachment in infancy leads to greater adjustment in peer relationships. A child with a secure attachment is confident that the parent or caregiver "will be available, responsive, and helpful should they encounter adverse or frightening situations" (Bowlby, 1988, p. 4). In contrast, a child with an insecure attachment is unsure of the availability of the parent and tends to react by either anxiously clinging to the parent (anxious-resistant attachment) or by avoiding the affection of the parent (anxious-avoidant attachment) (Ainsworth, Blehar, Waters, & Wall, 1978). Easterbrooks and Lamb (1979) found that 18-month old toddlers who had secure attachments were more likely to play with other children, had more positive encounters, and stayed closer to peers for longer periods of time than children with insecure attachments. Similarly, Pastor (1981) found that securely attached toddlers were more sociable with both their mothers and peers when observed in a free-play session with another same-sex child than were children with anxious-resistant attachments. Conversely, children with anxious-resistant attachments showed more negative behaviors and were less responsive to their mother and peers (Pastor, 1981). Further, children with secure attachment patterns were rated as having higher levels of relatedness with a friendly adult stranger at age 12 months (e.g., positive responsiveness, engagement in play) (Main & Weston, 1981) and at 21 months (Main, 1983). Lieberman (1977) observed toddlers with peers in a lab playroom and found that higher levels of attachment were positively correlated with nonverbal measures of peer functioning, such as social maturity and expression of positive affect.

Although these studies were conducted in laboratory settings, similar positive associations between secure attachments and positive peer interactions have been found in naturalistic, observational settings (i.e., preschool classroom) (Arend, Gove, & Sroufe, 1979; Kerns & Barth, 1995; LaFreniere & Sroufe, 1985; Waters, Wippmann, & Sroufe, 1979). In

addition, longitudinal studies have supported the link between secure attachment in infancy and better peer functioning in middle childhood (Elicker, Englund, & Sroufe, 1992; Grossman & Grossman, 1991; Lewis & Feiring, 1989). A meta-analytic review of studies that examined the link between parent-child attachment and peer relations in middle childhood found an overall effect size of .20, further supporting this connection (Schneider, Atkinson, & Tardif, 2001). Although the attachment perspective has been important in examining the indirect influences of parents on children's peer functioning, it possesses certain methodological limitations. More precisely, extensive longitudinal studies are the only way in which the association between infant attachment and peer relationships in elementary age children can be studied.

The second research tradition in the study of indirect family-peer links examines aspects of the current parent-child relationship and is included in the Tripartite Model of Family-Peer Linkages. Here, Parke and his colleagues (1998) emphasize the indirect influences of parents on children's peer relationships. Specifically, aspects of the current parent-child relationship have been found to be associated with peer outcomes. Numerous observational studies of parent-child interactions have been conducted to examine the association between aspects of the parent-child relationship (e.g., quality of the parent-child interaction, parental expression of emotion, parental response to emotion, and children's perceptions of parent behavior) and peer relationships (Armentrout, 1972; Barth & Parke, 1993; Boyum & Parke, 1995; Carson & Parke, 1996; Harrist, Pettit, Dodge, & Bates, 1994; Isley et al., 1996; MacDonald & Parke, 1984; Patterson, Kupersmidt, & Griesler, 1990; Roff, Sells, & Golden, 1972).

The quality of parent-child interactions has been found to be significantly associated with peer functioning in children. Harrist and colleagues (1994) found that mother-child interactions of kindergarten children characterized by warmth, responsiveness, and positive synchrony were

associated with children's acceptance by peers at school. Putallaz (1987) also found that mothers who had positive interactions with their child, acted in an agreeable manner, and had concerns about the child's feelings, had a child with higher peer status (i.e., children who were rated as being liked by more peers). Naturalistic observations of family interactions have also revealed that children who were rated by teachers as being competent in peer interactions have family interactions characterized by significantly higher rates of parental responsiveness and lower rates of coerciveness (Pettit, Harrist, Bates, & Dodge, 1991).

In contrast to the positive aspects of parent-child interactions, negative parent-child interactions are associated with peer difficulties. Specifically, mother-child interactions characterized by hostility and overcontrol are associated with increased child aggression and withdrawal from peers (Harrist et al., 1994). Similarly, Barth and Parke (1993) found parents who were controlling in their interactions had children who had difficulties with social adjustment, according to child and teacher report. In addition, lower peer status children (i.e., children who were rated as being less liked by peers) have mothers who tend to be more controlling and negative in parent-child interactions (Putallaz, 1987). Finally, research has shown aggressive children have family interactions characterized by higher rates of coerciveness (defined as negative reactions to demands made by another person) and intrusiveness (defined as interference or distraction when a person was engaged in a task) (Pettit, Harrist, Bates, & Dodge, 1991).

Within the study of indirect family-peer links, research has also demonstrated that expression of emotion in parent-child interactions is associated with children's peer functioning. Specifically, children whose mothers express more positive affect in parent-child interactions tend to be more accepted by peers, as rated by teachers (MacDonald & Parke, 1984) and by peers

(Isley et al., 1996). Isley and colleagues (1996) also found that fathers' expressions of negative affect during physical play are associated with decreased levels of peer acceptance. This effect was especially strong between fathers and sons. Fathers' expression of negative affect in response to their child's negative affect is also positively associated with problems in social interactions (i.e., the child shared less, was verbally aggressive, and avoided others) (Carson & Parke, 1996). Boyum and Parke (1995) found fathers who showed lower levels of anger during spontaneous family dinner interactions had children with higher peer status. Further, fathers who were attentive and expressed positive affect had children who were rated by teachers as being positive and prosocial in peer interactions (Boyum & Parke, 1995). Finally, mothers' problem-focused and supportive reactions to their child's display of negative emotion are associated with higher levels of socially appropriate behavior, as reported by children, parents, and teachers (Eisenberg, Fabes, & Murphy, 1996).

Several studies have also demonstrated that children's perceptions of parent behavior are also associated with peer acceptance. Specifically, Armentrout (1972) found that elementary school children who were more liked by their peers reported more feelings of acceptance from their mothers and fathers. Similarly, Roff and colleagues (1972) found elementary school children who reported higher levels of acceptance and warmth from their parents, especially from fathers, were more accepted by peers. Finally, children who reported lower levels of companionship and affection in their relationship with their fathers were more likely to be rejected by peers (Patterson et al., 1990).

In summary, the Tripartite Model of Family-Peer Linkages (Parke et al., 1998) and related studies of indirect parent-peer links posit that parents indirectly influence their children's peer relationships through aspects of the parent-child relationship and parent-child interactions

(Boyum & Parke, 1999; Parke & O'Neil, 1999; Parke et al., 1998; Parke et al., 1994; Parke et al., 1992). Although there is substantial support for a significant relationship between aspects of the parent-child relationship and peer functioning in normal children (e.g., Armentrout, 1972; Carson & Parke, 1996; Harrist, Pettit, Dodge, & Bates, 1994; Isley et al., 1996; Roff, Sells, & Golden, 1972), this relationship has not been sufficiently studied among children with social interaction challenges due to medical or psychiatric illness. More specifically, this relationship has not been adequately studied among children with Attention-Deficit/Hyperactivity Disorder (ADHD). Investigating family-peer links is especially important in the ADHD population because these children have high rates of peer relationship problems.

Attention-Deficit/Hyperactivity Disorder (ADHD)

Children with Attention-Deficit/Hyperactivity Disorder (ADHD) exhibit significant peer relationship difficulties and are at increased risk for being rejected by peers (Cantwell, 1996; Henker & Whalen, 1999; Whalen & Henker, 1985). ADHD is a psychiatric disorder that is characterized by hyperactivity/impulsivity and inattention and these symptoms most likely play a role in the peer relationship problems that children with ADHD experience (Henker & Whalen, 1999). Prevalence rates for ADHD have been estimated to range from 3 to 7% of all school-age children (DSM-IV-Text Revision: American Psychiatric Association, 2000) and it is the most common childhood disorder seen in community outpatient mental health clinics (Hinshaw, 1994). Thus, children with ADHD are a large population that require clinical and research attention.

ADHD is currently defined in the section, "Disorders Usually First Diagnosed in Infancy, Childhood, or Adolescence" in the Diagnostic and Statistical Manual of Mental Disorders – Text Revision (4th edition – Text Revision) (DSM-IV-TR; APA, 2000). According to the DSM-IV-

TR, the symptoms of ADHD can be divided into two major symptom clusters or dimensions. Specifically, children with ADHD display symptoms of (1) inattention and/or (2) impulsivity/hyperactivity. Based on these dimensions, three major subtypes of ADHD have been delineated. The first subtype is "ADHD, Predominantly Inattentive Type" (ADHD/I). Children with this subtype have problems sustaining their attention to different activities (APA, 2000). In addition, these children tend to have difficulty concentrating on schoolwork, following instructions, listening in class, and/or organizing tasks and activities. Children with inattentive symptoms also tend to avoid tasks that require a great amount of sustained attention, are easily distracted, and often forget things. The second subtype, "ADHD, Predominantly Hyperactive-Impulsive type" (ADHD/HI), consists of children who display excessive motor activity and impulsive behavior. These children tend to have difficulty staying seated, playing quietly, and waiting their turn. In addition, children with hyperactivity/impulsivity often seem to be "on the go," run around excessively, climb on things at inappropriate times, and often interrupt others when they are speaking. The final subtype "ADHD, Combined Type" (ADHD/C) consists of children who exhibit difficulties in all three areas: inattention, impulsivity, and hyperactivity (APA, 2000).

In order for a child to be diagnosed with ADHD according to the DSM-IV-TR criteria, the symptoms must be developmentally inappropriate and must begin prior to the age of 7. In addition, the symptoms must persist for a period of time greater than 6 months. Further, the attentional or hyperactive difficulties must be displayed in more than one setting (APA, 2000).

Problems with ADHD diagnosis. A number of issues make a diagnosis of ADHD diagnosis more difficult. These issues include gender issues, the rate of comorbidity in ADHD, and ethnic/cultural issues. Currently, the DSM-IV-TR reports the male-to-female ratio of ADHD

ranges from 2:1 to 9:1, depending on the population (i.e., community-based versus clinic-based) and the methods used to diagnose (APA, 2000). It is hypothesized that the disproportionate gender ratio may be the result of the lower referral rates for girls with ADHD symptoms (Barkley, 1990). Boys in general are more likely to exhibit aggressive/disruptive behavior. Further, boys with ADHD (as compared to girls with ADHD) are often more likely to show aggressive behaviors simultaneously with hyperactivity and attention problems. These aggressive behaviors in boys with ADHD are often disruptive to teachers and parents and are more likely to result in a referral to a clinic. Thus, for girls with ADHD, highly disruptive behaviors must be displayed before a clinic referral is made, resulting in fewer referrals for girls and referrals at a later age (for a review see Gingerich et al., 1998). Consequently, there may be girls with ADHD who remain undiagnosed due to the gender disparity in referral.

Accurate ADHD diagnosis is also confounded by the high levels of comorbidity with other psychiatric disorders found in the ADHD population. Estimates of the proportion of children with ADHD who have another psychiatric disorder are thought to be as high as two-thirds (for a review see Pliszka, 1998). Children with ADHD often suffer from other comorbid disorders, including learning disorders, anxiety and mood disorders, as well as Tourette's Syndrome or chronic tics (Cantwell, 1996). Children with ADHD may also display behavior disorders, such as Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) (APA, 2000). Finally, it is estimated that between 10-30% of children with ADHD have a comorbid learning disability (Hinshaw, 1994). Given the high rates of comorbidity, research examining ADHD may be confounded by the existence of other pathology.

Finally, it is important to consider ethnicity and cultural factors in accurately making an ADHD diagnosis. Empirical evidence indicates reports of behavior may vary with the ethnicity

of the child. In a review of the literature on ADHD symptoms in ethnically diverse populations, Gingerich and colleagues (1998) reported that numerous studies indicate that African American children tend to receive higher mean hyperactivity ratings from teachers compared to Caucasians. In contrast, Asian American and Mexican American children tend to receive lower hyperactivity ratings from teachers when compared to Caucasians. In addition, school psychologists tended to rate lower socioeconomic class students as being more hyperactive. For those children within the lower socioeconomic classes, African American boys and Mexican American boys were rated as being more hyperactive than their Caucasian counterparts (for a review see Gingerich et al.). While it appears that ethnic and socioeconomic characteristics can effect the behavior ratings of children, it is also important to consider the possibility that there are true ethnic and SES differences in the presentation of ADHD.

Peer functioning in children with ADHD. This section reviews relevant reasons for studying peer problems, patterns of social behavior in children with ADHD, and factors affecting peer problems. Although problems with peer relationships are not outlined as one of the core symptoms of the disorder in the DSM-IV-TR (APA, 2000), peer difficulties are a major concern for children diagnosed with ADHD (Henker & Whalen, 1999).

Interpersonal difficulties in children with ADHD are significant for several reasons (Whalen and Henker, 1985). First, the social problems experienced by children with ADHD are "central and pervasive" (Whalen & Henker, 1985, p. 448). That is, problems with interpersonal functioning are one of the most often reported difficulties by parents and teachers (Whalen & Henker, 1985), and it has been estimated that 50% of children with ADHD experience problems with peers (Barkley, 1990). Second, social problems in children in general tend to be persistent and reoccurring (Whalen & Henker, 1985). Specifically, children with ADHD often establish

negative reputations with peers quickly. That is, children perceive peers with ADHD as so aversive that they do not like them within minutes of meeting them (Pelham & Bender, 1982). These negative reputations are also difficult to change and it is likely that negative peer relationships will continue unless interventions are made. Third, social problems in children with ADHD are predictive of problems related to adjustment and can affect school and work performance (Whalen & Henker, 1985). Finally, children with ADHD may act as "negative social catalysts" (Whalen & Henker, 1985, p.448), eliciting negative problem behavior from children around them and causing disruptions in the classroom. Therefore, peer relationship problems of children with ADHD can also affect the functioning of their peers and teachers (Whalen & Henker, 1985). Given all of these social characteristics of children with ADHD, it is evident that peer relationships are important to examine in this population.

Three major categories of social behavior patterns have been hypothesized to exist in children with ADHD: (1) aggressive/assertive, (2) active/maladroit, and (3) reluctant/avoidant (Henker & Whalen, 1999). Henker and Whalen (1999) reported these groupings are based on clinical observation and past research, but have not yet been empirically validated. First, children with ADHD who are "aggressive and assertive" tend to display oppositional behaviors toward adults and disruptive behavior when in situations with peers. These children appear to be motivated by the need to satisfy their own desires, rather than doing what is being asked of them by adults or what is being suggested by the social contexts. Thus, "aggressive and assertive" children with ADHD often violate the social norms of others and have a comorbid diagnosis of Oppositional Defiant Disorder or Conduct Disorder (Henker & Whalen, 1999).

The second grouping of children with ADHD based on social behavior is labeled "active/maladroit" (Henker & Whalen, 1999). These children are characterized by "social

busyness." They are motivated by the desire to have social contact with others. However, their efforts to join a group of peers are often met with disdain because their initiations into a group are often ill-timed and take place independent of the context. For example, children without ADHD will tend to observe the social norms of the group prior to introducing him/herself into the social context and will patiently wait for an appropriate time to enter the group. A child with ADHD with an "active/maladroit style" does not observe the group prior to entering, and often intrudes and immediately begins to redirect activity. These children do not take into account the desires of other peers or the norms of the group. It is hypothesized that impulsivity may be preventing the "active/maladroit" child from being able to observe and process social cues. These children are often confused when their efforts to join a group are met with rejection. The social behavior of "active/maladroit" children and "aggressive/assertive" children is similar in that they are motivated by the desire to become socially involved. However, "aggressive/assertive" children additionally want the situation go their way (Henker & Whalen, 1999).

The third social behavior pattern observed in children with ADHD, the "reluctant/avoidant" group (Henker & Whalen, 1999), are characterized by neither the desire to be with other children nor the enjoyment of social interaction. These are often children diagnosed with ADHD/I. They are likely to display comorbid internalizing problems such as social anxiety, shyness, and withdrawal (Hodgens, Cole, & Boldizar, 2000; Henker & Whalen, 1999). Instead of being actively rejected and disliked by peers (as in the cases of the two previous groups), these children are often neglected or ignored. Because girls are often diagnosed with ADHD/I they are more likely to fit into the "reluctant/avoidant" group (Henker & Whalen, 1999).

Empirical research has not delineated a clear single cause of the peer relationship problems, although several mediating mechanisms, including poor social information processing and comorbid aggression have been found to be related to peer relationship difficulties (Henker & Whalen, 1999). First, researchers hypothesized that children with ADHD possessed deficits in social information processing skills and that peer relationship problems were a result of this deficit. However, little research has supported this line of thought. In fact, children with ADHD are not significantly different from normal peers when their social information processing skills are assessed in hypothetical social situations (Henker & Whalen, 1999). However, when social information processing skills must be applied in real life contexts, children with ADHD are not able to employ them as well as their peers, possibly due to their symptoms of impulsivity or inattention (Landau, Milich, & Diener, 1998; Whalen & Henker, 1985). Other social processing-related variables that may affect ADHD children's peer functioning include differing social perceptions, social agendas, response styles, vicarious learning, and reinforcement responsiveness (for a review, see Whalen & Henker, 1985). Comorbid aggression has also been shown to have an effect on the peer relationships in children with ADHD. Specifically, children with ADHD who are also aggressive make more negative and hostile attributions when they are presented with ambiguous situations as compared to their peers (Henker & Whalen, 1999). For example, if an ADHD child with comorbid aggression is pushed in the lunch line, they are more likely to assume that the other child did it on purpose, rather than inferring that it might have been an accident. In addition to being related to attributional styles, the presence of aggressive behaviors in children with ADHD is associated with lower levels of peer acceptance (Landau et al., 1998). More specifically, when children in a classroom are asked who they like and do not

like, ADHD children with comorbid aggression are disliked or rejected by more children than are their peers.

A few studies have examined family-peer links in boys with ADHD (e.g., Hinshaw et al., 1997; Hinshaw & Melnick, 1995; Leddick, 1995). Specifically, a large 6-week summer camp study designed to examine social behavior in boys with ADHD found that maternal authoritative parenting beliefs (e.g., firm expectations and appropriate confrontation balance with warmth) are predictive of positive peer regard in boys with ADHD (Hinshaw et al.). These findings are similar to family-peer links found in normal children (i.e., the positive association between warmth and peer acceptance; Harrist et al., 1994). However, in another study, Hinshaw and Melnick found that authoritative parenting practices were not significantly related to peer ratings in ADHD boys.

Leddick (1995) also examined family-peer links in boys with ADHD who were attending a large 5-week summer camp program. Behaviors in a triadic family play interaction (i.e., mother, father, and child) were coded and sociometric data was obtained from camp members. In older boys with ADHD (ages 10 to 12) in a placebo medication condition, maternal overcontrol was positively associated with negative peer nominations. No other simple correlations revealed significant correlations between family interaction measures and peer acceptance. However, it is important to note multiple regression analyses revealed some parent behaviors were useful in predicting peer status, after child behaviors and characteristics (e.g., positive and negative affect, engagement) were statistically controlled. Specifically, 66% of the variance in positive peer nominations was accounted for by more paternal effectiveness, more paternal engagement, less paternal negative affect, less maternal negative affect, and more paternal permissiveness in boys with ADHD (ages 6 to 9) in a placebo psychostimulant medication condition. In addition, 65%

of the variance in negative peer nominations was accounted for by more maternal negative affect, less paternal positive affect, and less maternal control (Leddick, 1995).

While it appears that recent research (i.e., Hinshaw et al., 1997; Leddick, 1995) indicates there are possible family-peer links in children with ADHD, more work needs to be done before firm conclusions can be drawn. The Hinshaw and Leddick studies assessed peer acceptance and rejection in samples of boys that were largely ADHD (up to 60%). This is in comparison to the 3 to 7% usually found in an average peer setting (APA, 2001). Furthermore, nothing can be said about family-peer links in girls with ADHD, because thus far, only studies with boys with ADHD have been conducted.

Overall, the research on peer relationships in children with ADHD indicates that problems in peer functioning are of significant concern (Henker & Whalen, 1999). Children with ADHD are more likely to be actively rejected by peers (as in children with ADHD/C or ADHD/HI) or neglected by peers (as in children with ADHD/I) (Henker & Whalen, 1999) and have problems with peer interactions (Landau, Milich, & Diener, 1998). However, it is important to note that children with ADHD not only experience significant difficulties in their peer relationships – the relationships with their parents are also characterized by negativity (Danforth et al., 1991).

Parent-child relationships in children with ADHD. Research has shown that parent-child interactions of children with ADHD tend to be more negative and conflictual compared to those of other children (Danforth et al., 1991). Danforth and his colleagues (1991) conducted a review of observational studies of parents and children with ADHD and found that parents of hyperactive children frequently attend more to overactive and impulsive behaviors when compared to parents of non-ADHD children. In addition, these ADHD parents are likely to give

more verbal directions, repetitive commands, verbal reprimands, and corrections. Further, parents of children with ADHD give fewer rewards and attend less to positive behaviors exhibited by their children (Danforth et al., 1991). Lindahl (1998) also found these parents tend to be more rejecting and coercive in their interactions.

Both the situational context and the presence of behavior problems have been found to affect the quality of parent-child interactions in children with ADHD. First, regarding the context of interactions, research has shown that interactions between parents and children with ADHD tend to be more negative in structured activities than in nondirective play tasks (Befera & Barkley, 1985). Befera and Barkley observed hyperactive children with their mothers in free play interactions and found no significant differences between hyperactive parent-child dyads and normal parent-child dyads. In contrast, during more structured activities in which the parents were asked to give the child specific instructions (i.e., pick up all the toys, put them in their boxes, put the toys on the coffee table), the hyperactive children showed less compliance than control children and had increased levels of off-task and negative behavior. Further, mothers of hyperactive children responded with more negative and controlling behavior in the directed interactions than did normal control mothers (Befera & Barkley). Winsler (1998) also found that parents of children with ADHD engage in poorer scaffolding (i.e., nondirective style of assistance that supports autonomy and self-regulation in the child) when in a structured problem-solving situation, compared to normal controls. During this structured task, parents of ADHD children also tended to be more controlling, more verbally active, and more regulatory than comparison parents (Winsler).

Comorbid behavior problems in children with ADHD have also been found to affect the quality of the parent-child interactions. Mothers of children with ADHD and comorbid

Oppositional Defiant Disorder (ODD) give more commands in parent-child interactions than do mothers of ADHD children or control group mothers (Barkley, Fischer, Edlebrock, & Smallish, 1991). Gomez and Sanson (1994) made comparisons of parent-child interactions in three groups of children: ADHD-Only, ADHD-CP (with conduct problems), and Non-ADHD. Their results indicated ADHD-CP boys had more negative parent-child interactions and were more noncompliant than ADHD-Only and Non-ADHD boys. Further, although ADHD-Only boys were found to be more noncompliant than Non-ADHD boys, there were no significant differences in the behaviors of their mothers in the interaction. Specifically, even though the ADHD-Only boys displayed more noncompliant behaviors than the Non-ADHD boys, their mothers did not respond more negatively. Only the ADHD-CP boys had mothers who were more negative. These results suggest that the quality of parent-child interactions "may have a significant and crucial influence in the development and maintenance of conduct problems in hyperactive children" (Gomez & Sanson, 1994, pp. 486-487).

The Gomez and Sanson (1994) study prompts the question of the directionality of the negativity evident in parent-child interactions in children with ADHD. Is it the child's negative, impulsive, and active behavior that elicits a negative reaction from the parent or is it the parent's negative reactions that escalate the adverse behaviors in the child? Research examining the effects of psychostimulant medications has provided an avenue to study the directional effects of parent and child behaviors on parent-child interactions in children with ADHD. Overall, psychostimulant studies indicate positive changes take place in parent-child interactions when children with ADHD take psychostimulant medication. Specifically, when children are taking psychostimulant medication, compliance increases and off-task and negative behaviors decrease (Danforth et al., 1991). Further, mothers decrease their demands and are less controlling in

parent-child interactions when the child is taking psychostimulant medication (Barkley, 1989; Danforth et al., 1991). When children with ADHD are medicated, mothers are also more likely to reward positive behavior (Danforth et al., 1991) and initiate nondirective interactions (Barkley, 1989).

Studies have also compared the effects of psychostimulant medication on parent-child interactions in free play versus structured activities. Barkley (1989) found no significant differences between high and low doses of medication in free play activities. However, in a task-oriented activity, mothers decreased their commands and were less controlling when the children were in the high dose condition as compared to the low dose condition. Barkley (1989) suggests that the maternal behavior of hyperactive children may be, in large part a reaction to the child's inability to maintain attention or comply with tasks or directions in structured situations.

Given that negative parent-child interactions decrease when children are taking psychostimulant medication, this would seem to suggest that parents' negative behaviors are largely a reaction to the child's symptoms. Despite the fact that medication has been found to increase the positive aspects of parent-child interactions and decrease negative aspects, parent-child interactions in medicated children with ADHD are still significantly more negative than parent-child interactions of comparison dyads (Hechtman, 1996). Thus, one hypothesis is that parents' negative responses to hyperactive and impulsive behavior become a learned pattern that persists even when those symptoms are not as pervasive or severe (i.e., when the child is taking psychostimulant medication). Danforth and his colleagues (1991) noted the processes that take place in parent-child interactions are similar to both Bell's (1971; as cited in Danforth et al., 1991) reciprocal influence in parent-child relations and the coercion theory of Patterson (1976; as cited in Danforth et al., 1991). That is, it is likely that parents and children both exhibit

behaviors that influence reactions (Danforth et al., 1991). More specifically, parents may respond negatively to their child's inattentive and hyperactive behaviors. In turn, the child's symptoms may escalate and worsen because of the negative response from parents. With the child's increased negative behavior, the parent may then increase their negativity toward the child. Thus, a vicious, negative cycle is introduced and can only be stopped when negative responses are decreased. Unfortunately, due to the correlational nature of the studies that examine parent and child interactions, it is impossible to delineate directionality as to whose behaviors are more influential.

In summary, parent-child interactions in children with ADHD are characterized by increased negativity, verbal reprimands, rejection, coerciveness, and directives (Danforth et al., 1991). Comorbid behavior problems have also been found to further exacerbate negative parent-child interactions (Barkley et al., 1991; Gomez & Sanson, 1994). Psychostimulant studies have evaluated parent-child interactions when children's' ADHD symptoms are reduced with medication (Danforth et al., 1991). These studies have shown there is improvement in parent-child interactions with medication, but there are still significant differences between parent-child interactions with children with ADHD and normal controls (Hechtman, 1996). Thus, it appears that negative parent-child interactions are a significant problem for some children with ADHD.

Statement of Problem

Children with ADHD exhibit significant difficulties in peer functioning. Children with ADHD/C or ADHD/HI are more likely to be rejected by peers while children with ADHD/I are more likely to be socially ignored (Whalen & Henker, 1999). Parent-child relationships in children with ADHD are also frequently characterized by negativity (Danforth et al., 1991). In the developmental literature, Parke and his colleagues (Boyum & Parke, 1999; Parke et al., 1998;

Parke et al., 1994; Parke et al, 1992) have found empirical support for an association between aspects of the parent-child relationship and the child's peer functioning. Research has demonstrated that children who have positive parent-child interactions and who perceive their parents as accepting and warm have higher levels of peer acceptance (e.g., Armentrout, 1972; Carson & Parke, 1996; Harrist, Pettit, Dodge, & Bates, 1994; Isley, O'Neil, & Parke, 1996; Roff, Sells, & Golden, 1972). However, few studies (e.g., Hinshaw et al., 1997; Hinshaw & Melnick, 1995; Leddick, 1996) have examined the association between aspects of the parent-child relationship and peer functioning in children with ADHD. Existing studies indicate that parenting styles that include both firm expectations and warmth/support are associated with higher levels of peer acceptance in children with ADHD (Hinshaw et al., 1997). Leddick (1995) also found some support for family-peer links. Hinshaw and his colleagues (1997) note additional research must be conducted to further examine aspects of the parent-child relationship that may have an effect on peer functioning in children with ADHD. The research linking parent-child relationships in children with ADHD has yet to examine this phenomenon in girls.

Given the limited research examining family-peer links in children with ADHD, the purpose of the current study was to examine the association between aspects of the parent-child relationship and peer functioning in boys and girls with ADHD. Drawing from one aspect of Parke and his colleagues' Tripartite Model of Family-Peer linkages (Boyum & Parke, 1999; Parke et al., 1998; Parke et al., 1994; Parke et al, 1992), the current study focused on the "indirect" influences that parents of children with ADHD have on their children's peer acceptance. More specifically, parent-child variables (assessed via observation and through parent and child report) were evaluated. Children's level of peer acceptance was assessed through teacher and child report. The establishment of family-peer links in children with ADHD

may have important treatment implications. A family-peer link in children with ADHD may indicate the importance of focusing interventions on improving parent-child interaction characteristics, not just on social skills training.

Primary Hypotheses

The first four hypotheses will address the possible family-peer links in children with ADHD. It is important to note that the first four hypotheses are based on literature examining family-peer links in normal children. Although family-peer links have recently been investigated in an ADHD sample, (e.g., Hinshaw et al., 1997; Leddick, 1995), these studies have focused solely on boys with ADHD. These hypotheses will be examined in boys and girls with ADHD, thus making this sample a more representative sample of children with ADHD.

Hypothesis 1. Previous research has demonstrated that normal children whose parents exhibit warmth during parent-child interactions experience higher levels of peer acceptance (Harrist et al., 1994). Further, children whose mothers express positive affect in parent-child interactions are more accepted by peers (Boyum & Parke, 1995; Isley et al., 1996; MacDonald & Parke, 1984). Thus, it is hypothesized that parents' display of greater positive affect, parents' making more positive comments about the child, and parents' greater expression of physical nurturance during a semi-structured play activity will be predictive of higher levels of peer acceptance in children with ADHD.

Hypothesis 2. Previous research has shown that children whose parents display negative affect during parent-child interactions experience problems in social interactions (Carson & Parke, 1996) and are less liked by peers (Isley et al., 1996). Thus, it is hypothesized that parent's increased display of negative affect and parents' making more negative comments about the child will be predictive of lower levels of peer acceptance in children with ADHD.

Hypothesis 3. Research has shown that children's perception of parental acceptance and rejection is associated with levels of peer acceptance (Armentrout, 1972; Roff et al., 1972). It is hypothesized that child-reported parental rejection will be negatively associated with level of peer acceptance in children with ADHD.

Hypothesis 4. Although no previous studies have examined parent-reported behaviors of rejection in relation to peer functioning, studies have shown that negative parent behaviors in parent-child interactions are associated with lower peer acceptance (Harrist et al., 1994). Therefore, it is hypothesized that parent's report of rejecting behavior toward their child will be negatively associated with level of peer acceptance in children with ADHD.

Hypothesis 5. Previous researchers have examined the relationship between ADHD and peer functioning (e.g., Whalen & Henker, 1999) and similar results are expected with the current sample. Thus, it is hypothesized that control group children will have significantly higher levels of peer acceptance when compared to children with ADHD.

Secondary Hypotheses

While it is clear that both parenting behaviors (Boyum & Parke, 1999; Parke et al., 1998; Parke et al., 1994; Parke et al, 1992) and having ADHD (Whalen & Henker, 1999) are associated with peer relationship functioning, only one study (i.e., Hinshaw et al., 1997) has examined these three variables simultaneously. Thus, the next four hypotheses examine the effects of ADHD status and various parent behaviors on peer acceptance.

Hypothesis 6. It is hypothesized that both ADHD status and Positive Parenting Behaviors (PPB) will have a significant effect on peer acceptance. Thus, there will be a main effect for ADHD status, such that children without ADHD (control group) will have significantly higher levels of peer acceptance as compared to children with ADHD. Further, there will be a main

effect for PPB, such that children who have parents with high PPB will have children that have significantly higher levels of peer acceptance as compared to children who have parents with low PPB. The interaction of these two variables will also be explored.

Hypothesis 7. It is hypothesized that both ADHD status and Negative Parenting Behaviors (NPB) will have a significant effect on peer acceptance. Thus, there will be main effect for ADHD status, such that children without ADHD (control group) will have significantly higher levels of peer acceptance as compared to children with ADHD. Further, there will be a main effect for NPB, such that children who have parents with high NPB will have children that have significantly lower levels of peer acceptance as compared to children who have parents with low NPB. The interaction of these two variables will also be explored.

Hypothesis 8. It is hypothesized that both ADHD status and child-reported parental rejection will have a significant effect on peer acceptance. Thus, it is hypothesized that there will be main effect for ADHD status, such that children without ADHD (control group) will have significantly higher levels of peer acceptance as compared to children with ADHD. Further, there will be a main effect for child-reported parental rejection, such that children who report their parents are high in rejection will have significantly lower levels of peer acceptance as compared to children who report their parents are low in rejection. The interaction of these two variables will also be explored.

Hypothesis 9. It is hypothesized that both ADHD status and parent-reported parental rejection will have a significant effect on peer acceptance. Thus, it is hypothesized that there will be main effect for ADHD status, such that children without ADHD (control group) will have higher levels of peer acceptance as compared to children with ADHD. Further, there will be a main effect for parent-reported parental rejection, such that children whose parents report high

rejection will have lower levels of peer acceptance as compared to children whose parents report low rejection. The interaction of these two variables will also be explored.

CHAPTER 2

METHOD

Participants

Participants included 91 girls and boys and their parent/ guardian. The children's' ages ranged from 7.0 years to 11.5 years old, with a mean age of 8.76 (*SD* = 1.23 years) (see age statistics in Appendix B, Table 1). As seen in Appendix B, Tables 2 and 3, the overall sample was primarily Caucasian (78% of children; 82.4% of parents) and the median family income was $60-$70,000. In addition, although recruitment was equally focused on all parents, regardless of gender, 80.2% of the primary guardians that participated were mothers.

Fifty-four children (38 boys, 16 girls) in the study were previously diagnosed with Attention-Deficit/Hyperactivity Disorder, Combined Type (ADHD/C) or Attention-Deficit/Hyperactivity Disorder, Primarily Hyperactive/Impulsive Type (ADHD/HI).[1] Forty of the children diagnosed with ADHD (74%) were prescribed some form of stimulant medication (e.g., Adderall, Concerta, Dexedrine, Methylphenidate). It is also important to note that 26 of the children diagnosed with ADHD (48%) were also diagnosed with at least one other psychiatric disorder (see Appendix B, Table 4). This is consistent with the estimate that as many as two-thirds of children with ADHD are diagnosed with some other psychiatric diagnosis (for a review see Pliszka, 1998).

[1]Children diagnosed with Attention-Deficit/Hyperactivity Disorder, Primarily Inattentive Type (ADHD/I), were not included in the current study due to the qualitative differences in their peer interactions and symptom presentation (Henker & Whalen, 1999). Children with ADHD/I tend not to be actively rejected by peers. In contrast, children with ADHD/I tend to be socially ignored or neglected. Children with ADHD/C or ADHD/HI have intrusive, overactive behaviors that contribute to peer rejection and tend to be actively rejected. Research has shown that children who are socially neglected do not report lower feelings of peer acceptance compared to higher status peers (Asher & Wheeler, 1985). Furthermore, it is less likely teachers would recognize the social neglect of children with ADHD/I. From the viewpoint of teachers, children with ADHD/I may appear as if they have no peer interaction problems.

Thirty-seven children (22 boys, 15 girls) and their parent/guardian served as the comparison group. Only 2 children in the comparison group carried a psychiatric diagnosis, which was the diagnosis of a learning disability. A complete listing of psychiatric diagnoses in the ADHD and the comparison group can be seen in Appendix B, Table 4.

Statistical comparisons were made between the ADHD group and the comparison group on all relevant demographic information (i.e., parent and child gender, age, education level, ethnicity, and family income level) and no significant differences were found. Descriptive statistics, as well as results of t tests and Chi Squares, can be seen in Appendix B, Tables 1, 2, and 3.

Participants were recruited from the community through advertisements as part of a larger research study. Children in the ADHD group were previously diagnosed with ADHD by a physician (i.e., pediatrician, psychiatrist, neurologist, or ADHD specialist) or a psychologist. In addition, symptoms of ADHD were confirmed through the use of parent and teacher report measures described in the following section. It is important to note that 16 parent-child dyads were eliminated from the study either due to a diagnosis of ADHD that failed to be confirmed or because of undiagnosed high symptoms of ADHD. Further exclusion criteria for the study included the presence of pervasive developmental disorders, mental retardation, or traumatic brain injuries (based on parent report). In addition to the participation of the parent-child dyads, parents were asked to solicit the participation of their child's primary teacher. Fifty-nine teachers responded to the requests for information regarding the child participants (65% response rate).

Measures

Demographics questionnaire. The "Demographic Information and History Form" (see Appendix C) was completed by the child's participating guardian. Basic demographic

information was collected with this form, such as parent and child gender, age, ethnicity, estimated income, and education level. Information regarding diagnostic information (i.e., ADHD) and medical information, including current medications, was obtained from this questionnaire.

Measures to confirm diagnoses of ADHD. Three measures were used to confirm diagnoses of ADHD: the ADHD Rating Scale-IV: Home Version (ADHD-RS-IV: HV; DuPaul, Power, Anastopoulos, & Reid, 1998), the ADHD Rating Scale-IV: School Version (ADHD-RS-IV: SV) (DuPaul et al., 1998) and the Child Behavior Checklist (CBCL/4-18; Achenbach, 1991). The ADHD-RS-IV: HV was completed by the child's guardian. The ADHD-RS-IV: HV consists of 18 items that were empirically derived from the ADHD diagnostic criteria in the DSM-IV (APA, 1994). For each item, the frequency of the child's behavior at home within the last 6 months is rated on a 4-point Likert scale ("0 = never or rarely," "1 = sometimes," "2 = often," "3 = very often"). Subscales of the ADHD-RS-IV: HV include a 9-item Inattention subscale and a 9-item Hyperactivity-Impulsivity subscale (with scores ranging from 0 to 27). A Total Scale score (ranging from 0 to 54) can also be obtained by summing the raw scores of the two subscales. Raw scores from the Total Scale and the two subscales can then be converted to percentiles. Norms for the scale were derived separately for boys and girls from an ethnically and regionally representative sample of 2000 children (ages 4 to 19) (DuPaul et al.).

The overall reliability and validity of the ADHD-RS-IV: HV is adequate. Internal consistency coefficients for the three scales ranged from a = .86 to .92. Similarly, in the present study, internal consistency coefficients for the three scales ranged from a = .96 to .98. In addition, four-week test-retest reliability statistics ranged from r = .78 to .86 (DuPaul et al., 1998). DuPaul and his colleagues confirmed the validity of the ADHD-RS-IV: HV by comparing

it to other measures used to assess ADHD symptoms. High correlations were found between the Hyperactivity-Impulsivity subscale of the ADHD-RS-IV: HV and the Conners Parenting Rating Scale – Revised (CPRS; Conners, 1989) Hyperactivity Index, the CPRS Impulsivity-Hyperactivity subscale, and the CPRS Conduct Problems subscale, ranging from r = .65 to .81. The Inattention subscale had a high correlation with the CPRS Learning Problems subscale (r = .66). As would be expected, lower correlations were found between the ADHD-RS-IV: HV and the CPRS subscales that are unrelated to ADHD (e.g., Psychosomatic, Anxious) (DuPaul et al.).

Parent ratings on the ADHD-RS-IV: HV discriminated between the different subtypes of ADHD in the DSM-IV (APA, 1994). In addition, parent ratings on the ADHD-RS-IV: HV distinguished between children with ADHD and clinic-referred children without ADHD. Specifically, parent ratings on the Hyperactivity-Impulsivity subscale were highest for children with ADHD Combined Type (M = 16.4; SD = 5.9) compared to children with ADHD Predominantly Inattentive Type (M = 10.7; SD = 5.7) and children without ADHD (M = 11.6; SD = 8.0). Parent ratings on the Inattention subscale were highest for children who had ADHD, regardless of subtype (M = 19.3; SD = 4.3 for both ADHD groups) when compared to children without ADHD (M = 14.2; SD = 7.9) (DuPaul et al., 1998).

The ADHD-RS-IV: SV (DuPaul et al., 1998) was completed by the child's teacher. The 18 items on the School Version are identical to the items on the Home Version and utilize the same 4-point Likert scale. In addition, the same scales (Inattention Subscale, Hyperactivity-Impulsivity Subscale, and the Total Score) are derived from the teachers' responses on this measure (DuPaul et al.).

The overall reliability and validity of the ADHD-RS-IV: SV is very good. Internal consistency coefficients for the three scales ranged from a = .88 to .96. Similarly, in the present

study, internal consistency coefficients for the three scales ranged from a = .93 to .95. In addition, four-week test-retest reliability statistics on the scales ranged from r = .88 to .90 (DuPaul et al., 1998). To assess validity of the ADHD-RS-IV: SV, comparisons were made between this measure and other measures historically used to assess ADHD. Strong correlations were found between the Hyperactivity-Impulsivity subscale of the ADHD-RS-IV: SV and the Conners Teacher Rating Scale – Revised (CTRS; Conners, 1989) Hyperactivity Index, the CTRS Impulsivity-Hyperactivity subscale, and the CPRS Conduct Problems subscale, ranging from r = .55 to .79. The ADHD-RS-IV: HV Inattention subscale showed strong correlations with the CTRS Hyperactivity subscale (r = .73) and the CTRS Hyperactivity Index (r = .76). In addition, as would be expected, the Inattention subscale had the highest correlation with the CTRS Daydream-Attention scale (r = .85) (DuPaul et al.).

Similar to parent ratings, teacher ratings on the ADHD-RS-IV: SV differentiated the different subtypes of ADHD in the DSM-IV (APA, 1994). In addition, teacher ratings on the ADHD-RS-IV: SV distinguished between children with ADHD and clinic-referred children without ADHD. Specifically, teacher ratings on the Inattention subscale were highest for children who have ADHD, regardless of subtype: M = 21.6 (SD = 4.3) for children with ADHD Combined Type and M = 19.3 (SD = 4.7) for children who have ADHD Predominantly Inattentive Type, compared to children without ADHD (M = 13.3; SD = 5.9). Teacher ratings on the Hyperactivity-Impulsivity subscale were highest for children with ADHD Combined Type (M = 18.6; SD = 5.7) compared to children with ADHD Predominantly Inattentive Type (M = 6.9; SD = 4.5) and children without ADHD (M = 10.5; SD = 8.0) (DuPaul et al., 1998).

The third measure used to assess symptoms of ADHD is Achenbach's Child Behavior Checklist (CBCL; Achenbach, 1991). Specifically, the Attention Problems Scale of the CBCL

was utilized in this study. The CBCL is a behavior checklist completed by parents and consists of 118 items. Each item is rated on a 3-point scale (0 = "not true"; 1 = "somewhat or sometimes true"; 3 = "very true or often true"). This checklist yields nine "Problem Behavior Scales" and three "Competence Scales," which are derived from multivariate statistical procedures conducted and reported separately for boys and girls in different age groups (Achenbach). Results from the CBCL scales are reported in T scores ($M = 50$; $SD = 10$) to indicate how a child's scale scores compare to the gender specific normative sample. T-scores in the range of 60-69 are considered to be at-risk scores, while scores above 70 (above the 98th percentile) are in the clinically significant range. The "Problem Behavior Scales" on the CBCL include: Attention Problems, Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Delinquent Behavior, Aggressive Behavior, and Sex Problems. The Competence Scales include: Activities, Social, and School. Factor analytic procedures were used to derive an Internalizing Scale (composed of Withdrawn, Somatic Complaints, and Anxious/Depressed) and an Externalizing Scale (composed of Delinquent Behavior and Aggressive Behavior).

Research with the CBCL has demonstrated the CBCL has sound psychometric properties. Specifically, Achenbach (1991) found the test-retest reliability of the Problem subscales on the CBCL to be good ($r = .89$) over a seven-day period. Inter-parent reliabilities for the Problem scales were also found to be adequate ($r = .65$ to $.75$). The construct validity of the CBCL was assessed by comparing scores on the CBCL scales to the Conners Parent Questionnaire (CPQ; Conners, 1973) and the Quay-Peterson Revised Behavior Problem Checklist (RBPC; Quay & Peterson, 1983); analogous scales were correlated. Regarding the Attention Problems scale, moderately high correlations were found between the Attention Problems Scale and the

Impulsivity/Hyperactivity and the Attention Problems scales of the CPQ and the Motor Excess Scale of the Quay-Peterson RBPC, with correlations ranging from r = .59 to .77 (Achenbach).

The Attention Problems Scale of the CBCL has shown good convergent validity with an ADHD diagnosis resulting from a structured interview (Biederman, Faraone, Doyle, et al., 1993). Specifically, Biederman, Faraone, Doyle, and colleagues (1993) administered the Schedule for Affects Disorders and Schizophrenia for School Age Children - Epidemiologic Version (Kiddie SADS-E) to parents of children with and without ADHD and DSM-III-R diagnoses were determined. "Excellent convergence" (p. 1247) was found between ADHD diagnoses derived from a structured interview and the Attention Problems Scale on the CBCL, using both total predictive power and odds ratios. Specifically, elevations on the Attention Problems Scale correctly diagnosed children with ADHD 86% of the time (Biederman, Faraone, Doyle, et al.). Similarly, Biederman, Faraone, Mick and colleagues (1996) found the Attention Problems scale of the CBCL differentiated children with ADHD from those without that diagnosis. In addition, internal consistency reliability statistics were computed on the Attention Problems Scale with the current sample and were found to be adequate (a = .89). In summary, the CBCL demonstrates sound psychometric properties, making it a useful tool that is widely used in clinical, community, and research settings.

For the present study, diagnoses of ADHD/HI and ADHD/C were confirmed with elevations above the 80th percentile on the Hyperactivity-Impulsivity subscale or the Total Score of the ADHD-RS-IV: HV or the ADHD-RS-IV: SV or a T score above 60 on the Attention Problems scale of the CBCL. Further, "non-ADHD" children were eliminated from the control group if they receive elevations above the 90^{th} percentile on any of the three scales of the

ADHD-RS-IV: HV or the ADHD-RS-IV: SV and a T score above 61 on the Attention Problems scale CBCL.

Measures of the parent-child relationship. First, parent child interactions were observed using the Parent-Child Interaction Assessment (PCIA; Holigrocki, Frieswyk, Kaminski, & Hough, 1999; Holigrocki, Kaminski, & Frieswyk, 1999). Second, parent and child perceptions of the parent-child relationship were assessed using the Child-Parental Acceptance Rejection Questionnaire/Control (Child-PARQ/Control; Rohner, 1999), and the Parent-Parental Acceptance Rejection Questionnaire/Control (Parent-PARQ/Control; Rohner, 1999).

The PCIA is an analogue observation technique designed to evaluate aspects of parent-child relational functioning. On the PCIA, a parent-child dyad is videotaped while they are given instructions about going on an imaginary trip to the zoo. A brief (90 seconds) "free play" interaction is followed by a series of instructions on playing out several scenes with toy people, animals, and blocks. These 15 "Co-construction Tasks" are designed to pull for emotions, as well as a variety of parenting behaviors, (e.g., level of involvement, nurturing, limit setting, and encouragement) (Holigrocki, Kaminski, & Frieswyk, 1999). In addition, the scenarios put the children in situations "that may require them to delay gratification, achieve, take risks, negotiate autonomy, receive help, compete, and be comforted" (Holigrocki, Kaminski, & Frieswyk, 1999, p. 417). After the parent and child have completed the construction tasks, they engage in a "Clear-up task." Finally, during the "Inquiry," the parent and child view the videotape of parts of their interaction are asked about the actions, feelings, thoughts, and desires of themselves and the other person.

The PCIA videotapes were coded by independent graduate and undergraduate student coders who were blind to participant group status. Coders used the Observational Coding System

for Parent-Child Interactions (OCS; Kaminski et al., 2002). These codes served as variables in testing various hypotheses. For the present study, 10 specific scenarios (e.g., "Scary Tunnel," "Hurt Arm," "Waiting," "High Rock," "Lost Child," "Stranger," "Animal Names," "Gift Shop," "Leaving," and "Lost Toy") were coded on various constructs. These scenes were chosen because they tend to elicit limit setting and acceptance or rejection on the part of the parent. Using 10 scenarios yields 15 minutes of observable parent-child interaction behaviors, which is consistent with previous studies that have sampled 10 to 15 minutes of parent-child interactions in both ADHD (e.g., Johnston, 1996; Lindahl, 1998; Winsler, 1998) and normal populations (e.g., Carson & Parke, 1996; Putallaz, 1987). The specific constructs of the Rating Manual to be used in the present study were chosen after a thorough review was conducted of the constructs and operational definitions used in parent-child observations in both ADHD (e.g., Befera & Barkley, 1985; Johnston, 1996; Lindahl, 1998; Winsler, 1998) and normal samples (e.g., Boyum & Parke, 1995; Isley et al., 1996; MacDonald & Parke, 1984; Pettit et al., 1991). These constructs include Positive Affect, Negative Affect, Positive Personal Comments, Negative Personal Comments, and Physical Nurturance and are defined in the OCS (Kaminski et al., 2002).

A team of 11 graduate students and 2 post-baccalaureate students in psychology programs at the University of North Texas completed the PCIA coding according to the following procedures. First, each trainee was assigned two specific codes from the OCS (Kaminski et al., 2002). Next, trainees coded two archival PCIA videotapes according to the OCS on their specific codes. While in training, trainees were required to justify their ratings for each code. Then, the coding on the archival videotapes by the trainee was reviewed by the lead author of the OCS. Trainees met as a group to discuss errors and clarify questions regarding

coding. Following the procedure outlined by Weiner (1991), inter-rater reliability was computed by dividing the number of times the coders agreed on that code by the total number of times that code was assigned. Coders attained at least 70% agreement for their codes to be considered reliable. Trainees with less than 70% reliability continued to code archival tapes until adequate reliability was achieved. Graduate student coders were paired and randomly assigned videotapes to code. Each pair was responsible for independently coding approximately 46 videotapes, with at least 20% of those tapes in common. Weekly meetings were held to review coding questions.

The following is a summary of the final percent agreement (weighted kappa) among raters for the PCIA behavior codes. Raters for Positive Affect and Negative Personal Comments achieved good percent agreement, at 84% and 86% respectively. The percent agreement between raters for Physical Nurturance was similarly good at 78%. Raters for Positive Personal Comments and Negative Affect were in the adequate range of percent agreement, at 71% and 69% respectively. Kerig (2000) suggests a 60% rater agreement is acceptable for observational research.

For the purposes of statistical analysis, a sum for each parent-child dyad was computed for each code of interest. For analyses that required a dichotomous variable, two other constructs were created (i.e., Positive Parent Behavior (PPB) and Negative Parental Behavior (NPB)). For PPB, the frequencies of the Positive Affect and Positive Personal Comments coded for the parents were converted into z-scores and then summed. A median-split was used to determine high and low groups. Similarly, for NPB the frequencies of Negative Affect and Negative Personal Comments coded for the parents were converted into z-scores and then summed. A median-split was also used to determine high and low groups. The code of Physical Nurturance was split into high and low groups using a median split for the purposes of exploratory analyses.

The Child-Parental Acceptance Rejection Questionnaire/Control (Child-PARQ/Control) and the Parent-Parental Acceptance Rejection Questionnaire/Control (Parent-PARQ/Control) are each 73-item measures designed to assess both the child's and the parent's perception of the parent's behavior toward his/her child in terms of the constructs acceptance and rejection, as well as parental control (Rohner, 1999). Parental acceptance-rejection is viewed as a bipolar dimension of parent behavior with parental acceptance at one end and parental rejection at the other end. Rohner (1999) defines "acceptance" as warmth, affection, and support that can be expressed by parents either physically or verbally. Parental acceptance can be expressed physically through hugging, caressing, smiling, or through other physical indications while verbal expression of parental acceptance includes praise and compliments. In contrast, Rohner defines parental "rejection" as the absence or withdrawal of acceptance which can take three forms: aggression/hostility, neglect, and indifference. Finally, the parental "control" construct refers to the degree to which parents limit or restrict a child's behavior, as well as how much the parent uses directives and demands. Parental control is viewed as being a bipolar dimension with permissiveness at one end and strictness at the other end.

The Parent-PARQ/Control contains statements regarding the parent's behavior that are rated on a 4-point Likert scale ("4 = Almost always true," "3 = Sometimes true," "2 = Rarely true," and "1 = Almost never true"). For the present study, an adapted version of the Child-PARQ/Control was created in order to make it easier for younger children to understand. Although the Child-PARQ was originally validated with children ages 9 to 12, Rohner (1999) states that it can be used with children as young as age 7. However, the abstract presentation of the items (i.e., "My mother…") and the more advanced vocabulary on the Child-PARQ/Control are likely to make it difficult for 7 and 8 year old children to understand.

Several steps were taken to develop an adapted version for the present study. First, the items on the Child-PARQ/Control were transformed from statements to questions. For example, the statement "My mother says nice things about me" was transformed into "Does your mother say nice things about you?" Second, the 4-point Likert scale responses on the Child-PARQ/Control were transformed into "4 = Yes, almost always," "3 = Yes, sometimes," "2 = No, sometimes," and "1 = No, almost always". This response format has been used with other adapted measures (e.g., the Adapted Self-Description Questionnaire I; Marsh, Craven, & Debus, 1991) and has proven to be reliable with younger children.

Standard rewording of the questions on the Child-PARQ/Control was developed through consultation with seven 1st and 2nd grade teachers. Teachers were given instructions to review the items on the Child-PARQ/Control and then asked to make suggestions for changing any difficulty vocabulary without changing the original meaning of the sentence. Once the teacher responses were collected, each teacher was assigned a code number so any patterns in the recommended rewordings could be examined. Across all the teachers, 50 of the 73 items contained vocabulary that may be too difficult for 1st or 2nd graders to understand. For 7 of these items, Rohner (1999) had already developed alternate wordings. Standard rewordings were developed for the remaining items by incorporating the teachers' suggestions and using an age-appropriate dictionary.

Five subscales are derived from the Child-PARQ/Control and the Parent-PARQ/Control: Warmth/Affection, Aggression/Hostility, Neglect/Indifference, Rejection (Undifferentiated), and Control (Rohner, 1999). Several items are reverse scored. A total rejection score is calculated by summing the item scores on four subscales (i.e., Warmth/Affection scale, the Aggression/Hostility scale, the Neglect/Indifference scale, and the Rejection (Undifferentiated)

scale), with higher scores representing greater parental rejection. A "Control" score is derived by summing the item scores on the Control Scale, with higher scores representing greater parental control.

The sample used to assess validity and reliability of the original Child-PARQ was collected from 220 boys and girls ages 9 to 12 in Washington, D.C. elementary schools (Rohner, 1999). No significant differences were found for age, sex, social class, or ethnicity. The Child-PARQ has adequate reliability, with internal consistency reliabilities of the scales ranging from a = .72 to .90 ($p < .001$). Concurrent validity was assessed by comparing the four scales of the Child-PARQ to three scales on Shaefer's Child's Report of Parent Behavior Inventory (CRPBI; Shaefer, 1964, as cited in Rohner, 1999) and one scale of Bronfenbrenner's Parent Behavior Questionnaire (BPB) (Siegelman, 1965, as cited in Rohner, 1999). The Warmth/Affection scale was found to have a high correlation with the Acceptance scale of the CRPBI ($r = .83$). The Aggression/Hostility scale was found to have a moderate correlation with the Physical Punishment scale of the BPB ($r = .55$). The Neglect/Indifference scale had a moderate correlation with the Hostile Detachment scale of the CRPBI ($r = .64$). Finally, the Rejection (Undifferentiated Scale) had a high correlation with the Rejection scale on the CRPBI ($r = .74$). It is important to note all correlations were significant at the $p < .001$ level (Rohner).

Adequate internal consistency has been found on most of the scales of the Child-PARQ and Parent-PARQ using a sample of 113 children, ages 7-12, and their mothers (Schenberg, 1998). Good internal consistencies were found with both the Parent-PARQ (a = .78) and the Child-PARQ (a = .85). In addition, for the individual scales, good internal consistency estimates were found on the Child-PARQ for the Warmth/Affection scale (standardized item a = .87), the Hostility/Aggression scale (standardized item a = .88), and the Undifferentiated Rejection scale

(standardized item a = .79). Similarly, Parent-PARQ alpha coefficients were good: the Warmth/Affection scale (standardized item a = .87), the Hostility/Aggression scale (standardized item a = .87), and the Undifferentiated Rejection scale (standardized item a = .69). However, the Indifference/Neglect Scale on both the Child-PARQ and the Parent-PARQ was less than reliable with standardized item alpha coefficients of .16 and .13, respectively (Schenberg). In contrast, another study conducted with children ages 8-18 (*M* = 11.97 years, *SD* = 2.9 years) found coefficient alphas ranging from .83 to .95 on the 4 scales of the Child-PARQ (Father version), with an overall a of .77 (Veneziano & Rohner, 1998). Finally, internal consistency reliability of the Control Scale on the Child-PARQ/Control ranged from a = .66 to .81 in children ages 7 to 18 (Rohner, 1999).

For primary statistical analyses, the total rejection score for the Parent-PARQ/Control and the Adapted Child-PARQ/Control will be used as a continuous variable. Internal consistency reliability statistics for the Total Rejection score were computed and were found to be adequate for both the Adapted Child-PARQ/Control (a = .81) and the Parent-PARQ (a = .79). For the purposes of statistical analyses that require a dichotomous variable, a median-split was used to create low and high groups on the Total Rejection score. It is important to note that initially high and low groups were determined by using a median split across the whole sample for both child and parent responses on the PARQ. However, a 2X2 (ADHD Status X Parent rejection level) Chi Square analyses revealed a significant difference between the expected numbers in the cells. Therefore, median-splits were calculated separately for the ADHD children and the control group in order to create groups with equal *n*.

Measures of peer acceptance. Three measures were used to assess the child's level of peer acceptance: the Loneliness and Social Dissatisfaction Questionnaire (LSDQ; Asher, Hymel,

& Renshaw, 1984; Cassidy & Asher, 1992), the Self-Description Questionnaire I (SDQ-I) (Marsh, 1990), and the Teacher Rating Scale (Harter, 1985). The Loneliness and Social Dissatisfaction Questionnaire (LSDQ; Asher et al., 1984; Cassidy & Asher, 1992) is a 24-item measure completed by a child to assess perceived peer acceptance and feelings of loneliness. Sixteen of the items focus on children's feeling of loneliness, while 8 items focus on children's hobbies or preferred activities and act as distracters. The original LSDQ designed by Asher and colleagues was transformed by Cassidy and Asher from a statement-response format to a question-response format. In the adapted version, the child is asked to respond to the questions with "3 = yes," "2 = sometimes" or "1 = no." Scores on the LSDQ range from 16 to 45, with higher scores representing higher peer acceptance. This adapted version has good reliability with internal consistency reported at a = .79 (Cassidy & Asher). In addition, the 1984 version revealed a Guttman split-half reliability of .91 (Asher et al.). With the current study, internal consistency estimates were also found to be good (a = .88). Asher and colleagues report that scores on the LSDQ have been found to be significantly associated with peer ratings and child-reported number of friends.

An adapted version of the Self-Description Questionnaire I (SDQ-I) was used to further assess the child's perception of peer acceptance by examining its Peer Relations subscale. The SDQ-I (Marsh, 1990) is a 76-item multidimensional self-report measure of children's self-concept and was developed with strong adherence to theory. Items on the SDQ-I were developed based on the Shavelson model of self-concept and were supported by factor analyses, providing evidence for content and construct validity. In the standard SDQ-I (Marsh), children are asked to respond to simple declarative sentences (e.g., "Most other kids like me," "I make friends easily") on a 5-point Likert scale ("False," "Mostly False," "Sometimes False/Sometimes True," "Mostly

True," or "True"). In addition to 64 positively worded items, the standard SDQ-I (Marsh) includes 12 negatively worded items to avoid positive response bias. Because previous research has shown that children have trouble responding appropriately to negatively worded items, these items are not included in the scores derived from the SDQ-I (Marsh).

The SDQ-I assesses three areas of academic self-concept (Reading, Mathematics, and General School self-concept scales) and four areas of nonacademic self-concept (Physical Ability, Physical Appearance, Peer Relations, and Parent Relationships self-concept scales). Also, a General-Self self-concept scale assesses "general or overall positive self-perspective that is not specific to any particular facet of self-concept but could be applied to each specific facet of the self" (Marsh, 1990, p. 23). In addition to these eight scales that produce scores, three total scores can be computed. The Total Nonacademic score is an average of the four nonacademic scales, and the Total Academic score is an average of the three academic scales. The average of these two scores result in the Total Self score (Marsh, 1990).

The SDQ-I raw scores can be converted to percentile ranks and standard scores (T scores with means of 50 and a standard deviation of 10). Normative comparisons are reported separately for males and females in grades 2 through 4, and combined norms based on responses by both males and females in grades 2 through 6 may be useful for making group comparisons. Control scores may be computed to assess response consistency and positive/negative biases (Marsh, 1990).

The SDQ-I possesses good internal consistency, with estimates ranging from a = .80 to .92 and a median alpha coefficient of .88 for the eight scale scores. Alphas for the three total scores are .91 for the Total Nonacademic score, .92 for the Total Academic score, and .94 for the Total Self score (Marsh, 1990).

The SDQ-I was originally intended for use in grades 4 through 6 (ages 8 through 12). However, Marsh and colleagues (1991) provided empirical support for the use of an adapted SDQ-I with children 5 to 8 years of age. On the adapted SDQ-I, the response format was altered so that the interviewer initially asked the child to respond "Yes" or "No" to the declarative sentence to indicate whether the sentence was true or false as a description of the child. If the child initially responded, "Yes," the interviewer then asked the child whether he/she meant "Yes, always" or "Yes, sometimes." If the child initially responded "No," the interviewer then asked the child whether he/she meant "No, always" or "No, sometimes" (Marsh et al.). In addition, on the adapted SDQ-I the negatively worded items were excluded all together to avoid confusion (Marsh et al.).

In a study to evaluate the reliability of the adapted SDQ-I with young children, 501 students in kindergarten, first grade, and second grade completed the questionnaire (Marsh et al., 1991). In addition to the altered response format, procedures for standard SDQ-I administration were adjusted so that the adapted SDQ-I was administered as an individual interview, whereby the examiner read each item aloud. Marsh and his colleagues found that each of the eight SDQ-I factors that have been identified in responses by older children (ages 8 to12) was identified for younger children (ages 5 to 8), though the average correlation among the SDQ-I factors was smaller with increasing age. The adapted SDQ-I possessed good internal consistency, with estimates ranging from a = .72 to .86, except for the Parent Relationships and Physical Ability scales, with estimates of a = .69 and .51 respectively, for kindergarten respondents only. The internal consistencies of the General Self scale were moderate, ranging from a = .73 to .78. In general, these reliability estimates increased with age. Correlations among the adapted SDQ-I scores for children in kindergarten through second grade were compared with those in the

normative archive of SDQ-I scores for students in grades 2 through 6. Results suggested that the adaptive SDQ-I procedures may facilitate the differentiation of self-concept facets by five to eight-year-old children. Although the adapted SDQ-I contains more items than most measures developed for younger children, there was no deterioration in responses near the end of the questionnaire. Overall, Marsh and his colleagues suggested that the psychometric properties of the adapted SDQ-I provide reasonable support for assessing self-concept in children ages 5 to 8. In the present study, the adapted SDQ-I Peer Relations scale showed good internal consistency ($a = .79$).

The Teacher Rating Scale (TRS; Harter, 1985) is a 15-item measure developed to parallel the Self-Perception Profile for Children (Harter). The Self-Perception Profile for Children was designed to assess children's judgment of their competence in five different domains, as well as assess their global self-worth. These domains include: (1) Scholastic Competence (academic performance); (2) Social Acceptance; (3) Athletic Competence (sports and outdoor games); (4) Physical Appearance; (5) Behavioral Conduct; and (6) Global Self-Worth. On the TRS, the teacher rates the child's "actual behavior" on each item. Responses are given in a double "structured alternative format." For example, the teacher is first asked to decide between two statements as to which fits the child best (e.g., "This kid often forgets what he or she learns, but this kid remembers things easily.") Once the teacher makes a statement choice, the teacher then rates the statement as "Sort of True for this Child" or "Really True for this Child." Items are scored with 4, 3, 2, or 1, with 4 representing the most positive rating and 1 representing the most negative rating. The TRS shows excellent internal consistency reliability, reported at $a = .93$-$.96$ (Harter, 1982). Good factorial validity was also demonstrated with item loadings on each factor ranging from .60 to .67 (i.e., Scholastic Competence, Social Acceptance, Physical Appearance,

and Global Self-Worth). The Social Acceptance domain is the domain of interest for the present study and was used in statistical analyses. In the present study, the Social Acceptance domain showed good internal consistency (a = .94).

Peer acceptance is often assessed through self-report measures (e.g., Barth & Parke, 1993; Eisenberg et al., 1996; Patterson et al., 1990), teacher report measures (e.g., Carson & Parke, 1996; Eisenberg et al., 1996; Isley et al., 1996; MacDonald & Parke, 1984; Pettit et al., 1991), observation (e.g., Harrist et al., 1994; Isley et al., 1996; MacDonald & Parke, 1984), and sociometric ratings by peers in the classroom (e.g., Armentrout, 1972; Boyum & Parke, 1995; Puttalaz, 1987). Due to the necessity of referrals of children already diagnosed with ADHD to the present study, peer acceptance was assessed through teacher and self-report only. Although sociometric data would certainly add valuable information regarding peer functioning, the possibility of visiting each child participants' classroom and obtaining parental permission from the child's peers to participate in the study is not feasible. In addition, Boyum and Parke (1995) found significant correlations between teacher ratings of social functioning and peer sociometric ratings, ranging from *r* = .37 - .60. Similarly, Isley and colleagues (1996) found significant correlations between peer and teacher measures of social functioning, ranging from *r* = .41 - .53.

Procedure

Parent-child dyad participants were recruited in several ways. Non-ADHD parent-child dyads were recruited from the community through posters, flyers, windshield flyers, and newspaper advertisements. Families with ADHD children were referred through ADHD support groups (e.g., CHADD, ADDA), family therapy clinics, school counselors, parent education groups and flyers posted in physician's offices and pharmacies. Participants who are interested contacted the researchers by phone and were told about the study and its procedures. Parents of

ADHD children were made aware that participation required that their child delay or skip 1 dose of their stimulant medication (as is standard in observational studies of ADHD children). Parents were also told that participation includes a thirty minute videotaped play interaction with him/her and his/her child. Parents also spent approximately two hours completing questionnaires. Each child also spent approximately 45 minutes to an hour completing the 3 child report questionnaires with the help of a trained graduate student. Then the child was allowed to play with the examiner for the remainder of the time. Persons who wished to participate were scheduled for a 3-hour appointment.

Upon arrival at the testing site (University of North Texas Psychology Building – Terrill Hall or Great Lakes Academy in Plano), participants were greeted and informed consent was obtained (see Appendix D). Assent was also solicited and obtained from all child participants if their parent chooses to sign the Informed Consent, as seen on the last page of the Informed Consent Form. After providing written informed consent, the parent and child were left alone for a few minutes. Parents of ADHD children were discretely reminded by one researcher that these few minutes of privacy are intended to allow the child time to take their medication. The other researcher(s) who were collecting data from the child were blind to the child's ADHD status.

Once consent was obtained, parents and their son or daughter participated in the PCIA (Holigrocki et al., 1999). The PCIA was administered according to the protocol described in the PCIA Manual (Holigrocki, Frieswyk, Kaminski, & Hough, 1999). The PCIA was videotaped and all materials and toys were set up in a standardized manner. The researcher remained in the room except during the "Free Play" and "Clear Up" scenarios. During each scenario, the researcher remained quiet unless spoken to directly. Whenever necessary, a non-directive and warm response was given (Holigrocki, Frieswyk, Kaminski, & Hough, 1999).

Following the administration of the PCIA, parents were given one of 4 counterbalanced questionnaire packets (which included 10 measures – 3 from the present study) to complete while the child was administered 3 measures (i.e., the Adapted Child-PARQ/Control, the LSDQ, and the SDQ-I) by a trained graduate student (for child administration procedures see Appendix E. The child was administered one of four counterbalanced packets of measures. The graduate student read directions and items aloud and recorded the child's responses in order to prevent any difficulties the child may have with reading the measures. In addition, at least every 20 minutes, a 5-minute break was taken to prevent fatigue in the child. However, more frequent breaks were taken as is necessary to maintain good rapport and optimize the validity of the child's responses. Following the completion of the child questionnaires, the child was allowed access to a number of age appropriate toys and was supervised by the researcher. After completion of all measures, the parent could choose to complete a letter (see Appendix F) addressed to the child's teacher asking them to complete two questionnaires, the ADHD-RS-IV: SV and the TRS. Procedures for explaining the teacher letter the parent can be seen in Appendix G. To ensure confidentiality, the child's name was only be on the letter to the teacher and the child's number (not name) was on the actual measures that the teacher completes and sends back. A self-addressed envelope was attached so the teachers would be able to return the measures to the researcher. Each teacher was sent $5 compensation after returning the completed questionnaires.

Problems with attendance and attrition in research with families have been historically evident. Thus, it is standard procedure to offer participants in family studies the types of support they may need to make participation possible. Examples of such support include transportation, childcare, and snacks. In addition, financial incentives are needed to make it worthwhile for

families to relinquish a few hours of their Saturday to come in for testing. Therefore, participants were offered childcare and snacks. Further, dyads were paid $10 per hour for their time (usually about 3 hours). Following completion of the study, parents received a debriefing form (see Appendix H).

CHAPTER 3

RESULTS

Data Preparation

Prior to conducting statistical analyses, all dependent and independent variables were examined for both the ADHD sample and the whole sample (ADHD group and Control group combined) to determine if normality was met, which is an assumption for both the Multivariate Analysis of Variance (MANOVA) and multiple regression. For the ADHD sample (to be used in Hypotheses 1-4), several variables violated the test of normality, including the Total Score on the LSDQ and the TRS Peer Relations Scale. Following a squared transformation on the LSDQ Total Score and a log transformation on the TRS Peer Relations Scale, these variables met the assumption of normality. The PCIA behavior codes also did not meet the assumption of normality and all were positively skewed due to the high frequency of zero for the codes. Several different transformations were attempted and none were helpful in meeting the normality assumption.

For the whole sample (to be used in Hypotheses 5-9), a log transformation was also required of the TRS Peer Relations Scale in order to meet the assumption of normality. A squared transformation with the LSDQ was also attempted and was found to be of no help in normalizing the distribution. Analyses were still conducted even when variables did not meet the assumption of normality. Multiple regressions and MANOVA's are known to be fairly robust when the assumption of normality is not met (Weinfurt, 1995). The other assumptions of the multiple regression include non-collinearity between predictors, linearity between the independent and dependent variables, and homoscedasticity. The assumption of non-collinearity between predictors was met as the correlation between the predictors did not exceed a correlation

of .90. The assumptions of linearity and homoscedasticity were investigate utilizing scatterplots which plotted predicted values on the X-axis and standardized residuals on the Y-axis. Based on this examination, it was determined that there were no violations of these assumptions.

The other assumption of the MANOVA, the assumption of homogeneity of covariance, was met on all analyses based on Box's Test of Equality of Covariances. For the one-way Analysis of Variance (ANOVA), the assumption of homogeneity of variance was met based on the Levene's Test for Equality of Variances on all significant results.

Examination of Dependent Variables in Attempt to Reduce the Number of Analyses

In addition to the above data preparation, the correlations between the peer acceptance measures (the dependent variables to be used in all analyses) were examined for both the ADHD sample and the whole sample in order to determine if there was a significant amount of overlap between the scales (see Appendix B, Tables 5 and 6). These dependent variables included the SDQ-I Peer Relations Scale and the LSDQ Total Score. For the ADHD sample (to be used in Hypotheses 1-4), the results of the correlations indicate there is a significant relationship between the LSDQ Total Score and the SDQ-I Peer Relations Scale, r (35) = .52, $p < .005$. For the whole sample (to be used in Hypotheses 5-9), there was also a similar significant correlation between the LSDQ Total Score and the SDQ-I Peer Relations Scale, r (58) = .54, $p < .005$. Because the Pearson r did not exceed .80 for any of these correlations, these measures are considered to offer unique information regarding peer acceptance and both measures will be used in the analyses. It is important to note that the TRS Social Acceptance Scale, another measure of peer acceptance, will be only be used in exploratory analyses due to the low number of teacher responses.

Primary Hypotheses Results

Hypothesis 1 results. The first hypothesis tested stated that parents' display of greater positive affect, parents' making more positive comments about the child, and parents' greater expression of physical nurturance during a semi-structured play activity would predict higher levels of peer acceptance in children with ADHD. A simple multiple regression was conducted to determine the predictive relationship between these positive parent behavior codes on the PCIA (Positive Affect, Positive Personal Comments, and Physical Nurturance) and measures of peer acceptance (i.e., SDQ-I Peer Relations scale and LSDQ). The combination of positive parent behaviors (Positive Affect, Positive Personal Comments, and Physical Nurturance) as predictors was significant, accounting for 11% of the variance in LSDQ scores, F (3, 46) = 3.06, $p < .05$, *Adj.* $R^2 = .112$. Of the three predictors, Positive Affect was the most important variable (*Beta* = .336, $t = 2.37$, $p < .05$, $sr^2 = .10$). The correlation matrix between the predictor variables and dependent variable, as well as the results of the multiple regression, can be seen in Appendix B, Tables 7 and 8. In contrast to the results seen with the LSDQ, the combination of positive parent behaviors was not a significant predictor of peer acceptance as assessed by the SDQ-I Peer Relations Scale, F (3, 45) = .22, p = NS. Exploratory analyses on Hypothesis 1 using the TRS Social Acceptance scale as the dependent variable showed that the positive parent behaviors were not significant predictors of teacher reported peer acceptance, F (3, 29) 1.46, p = NS.

Hypothesis 2 results. The second hypothesis tested stated that parent's increased display of negative affect and parents' making more negative comments about the child during a semi-structured play activity would predict lower levels of peer acceptance in children with ADHD. A simple multiple regression was conducted to determine the relationship between the negative parent behaviors on the PCIA (Negative Affect and Negative Personal Comments) and each

measure of peer acceptance (i.e., SDQ-I Peer Relations scale and LSDQ). The combination of the negative parent behaviors showed a trend toward being a significant predictor of peer acceptance as assessed by the LSDQ,

F (2, 47) = 2.55, p = .09. Negative Personal Comments appeared to be the most important variable (*Beta* = -.247, t = -1.78, p = .08, sr^2 = .06). It is important to note that Negative Affect also showed a trend toward being significantly positively correlated with the LSDQ, which is in contrast to what would be expected, r (50) = .19, p = .09. The correlation matrix between the predictor variables and dependent variable, as well as the results of the multiple regression, can be seen in Appendix B, Tables 9 and 10.

When the SDQ-I Peer Relations Scale served as the dependent variable in the multiple regression, there was a similar trend towards significance for the combination of negative parent behaviors as a predictor of peer acceptance, F (2, 46) = 2.48, p = .10. Again, Negative Personal Comments appeared to be the most important predictor variable (*Beta* = -.312, t = -2.22, p = .03, sr^2 = .10). It is important to note that Negative Affect contributed negligibly to the regression equation (*Beta* = .001, t = .006, p = .995). The correlation matrix between the predictor variables and dependent variable, as well as the results of the multiple regression, can be seen in Appendix B, Tables 11 and 12. Exploratory analyses on Hypothesis 2 using the TRS Social Acceptance Scale as the dependent variable in the regression indicated that the combination of negative parent behaviors was not a significant predictor of peer acceptance, F (2, 31) = .98, p = NS.

Hypothesis 3 results. The third hypothesis stated that child-reported parental rejection would be negatively associated with level of peer acceptance in children with ADHD. Separate Pearson Product Moment Correlations were conducted to determine the relationship between the child's perceived parental rejection (as assessed by the Adapted Child-PARQ/CONTROL) and

each of the peer acceptance measures (i.e., SDQ-I Peer Relations scale and LSDQ) among ADHD participants. Although the correlation between the child's perceived parental rejection and the LSDQ was not significant, a small negative correlation was evident, r (53) = -.22, p = .11. Further, there was a small nonsignificant correlation between the child's perceived parental rejection and the SDQ-I Peer Relations, r (53) = -.10, p = .50. Finally, exploratory analyses revealed there was a small negative correlation between the TRS Social Acceptance Scale and child-reported parent rejection, although it was nonsignificant, r (35) = -.22, p = .21.

Hypothesis 4 results. The fourth hypothesis tested stated that parent's report of rejecting behavior toward their child would be negatively associated with level of peer acceptance in children with ADHD. That is, parent report of parental rejection would be associated with being rejected by peers or lower levels of peer acceptance. Separate Pearson Product Moment Correlations were conducted to determine the relationship between the parent-reported parental rejection (as assessed by the Parent-PARQ/CONTROL) and each of the 2 peer acceptance measures (i.e., SDQ-I Peer Relations scale and LSDQ). There were no significant correlations between parent reported parental rejection and levels of peer acceptance. In addition, exploratory analyses examining the correlation between the TRS Social Acceptance Scale and parent reported parental rejection was not significant. Correlations between parent and child-reported parental rejection and measures of peer acceptance can be seen in Appendix B, Table 13.

In order to understand the different outcomes in the correlations based on parent and child report of parental rejection, further exploratory analyses examined the correlation between the Child-PARQ/Control and the Parent-PARQ/Control Total Rejection Score. The results indicated that the correlation between the Child-PARQ and the Parent-PARQ for the ADHD sample was non-significant, r (52) = .02, p = .86. In contrast, in the Control sample, the

correlation between the Child-PARQ and the Parent-PARQ was moderate and approached significance, r (37) = .29, p = .08.

To assess the validity of both the Child and Parent PARQ/Control, the Total Rejection Score and the subscale means were compared to the means reported by Rohner (1999). Comparisons were made with the means with the ADHD sample, the control sample, and the whole sample together. The scores for both the Child-PARQ/Control and the Parent-PARQ/Control appeared to be very consistent with what has been found in previous studies. A second attempt to assess the validity of the Parent-PARQ/Control was made by examining the validity scales on another parenting measure in used as part of a broader study (Child Abuse Potential Inventory; CAP; Milner, 1986). Even when the Parent-PARQ/Control scores of parents who were "faking good" on the CAP were eliminated from statistical analyses, no differences in outcomes were found. It is important to note that 9 parents from the ADHD sample and 11 parents from the control sample were eliminated for "faking good," thus indicating parents in the ADHD sample did not appear to be any more defensive than parents in the control group.

Secondary Hypotheses Results

Bonferroni Correction. A Bonferroni Correction was made due to the number of analyses in the secondary hypotheses. Therefore, an analysis will only be considered significant if $p < .01$. However, trends towards significance will also be discussed.

Hypothesis 5 results. The fifth hypothesis tested stated that control group children will have significantly higher levels of peer acceptance when compared to children with ADHD. A MANOVA was utilized to compare the means of peer acceptance (dependent variable) as assessed by the SDQ-I Peer Relations Scale and the LSDQ. Group status served as the independent variable with two levels (ADHD and Control). The omnibus results indicated no

difference between the ADHD and non-ADHD children on self-reported levels of peer acceptance, F (2, 87) = .66, p = .52.

Hypothesis 6 results. The sixth hypothesis tested stated that both ADHD status and Positive Parenting Behaviors (PPB) would have a significant effect on peer acceptance. A 2X2 Multivariate Analysis of Variance (MANOVA) was conducted to compare the means of peer acceptance (dependent variables) as assessed by the SDQ-I Peer Relations Scale and the LSDQ. The independent variables were group status (ADHD and control) and PPB (low PPB and high PPB). Contrary to what was predicted, ADHD status did not have a significant effect on peer acceptance, F (2, 75) = .82, p = .45. Further, the results of the MANOVA also indicated that the main effect for PPB was not significant, although there was a trend toward significance, F (2, 75) = 2.62, p = .08. In examining univariate results, there was a trend toward significance for PPB on the LSDQ F (1, 76) = 5.09, $p < .05$. Specifically, children whose parents displayed high PPB showed a trend toward significantly higher self-reported peer acceptance on the LSDQ (M = 41.00, SD = 5.36) than children whose parents displayed low PPB (M = 37.84, SD = 7.52). A medium effect size was found for this analysis (d = .48), suggesting that the results are meaningful and would likely reach statistical significance if power were increased (current power = .61). The means and standard deviations for the independent variables and the results of this MANOVA can be seen in Appendix B, Tables 14 and 15.

An exploratory analysis was conducted using a 2X2 MANOVA with group status (ADHD and Control) and Physical Nurturance (low and high groups) as the independent variables. Again, the LSDQ and the SDQ-I Peer Relations Scale served as the dependent variables. Results of the MANOVA indicated the main effects for Physical Nurturance, F (2, 79) = .71, p = .50, and ADHD status, F (2, 79) = 1.32, p = .27, were not significant. However, in

examining the univariate results, the interaction of group status and physical nurturance showed a trend toward significance on peer acceptance as assessed by the LSDQ, F (1, 80) = 3.46, p = .07. The trend towards significance for the interaction suggested that for children with ADHD, level of PNUR did not make a difference in self-reported peer acceptance. In contrast, comparison children whose parents displayed high levels of PNUR showed higher levels of self-reported peer acceptance (M = 42.19, SD = 4.35) than comparison children whose parents displayed low levels of PNUR (M = 38.44, SD = 7.91). A medium effect size was found for this interaction (d = .59), suggesting that the results are meaningful. However, definitive conclusions cannot be drawn since statistical significance was not obtained. A graph of the interaction can be seen in Appendix A, Figure 1.

Hypothesis 7 results. The seventh hypothesis tested stated that both ADHD status and Negative Parent Behaviors (NPB) would have a significant effect on peer acceptance. A 2X2 MANOVA was utilized to compare the means of peer acceptance (dependent variable) as assessed by the SDQ-I Peer Relations scale and the LSDQ. ADHD status (ADHD and control) and NPB (low and high) served as the two independent variables. Results of the main effects were not significant for Negative Parent Behaviors, F (2, 78) = .08, p = .92, or ADHD status, F (2, 78) = 1.24, p = .30. In examining the univariate results, ADHD status showed a trend toward significance on peer acceptance as assessed by the SDQ-I Peer Relations Scale, F (1, 79) = 2.44, p = .12. Specifically, children with ADHD showed a trend toward lower levels of peer acceptance on the SDQ-I Peer Relations Scale (M = 45.38, SD = 10.31) than comparison children (M = 49.03, SD = 9.44). A small to medium effect size was found for this analysis (d = .37), suggesting that the results are meaningful and would likely reach statistical significance if power were increased (current power = .34). The means and standard deviations for the

independent variables and the results of the MANOVA for Hypothesis 7 can be seen in Appendix B, Tables 16 and 17.

Hypothesis 8 results. The eighth hypothesis tested stated that both ADHD status and child-reported parental rejection would have a significant effect on peer acceptance. A 2X2 Multivariate Analysis of Variance (MANOVA) was utilized to compare the means of peer acceptance (dependent variable) as assessed by the SDQ-I Peer Relations Scale and the LSDQ. ADHD status (ADHD and control) served as one of the independent variables. The second independent variable was child-reported parental rejection (from the Adapted Child-PARQ/Control) with two levels (low and high). Results of the main effect of ADHD status was not significant, F (2, 85) = .60, p = .55. However, there was a trend for significance for child-reported parental rejection, F (2, 85) = 1.97, p = .15. In examining the univariate results, a trend toward significance was seen on child-reported rejection on the LSDQ, F (1, 86) = 4.0, $p < .05$. Specifically, a trend was seen that in the children in the low rejection group reported higher levels of peer acceptance on the LSDQ (M = 41.36, SD = 6.18) compared to the children in the high rejection group (M = 38.44, SD = 6.38). A effect size was found for this analysis (d = .46), suggesting that the results are meaningful and would likely reach statistical significance if power were increased (current power = .51). The means and standard deviations for the independent variables and the results of the MANOVA for Hypothesis 8 can be seen in Appendix B, Tables 18 and 19.

Hypothesis 9 results. The ninth hypothesis tested stated that both ADHD status and parent-reported parental rejection would have a significant effect on peer acceptance. A 2X2 MANOVA was utilized to compare the means of peer acceptance (dependent variable) as assessed by the SDQ-I Peer Relations Scale and the LSDQ. Group status served as one

independent variable with two levels (ADHD and control). The second independent variable was parent-reported parental rejection (from the Parent-PARQ/Control) with two levels (low and high). Results of the main effects were not significant for ADHD status, F (2, 84) = .39, p = .68, or parent-reported parental rejection, F (2, 84) = .42, p = .66.

Exploratory Analyses with the TRS Social Acceptance Scale

For the following exploratory analyses with the TRS Social Acceptance Scale, a Bonferroni Correction was made due to the number of analyses. Therefore, an analysis will be considered significant if $p < .01$. However, trends towards significance will also be discussed.

Tests of Hypotheses 5-9 were repeated utilizing one-way Analysis of Variances (ANOVAs) with the TRS Social Acceptance Scale serving as the dependent variable. In the ANOVAs, the independent variables remained the same as they were for the first test of each hypothesis. On all ANOVA's using the TRS Social Acceptance Scale, a significant main effect was found for ADHD status. Specifically, children with ADHD showed significantly lower levels of peer acceptance than comparison children. In each analysis, the effect sizes range from η_p^2 = .25 to .30. The results for the ANOVAs for each hypothesis can be seen in Appendix B, Table 20. No other significant main effects or interactions were found.

Further Exploratory Analyses

Due to the unexpected result of the lack of a main effect for ADHD status, further exploratory analyses were conducted. To determine if a possible developmental difference in accurate reporting could be taking place, Hypotheses 5-9 were rerun including only 9 to 11-year-old children. Across all analyses, significant main effects or trends toward significant main effects were found for ADHD status. Specifically, 9 to 11-year-old children with ADHD reported lower levels of peer acceptance compared to comparison children.

CHAPTER 4

DISCUSSION

The purpose of the present study was to investigate the possible family-peer links in children with ADHD. Research has shown the importance of childhood peer relationships; children who are rejected by their peers show poorer outcomes in adolescence and early adulthood (e.g., greater risk for criminal activity, psychopathology, and dropping out of school) (see Kupersmidt, Coie, & Dodge; Parker & Asher, 1987, for a review). In the developmental literature, Parke and his colleagues (Boyum & Parke, 1999; Parke et al., 1998; Parke et al., 1994; Parke et al, 1992) have posited parents indirectly influence their child's peer functioning through aspects of the parent-child relationship, as outlined in the Tripartite Model of Family-Peer Linkages. The family-peer link in children with ADHD has only been examined in a few studies (e.g., Hinshaw et al., 1997; Hinshaw & Melnick, 1995; Leddick, 1996) and deserves further attention, as these children are often known to have problems in social interactions.

Summary of Findings

Positive parent behaviors. The most impressive finding from the present study is that some positive parent behaviors during parent-child interactions were shown to be significantly associated with children's self-reported peer acceptance (i.e., LSDQ) in children with ADHD. This supports the notion that family-peer links exist in children with ADHD. Specifically, parent's expression of positive affect in the parent-child interaction appeared to be most important in predicting child-reported peer acceptance. This is consistent with empirical support found in both children without ADHD (e.g., Boyum & Parke, 1995; Isley et al., 1996; MacDonald & Parke, 1984) and children with ADHD (Leddick, 1995).

However, other positive aspects of the parent-child relationship did not appear to be as important in predicting child-reported peer acceptance. Specifically, parents making positive comments about the child and showing physical affection/nurturance towards the child did not have a significant predictive relationship with child-reported peer acceptance. This is in contrast to previous research with ADHD populations (Leddick, 1995) that found lower levels of paternal "Positive Affect/Warmth" were associated with negative peer nominations. Specifically, "Positive Affect/Warmth" included positive affect, affectionate touching, and complimenting. Affectionate touching and complimenting are analogous to the behaviors coded in the current study (Physical Nurturance and Positive Personal Comments). So while Leddick found that less paternal "Positive Affect/Warmth" was associated with negative peer nominations, perhaps the reason the effect is significant is because of the positive affect component, with physical affection and complimenting behavior being less important.

Across the whole sample (ADHD and Control), trends toward significance were seen in the effect positive parenting behaviors (Positive Parental Affect and Positive Personal Comments toward the child) had on one measure of child-reported peer acceptance (i.e., LSDQ). However, these positive parenting behaviors failed to show a significant effect, which is likely due to the relatively low statistical power. If power were to be increased in future studies, it is likely that a main effect would be significant, presuming the current sample is representative. It would be predicted that children whose parents show high levels of positive behaviors in the parent-child interaction would report higher levels of peer acceptance than children whose parents show low levels of positive parenting behavior.

In exploratory analyses, a statistical trend toward a significant interaction was found between ADHD status and physical nurturance on one measure of peer acceptance (i.e., LSDQ).

It appeared that for children with ADHD, level of physical nurturance did not make a difference in self-reported peer acceptance. In contrast, results suggested that comparison children whose parents displayed high levels of physical nurturance showed higher levels of self-reported peer acceptance than comparison children whose parents displayed low levels of physical nurturance. However, since significance was not achieved, no definitive conclusions can be drawn.

Negative parent behaviors. With regard to negative behaviors in parent-child-interactions predicting peer acceptance in the ADHD sample, only trends toward significance were seen. Specifically, children whose parents made more negative personal comments reported lower levels of peer acceptance than children whose parents made no or fewer negative comments. However, this predictive relationship only approached significance. Perhaps with greater statistical power, a significant effect may be found.

One unanticipated finding was that parental expression of negative affect during parent-child interactions was not related to child-reported peer acceptance or was related in a positive (unexpected) direction in the ADHD sample. Similarly, across the whole sample (ADHD and control), negative parenting behaviors (Negative Affect and Negative Personal Comments) did not show a significant effect with child-reported peer acceptance. Previous research with children with ADHD has shown support for the notion that less paternal and maternal negative affect is predictive of positive peer nominations (Leddick, 1995). In addition, research with undiagnosed children showed that father's expression of negative affect was associated with lower levels of peer acceptance or problems in social interactions (e.g., Boyum & Parke, 1995; Carson & Parke, 1996; Isley et al., 1996). The unexpected results with negative parental affect in the current study may be a result of methodological issues with how parental negative affect was coded or the reliability of this code. These issues will be discussed more under the section,

"Methodological Limitations." The lack of significant findings with negative affect may also may be a result of the differing parent-child contexts in which negative affect was assessed across studies (structured vs. non-structured vs. analogue interactions).

Parental rejection. The results of the examination of parental rejection are somewhat inconclusive. In the ADHD sample, a negative association between child-reported parental rejection and child-reported peer acceptance approached significance for one measure of peer acceptance (i.e., LSDQ). This trend is consistent with previous studies that showed a significant negative association between child-reported parental rejection and level of peer acceptance (Armentrout, 1972; Roff et al., 1972). For the whole sample (ADHD and control), child-reported parental rejection again approached significance for its effect on child-reported peer acceptance. In addition, exploratory analyses with the teacher report measure indicated a trend toward a significant main effect for child-reported peer acceptance in the ADHD sample.

In contrast to the child-report measures, parent-reported parental rejection showed no significant relationship with child-reported peer acceptance in either the ADHD sample or the whole sample. This finding is interesting considering support for this hypothesis came only from the child-report data (i.e., Armentrout, 1972; Roff et al., 1972) and no previous literature could be found to support a significant association between parent reports of rejection and peer acceptance. Possible theoretical implications of this finding will be discussed later.

Exploratory analyses were conducted to examine the relationship between child reports and parent reports of parental rejection. The analyses revealed that the correlation between parent report and child report of parental rejection was not significant for the ADHD sample, while for the control group, the positive correlation approached significance. This means that parents and

children, especially children with ADHD, are reporting very different things about the parent-child relationship.

A few hypotheses are considered as to why child and parent report in the ADHD sample are discrepant on assessing parental rejection. First, perhaps parents are defensively responding on the Parent-PARQ/Control. After the video-taped parent-child interaction (e.g., PCIA), parents may have been primed to perceive the overall study as a test of their parenting skills. Further, the questions on the Parent-PARQ/Control could easily be perceived as a "test of parenting." These two variables together may have led some parents to present themselves in an overly positive light. The items are very face valid and it is easy to discern which response is the appropriate choice for a "good" parent. It is important to note that the mean of the Total Rejection Score on the parent-report on the PARQ/Control was somewhat lower than on the child-report, thus indicating parents may have reported fewer rejecting behaviors.

A second hypothesis to explain the discrepancy between parent and child report of parental rejection is that children and parents simply have a different perception of parent behaviors; children are seeing something in the parent-child relationship of which the parent is not aware. The child may perceive some of the parents' behaviors as rejecting or negative whereas the parent does not.

Regardless of the reason for the parent-child discrepancy in reporting of parental rejecting behavior in the ADHD sample, it must be reemphasized that the association between child-reported parental rejection and peer acceptance only approached significance in the ADHD sample. Future studies will need to continue to investigate the possible relationship between child-reported parental rejection and peer acceptance.

Exploratory findings from teacher reports. The teacher report measure of peer acceptance (TRS Social Acceptance Scale) was only used in exploratory analyses due to the number of teacher packets returned. The analyses examining the associations between aspects of the parent-child relationship (i.e., behaviors in the parent-child interactions and parental rejection) and teacher-reported peer acceptance in children with ADHD were not significant, but may be a result of low power. Further, there were no significant main effects for positive and negative aspects of the parent child relationship for teacher-reported peer acceptance.

ADHD and Peer Acceptance. One surprising finding in the present study was that children with ADHD did not perceive themselves as having significantly lower levels of peer acceptance compared to the control children. This is in contrast to research that has shown that children with ADHD often have more difficulty in peer relations (see Whalen & Henker, 1985, for a review). However, exploratory analyses with teacher responses supports previous research and indicated the expected significant difference in the level of peer acceptance in children with ADHD and undiagnosed children. Therefore, it is important to consider reasons why teacher reports of peer acceptance showed an expected main effect for ADHD status while child reports did not.

One possible explanation is that teachers are accurately assessing peer acceptance and ADHD children are not. Self-report measures of peer acceptance were used in the present study because they have been used in the developmental literature examining the links between parent behaviors in parent-child interactions and peer acceptance (e.g., Barth & Parke, 1993; Eisenberg et al., 1996, Patterson et al., 1990). However, research examining self-report measures of competence or self-perception with children with ADHD specifically has shown support for a "self-protective hypothesis" or the use of "positive illusions" in this population (e.g., Hoza et al.,

2002; Ohan & Johnston, 2002). This literature posits that children with ADHD tend to overestimate their abilities in a variety of areas, including social functioning, in order to protect against negative self-perceptions and feelings of inadequacy. Specifically, when compared to teacher ratings, children with ADHD tend to overestimate their level of social acceptance (Hoza et al., 2002). Further, children with ADHD tend to overestimate their social performance when compared to observer ratings in novel peer interactions (Hoza et al., 2000). When compared to undiagnosed children, children with ADHD do not view themselves as being significantly different on self-perceptions in a variety of areas (including social competence), with the exception of behavioral conduct (Hoza et al., 1993).

Another hypothesis to attempt to reconcile the lack of agreement between child and teacher reports of peer acceptance in children with ADHD is the possibility that teachers are biased in their reports of behavior in children with ADHD. If teachers are already making negative attributions to children with ADHD because of their disruptive behavior in the classroom, it is likely these attributions may extend to the teachers' estimates of peer acceptance.

A third possibility to explain the difference in child and teacher reports of peer acceptance is that perhaps children with ADHD are accurately reporting their "perception" of their social world, while teachers simply have another perception. However, both viewpoints are equally valid. Perhaps the reason children with ADHD are not reporting significantly different estimates of peer acceptance than comparison children is because they feel they are not different from comparison children. For example, "Johnny" is diagnosed with ADHD and he has a difficult time interacting with other children. However, he has one good friend, a younger child in his neighborhood. Now imagine that "Johnny" is completing a survey about how much other children like him. Perhaps that one good friend, that one positive social relationship, is enough

for “Johnny” to make a positive global attribution regarding his social relationships with peers. Having one good friend may cause him to rate himself as having a high level of peer acceptance. In contrast to the child’s perception, a teacher may view a child who only has one friend as having a low level of peer acceptance. This would cause a discrepancy between teacher and peer reports. Future research could focus on the quality of individual friendships of children with ADHD rather than global measures of peer acceptance.

Finally, perhaps the reason why significant main effects are not being found for ADHD status on child-report measures of peer acceptance is because of possible developmental/age differences in self-report and self-perception. The ability to be able to report likeability by other children requires a great amount of self-awareness and the ability to be introspective. Exploratory analyses with only 9 to 11-year-old children indicated significant main effects and trends toward a significant main effect for ADHD status on peer acceptance, with children with ADHD reporting the expected lower levels of peer acceptance. It is possible that 7 and 8-year-old children do not have the self-awareness to accurately report on social relationships (i.e., how well they are liked by others), while 9 to 11-year-old children have developed more cognitive skills to be accurately reflective. Another hypothesis is that it may only be 7 and 8-year-old children with ADHD that have difficulty accurately reporting peer acceptance, while 7 and 8-year-old comparison children are accurate. Thus, it could be that 7 and 8-year-old children with ADHD show some delays that would lead them to be inaccurate reporters of peer relationships. Future studies should carefully consider the possible developmental differences that may affect children’s self-report.

Implications of findings

Theoretical implications. Overall, the results lend some support to the hypothesis that family-peer links exist in children with ADHD. In the Tripartite Model of Family-Peer Linkages (Boyum & Parke, 1999; Parke et al., 1992; Parke et al., 1994; Parke & O'Neil, 1999; Parke et al., 1998), Parke and his colleagues' propose that parents can influence their children's peer relationships in three ways. In one direct mode of influence, parents act as instructors and educators by supervising and assisting in early peer relationships. In the second direct mode of influence, parents act as managers of their children's social lives and influence peer relationships in that way. In the third mode of influence, parents indirectly influence their child's peer relationships through aspects of the parent-child relationship and the parents' interactional style. The third mode of influence served as the primary interest in the present study.

In the current study, positive affect expressed by the parent during parent-child interactions is significantly predictive of child-reported peer acceptance in children with ADHD. The exact mechanism by which this relationship exists is more difficult to explain. First, Parke and colleagues (1998) hypothesize that parental affective expression in parent-child interactions serves as a model for the child. Thus, if a parent models positive affect expression, the child may be likely to carry that model to other social relationships and the child will be affectively positive with peers. This positive affectivity may lead to greater peer acceptance. Second, it could be possible that if a child feels as though their parent enjoys spending time with them, these feelings may generalize to the child's other social relationships. Third, it is possible that children who get along well with other children may also tend to have more positive interactions with their parents in general (i.e., perhaps a parent enjoys a child more if they are easier to get along with).

Significant relationships between parental physical affection and parents making positive comments about the child during parent-child interactions and peer acceptance were not found. Previous studies examining the family-peer links in undiagnosed children most often examined parental positive affect and did not also consider physical affection or positive comments about the child (e.g., Boyum & Parke, 1995, Isley et al., 1996; MacDonald & Parke, 1994). Future research should determine if clear links exist between these parent behaviors and peer acceptance.

For negative parent behaviors in parent-child interactions in children with ADHD, the expression of negative comments appeared to be the most important variable in predicting the child's feelings of peer acceptance, although lack of significance prohibits specific conclusions. It could be posited that if a parent makes negative comments about a child in parent-child interactions, this may lead to feelings of rejection or low self-esteem. These negative feelings or feelings of rejection may then generalize to social relationships with other children.

The current results suggest that positive affect expressed by parents in the context of parent-child interactions is important in predicting peer outcomes in children with ADHD, but that negative affect is not. Perhaps positive parental affect is much less frequent in parent-child interactions in children with ADHD because of the difficult behaviors that go along with the disorder and is something that children attend to more because it is novel. In contrast, parents expression of negative affect in parent-child interactions in children with ADHD is much more frequent (e.g., Danforth et al., 1991); children with ADHD may become more accustomed to hearing it and attend to it less. Thus, it may be the lack of positive affect rather than the presence negative affect that is more important and predictive of peer acceptance in children with ADHD.

In contrast to the link between observed parent behaviors and child-reported peer acceptance, conclusions regarding the link between parent and child report of parent rejecting behavior and peer acceptance is a bit more tentative. Child reports (in both ADHD and the whole sample) of parent rejecting behavior showed a trend toward a significant relationship with child-reported peer acceptance while parent reports did not. It could be hypothesized that children who feel rejected in parent-child relationships will internalize this model of relationships and carry this expectation to peer relationships. Thus, if children are rejected by their parents, they may carry the expectation that they will be rejected by peers. Children who possess the expectation of being rejected may not easily engage in social relationships and this lack of engagement may lead to peer rejection. It is also possible that a child may make global attributions about their social relationships in general and may not make a distinction between parent relationships and peer relationships. Thus, a child may report that all relationships are either good or bad, regardless of whether it is with parents or peers. A global attribution about all relationships would produce a significant relationship between child reports of parental rejection and child reported peer acceptance.

Contrary to what was hypothesized, no relationship was found between parent-reported parental rejection and child-reported peer acceptance in the ADHD sample or the whole sample. It is important to consider theoretically how this might happen. Two possibilities are presented. First, it is important to consider that parents are not the only socializing agents in a child's life. It is possible that rejecting parents may have children who demonstrate resilient behavior and seek out models of relationships outside of the parent-child relationship. For example, a child rejected by their parent may seek out positive social relationships with other relatives (such as grandparents) or teachers and utilize these as their primary source of information about

relationships. Thus, no relationship between parental rejection and peer acceptance would be found. Second, a parent who is very accepting of their child may still have a child who has difficulty in social relationships because of more temperament issues. For example, even a parent who is supportive of a temperamentally difficult child may have a child that experiences peer rejection.

In any case, the discrepancy in child and parent reports of parent rejecting behavior highlights the importance of the use of self-report measures with both parents and children. Most of the previous research examining family-peer links has focused on observed parent-child interactions. Although observed parent-child behaviors lessen potential reporter biases, consideration of individuals' viewpoints would still seem to be important in research and theoretical implications.

Clinical implications. The present study has definite clinical applications in working with children with ADHD and their parents. The current results suggest that clinical interventions with children with ADHD should not only focus on behavior management, but also on improving parents' enjoyment and expression of positive emotion in the context of the relationship. Specifically, the current study indicates that more positive affect expressed by parents in parent-child interactions is associated with higher levels of peer acceptance. Although directionality of this association is not definitive, interventions could focus on teaching parents how to enjoy their interactions with their child and express their enjoyment to their child (e.g., "I'm so happy to be with you"). The increase in positive parent behavior could influence the way children with ADHD view social relationships in general or cause them to be more affectively positive with peers. Although more studies need to be conducted to verify the link, negative comments about the child made during parent-child interactions may also be associated with

lower levels of peer acceptance. Thus, teaching parents how to inhibit negative comments may also be important in improving children's social relationships in an ADHD population.

The fact that reports of parental rejection are not correlated between children with ADHD and their parents also has great clinical importance. The lack of a significant correlation highlights the fact that parents and children with ADHD may have very different perceptions as to what behaviors take place in the relationship. Thus, it will be important for clinicians to not only hear the parent's viewpoint of possible behavioral and relationship difficulties, but time should also be taken to consider the perspective of the child. Although children may offer different information, their perception is equally valid and should be considered, as it will greatly impact the course of therapy. Therefore, viewpoints of both the parent and child should guide intervention.

Methodological Limitations

External validity and generalizability. Four major limitations become apparent when the issues of external validity and generalizability are considered. First, the method used to observe parent-child interactions, the PCIA, is an analogue method designed to recreate situations that might occur in the context of normal parent-child interactions. Parents frequently endorsed this notion many times by making comments like, "We've been through this before." However, the parent and child were actively being observed by an administrator in the room and knew their interactions were being videotaped. This knowledge of observation may have caused there to be a social desirability effect and the parent-child interactions may not be an accurate reflection of the interactions that typically take place.

The second major limitation when considering external validity and generalizability pertains to the characteristics of the sample. Although efforts were made to recruit families from

all ethnic backgrounds, the sample was predominantly Caucasian (approximately 80%). Thus, the generalizability of the current results is limited to parent-child interactions in a Caucasian population. No definitive conclusions can be drawn regarding possible family-peer links that may be present in different ethnic and cultural groups.

A third possible limiting factor that would affect the generalizability of the current results is the lack of diversity in the socioeconomic class of the current sample. Specifically, approximately half of the entire sample's income fell in the greater than $60,000 range. Consequently, making broad generalizations to lower socioeconomic classes can only be made tentatively.

Fourth, the parent-child interactions were primarily observed between mothers and their children (approximately 80%). Definitive conclusions on how mothers' and fathers' behavior is related to peer relationships cannot be reached. Future research could focus not only on examining differences between mothers and fathers, but also on the differences between same sex and mixed sex parent-child interactions.

Finally, it is important to acknowledge the rate of comorbidity among children in the ADHD sample. Forty-eight percent of the children in the ADHD sample were children diagnosed with at least one other psychiatric diagnosis. Although the prevalence of comorbid disorders in the current ADHD sample is consistent with estimates in children with ADHD (Pliszka, 1998), it also makes any ADHD-specific conclusions very tentative. Future research should focus on recruitment of children without other psychiatric disorders or learning difficulties. An alternative route to remedy this issue would be to statistically control for some comorbid disorders with parent reports of various psychiatric symptoms.

Statistical power. An obvious limitation in the present study is the lack of power that diminished the chances of finding significant effects when true effects exist. Future studies should strive to achieve adequate levels of power to assess family-peer links in children with ADHD, especially by attempting to obtain more responses from teachers. One method that may improve teacher responses includes making follow-up phone calls reminding teachers to complete and return the information packet.

Measurement limitations. The LSDQ and the SDQ-I Peer Relations Scale were chosen because it was felt they both tapped into a similar dimension of peer acceptance. However, the results of the majority of the analyses indicated significant results (or trends towards significance) for associations between aspects of the parent-child relationship and the LSDQ, while fewer significant associations were found with the SDQ-I Peer Relations Scale. Therefore, it is important to consider the measurement issues that may have accounted for this difference. First, due to the format of the SDQ-I (all statements were positively worded), it would be easier for a child to develop a response set on the SDQ-I overall. In contrast, the LSDQ has several items that are reverse scored, as well as 8 distracter items, which would make it more difficult for children to develop a positive or negative response bias. Second, the SDQ-I assesses a number of different dimensions related to how the child feels about him/herself, one of which happens to be his/her peer relations. Although the LSDQ contains several distracter items, it primarily focuses on the child's peer relationships. Thus, assessing different dimensions of the self at the same time, as in the SDQ-I, may lead to different responses regarding peer acceptance. Third, the LSDQ taps into a loneliness dimension of peer acceptance, in contrast the SDQ-I's focus on peer liking. For example, the LSDQ had items such as "Are you lonely at school?" and "Do you feel left out of things at school?" that the SDQ-I does not mirror. Taken together or

individually, these measurement differences may have accounted for why significant results were found with the LSDQ and often not with the SDQ-I Peer Relations Scale.

Unexpected results of the analyses also indicated a possible problem with the way "Negative Affect" was coded in the OCS (Kaminski et al., 2002). In one analysis, Negative Affect contributed negligibly to the prediction of one measure of child-reported peer acceptance. In another analysis, the variable of Negative Affect showed a trend toward a significant positive relationship with a measure of peer acceptance, which is in contrast to what would be predicted by previous research. There is an important difference in the way in which parent-child interactions were observed in the present study and in past studies. Specifically, previous research had parents and children interact in both structured (e.g., Leddick, 1995; Putallaz, 1987) and non-structured situations (e.g., MacDonald & Parke, 1984; Isley, O'Neil, & Parke, 1996; Pettit et al., 1991). However, the interactions that take place during the PCIA are guided by the administrator and often specifically pull for certain negative emotions, such as being scared (e.g., "Scary Tunnel") or worried (e.g., "Lost Child" and "High Rock") (Holigrocki et al., 1999). Even when the scenes that pull for negative affect were taken out of the analyses, unexpected statistical relationships with negative affect were still evident. Future studies should take care to separate out negative emotions that the child may interpret as being aversive versus those that are not. Statements like "I'm really mad at you," and "I'm really worried about you," would both be coded as being Negative Affect using the current OCS, but the child's internalization of those statements would be very different. Thus, the effect that negative emotion has on children's peer acceptance may be dependent on the child's interpretation of that emotion.

In addition to these methodological differences in the way negative affect was coded, it is important to consider the possibility that Negative Affect may not have been a reliable code. The

inter-rater agreement for Negative Affect was at 69%, thus indicating some discrepancies in the way parent behaviors were coded. This less reliable measure may have affected the ability to predict peer acceptance by level of Negative Affect. Thus, the surprising lack of significant findings with Negative Affect may be reflective of problems with the code itself rather than an apparent difference in findings from previous studies.

Another weakness regarding the way that behaviors were coded in the parent-child interactions is that many codes relied heavily on verbalizations. Clearer connections between parent behaviors and peer acceptance may be delineated if both verbalizations and behaviors are recorded. For example, a parent may not verbally identify positive and negative emotions, but other behaviors can convey the same message. Laughter could potentially be coded as positive affect and rolling of the eyes could be coded as negative affect. However, the subtleties in behavior make coding of such behaviors very difficult and a methodological challenge (e.g., laughter could be sarcastic and therefore would not be considered positive affect; rolling of the eyes is easily missed if a participant looks away from the camera).

Future Directions

The results of the present study indicate a further need to assess the family-peer links in children with ADHD. To make a stronger and more reliable argument that there are in fact connections between aspects of the parent-child relationship and peer acceptance, future research should attempt to address some of the limitations discussed above. First, future researchers may want to expand the behavior coding system of parent-child interactions to include both behavioral and verbal expressions of parental affect. It may also be useful to separate out parental expressions of negative emotions into two groups; one group would consist of parental negative affect that would be interpreted as aversive to children (e.g., “I’m angry at you.”) and

another group would consist of parental negative affect that would be interpreted as neutral or positive for the child (e.g., "I'm worried about you."). Second, a sample that was inclusive of more fathers and greater ethnic, cultural, and socioeconomic diversity would lend itself to increase the generalizability and validity of future studies. Third, researchers should consider the use of a social desirability measure for both children and parents to assess the degree to which they are attempting to present themselves in a positive light.

Several other avenues are possible for future research. It will be important to further investigate the relative importance of positive affect, physical affection, and positive comments about the child during parent-child interactions in predicting peer acceptance. In addition, because no definitive conclusions can be drawn from the effect of negative comments that parents make about the child on peer acceptance due to lack of statistical significance, future studies should continue to investigate this association. Additionally, expansion of the examination of the social relationships in children with ADHD would also add valuable information in the study of family-peer links. Specifically, a larger scale study could incorporate peer nomination techniques or measures of children's friendships, rather than relying solely on child-reported or teacher-reported peer acceptance. A larger scale study could also include more participants to increase statistical power. Due to the different results found with 9 to 11-year-old children and 7 and 8-year-old children in report of peer acceptance (i.e., differences in self-report of peer acceptance between children with ADHD and undiagnosed children were found only in 9 to 11-year-old children), it may be wise for future researchers to consider separating analyses into younger and older "middle childhood" groups. There may important developmental differences between these younger and older children related to self-report. Finally, it is important to note that the present study has examined only one aspect of Parke and his

colleagues' (1998) Tripartite Model of Family-Peer Linkages in children with ADHD, the indirect influence that parents have on children's social relationships. Future studies could also examine the other two modes of influence: parents as instructors and educators and parents as managers of their children's social lives.

It is evident from the present study that examination of family-peer links in children with ADHD is a worthwhile endeavor. Shedding more light on the relationship between how parents indirectly impact children's social relationships will continue to add to the understanding of ADHD and will help guide individual and family interventions.

Appendix A

Figure

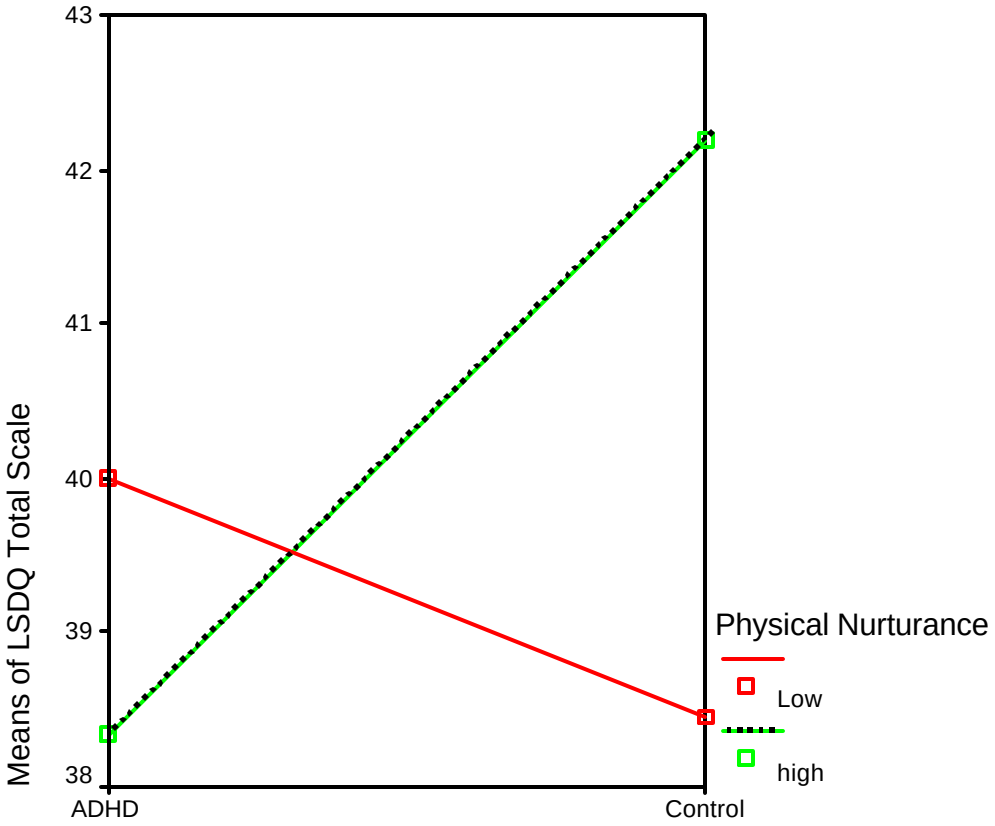

Figure 1. Interaction between ADHD Status and Physical Nurturance on Peer Acceptance on LSDQ Total Score [F (1, 80) = 3.46, p = .07]

Appendix B

Tables

Table 1

Descriptive Statistics on the Age of the Sample

Variable	ADHD Group (n = 54)		Control Group (n = 37)		t	p
	M	*SD*	*M*	*SD*		
Children's Age in years	8.94	1.21	8.49	1.23	1.71	NS
Parents' Age in years	39.04	6.47	37.76	6.62	.92	NS

Table 2

Descriptive Statistics for Children in the ADHD and Comparison Groups

Variable	ADHD Group (n = 54)		Control Group (n = 37)		$?^2$	p
	n	%	n	%		
Child Gender					1.16	NS
Male	38	70.4	22	59.5		
Female	16	29.6	15	40.5		
Child's Grade					3.53[a]	NS
1st grade	6	11.1	8	21.6		
2nd grade	12	22.2	11	29.7		
3rd grade	19	35.2	11	29.7		
4th grade	10	18.5	4	10.8		
5th grade	5	9.3	2	5.4		
6th grade	2	3.7	0	0		
Home-schooled	0	0	1	2.7		
Children's Ethnicity					.001[b]	NS
Asian American	1	1.9	1	2.7		
African American	2	3.7	1	2.7		
Caucasian	42	77.8	29	78.4		
Hispanic	3	5.6	2	5.4		
Biracial	4	7.4	3	8.1		
Unspecified	1	1.9	1	2.7		

Note. $?^2$ = Pearson Chi Square.

[a]Chi Square run with 4th and 5th grade combined and without the 6th graders or home-schooled child due to low *n*.

[b]Chi Square run with two groups, Minority vs. Caucasian due to low *n*.

Table 3

Descriptive Statistics for Parents in the ADHD and Comparison Groups

Variable	ADHD Group (n = 54)		Control Group (n = 37)		$?^2$	p
	n	%	n	%		
Parent Gender					.36	NS
Mother	45	83.3	29	78.4		
Father[a]	9	16.7	8	21.6		
Parent Education level					.23[b]	NS
10^{th} –12^{th} grade	15	27.8	9	24.3		
Technical School/ Community College	10	18.5	8	21.6		
University degree	19	35.2	14	37.8		
Advanced degree	7	12.9	5	13.5		
Unspecified	3	5.6	1	2.7		
Parent's Ethnicity					.04[c]	NS
African American	2	3.7	1	2.7		
Asian American	1	1.9	1	2.7		
Caucasian	45	83.3	30	81.1		
Hispanic	5	9.3	3	8.1		
Biracial	0	0	1	2.7		
Other	1	1.9	1	2.7		
Parent Income					2.86	NS
<$30,000	9	16.7	10	27.0		
$30-60,000	18	33.3	7	18.9		
>$60,000	27	50.0	20	54.1		

Note. $?^2$ = Pearson Chi Square.

[a]Includes one stepfather.

[b]Participants who did not specify an education level were not included in the analysis.

[c]Chi Square run with two groups, Minority vs. Caucasian due to low *n*.

[d]Chi Square run with two groups, Currently married vs. not currently married.

Table 3 (continued)

Descriptive Statistics for Parents in the ADHD and Comparison Groups

Variable	ADHD Group (*n* = 54)		Control Group (*n* = 37)		?^{2}	*p*
	n	%	*n*	%		
Parent Marital Status					.85[d]	NS
Never married	2	3.7	1	2.7		
Married	36	66.7	28	75.7		
Separated	2	3.8	6	16.2		
Divorced	12	22.2	1	2.7		
Widowed	1	1.9	1	2.7		
Engaged	1	1.9	0	0		

Note. ?^{2} = Pearson Chi Square.

[a]Includes one stepfather.

[b]Participants who did not specify an education level were not included in the analysis.

[c]Chi Square run with two groups, Minority vs. Caucasian due to low *n*.

[d]Chi Square run with two groups, Currently married vs. not currently married.

Table 4

Other Psychiatric Diagnoses for Children in the ADHD and Comparison Groups

Psychiatric Diagnoses	ADHD Group (*n* = 54)		Control Group (*n* = 37)	
	n	%	*n*	%
Bipolar Disorder	3	5	0	0
Generalized Anxiety Disorder	7	13	0	0
Learning Disorder	9	17	2	5
Major Depressive Disorder	6	11	0	0
Obsessive-Compulsive Disorder	2	4	0	0
Oppositional Defiant Disorder	7	13	0	0
Separation Anxiety Disorder	1	2	0	0

[a]Psychiatric diagnoses are not mutually exclusive.

Table 5

Correlations for the LSDQ, SDQ-I Peer Relations Scale, and the TRS Social Acceptance Scale within the ADHD Sample (n = 35)

Variable	1	2	3
1. Squared LSDQ Total Score	-		
2. SDQ-I Peer Relations Scale	.52**	-	
3. Log of TRS – Social Acceptance	.28†	.04	-

**$p < .01$. †$p < .15$.

Table 6

Correlations for the LSDQ, SDQ-I Peer Relations Scale, and the TRS Social Acceptance Scale within the Entire Sample (n = 58)

Variable	1	2	3
1. LSDQ Total Score	-		
2. SDQ-I Peer Relations Scale	.54**	-	
3. Log of TRS – Social Acceptance Scale	.32*	.12	-

*$p < .05$. **$p < .01$.

Table 7

Intercorrelations for ADHD Children's Peer Acceptance as Measured by the LSDQ and Positive PCIA Predictor Variables (n = 50)

Variable	1	2	3
Squared LSDQ Total Score	.21	.38**	-.08
Predictor Variables			
1. Positive Personal Comments	-		
2. Positive Affect	.29*	-	
3. Physical Nurturance	.25*	.00	-

*$p < .05$. **$p < .01$.

Table 8

Regression Analysis Summary for Positive PCIA Predictor Variables Predicting ADHD Children's Peer Acceptance as Measured by the LSDQ

Variable	*B*	*SEB*	*b*	*t*	sr^2
Positive Personal Comments	24.07	24.44	.144	.99	.02
Positive Affect	115.92	48.77	.336	2.38*	.10
Physical Nurturance	-23.83	29.04	-.115	-.82	.01

Note. *Adj.* R^2 = .112 (n = 50, p < .05); sr^2 = squared semipartial correlation.

* p < .05.

Table 9

Intercorrelations for ADHD Children's Peer Acceptance as Measured by the LSDQ and Negative PCIA Predictor Variables (n = 50)

Variable	1	2
Squared LSDQ Total Score	.19†	-.23†
Predictor Variable		
1. Negative Affect	-	
2. Negative Personal Comments	.07	-

†$p < .10$.

Table 10

Regression Analysis Summary for Negative PCIA Predictor Variables Predicting ADHD Children's Peer Acceptance as Measured by the LSDQ

Variable	*B*	*SEB*	*b*	*t*	sr^2
Negative Affect	44.90	29.70	.210	1.51	.04
Negative Personal Comments	-36.45	20.50	-.247	-1.78†	.06

Note. *Adj.* R^2 = .06 (*n* = 50, *p*=0.089); sr^2 = squared semipartial correlation.

†*p* <.10

Table 11

Intercorrelations for ADHD Children's Peer Acceptance as Measured by the SDQ-I Peer Relations Scale and Negative PCIA Predictor Variables (n = 50)

Variable	1	2
SDQ-I Peer Relations	-.02	-.31*
Predictor Variables		
1. Negative Affect	-	
2. Negative Personal Comments	.07	-

*$p < .05$.

Table 12

Regression Analysis Summary for Negative PCIA Predictor Variables Predicting ADHD Children's Peer Acceptance as Measured by the SDQ-I Peer Relations Scale

Variable	*B*	*SEB*	*b*	*t*	sr^2
Negative Affect	.003	.629	.001	.01	.00
Negative Personal Comments	-.964	.434	-.312	-2.22*	.10

Note. *Adj.* R^2 = .06 (*n* = 50, *p* = .095) ; sr^2 = squared semipartial correlation.

*$p < .05$.

Table 13

Correlations Matrix for PARQ Measures and Peer Acceptance Measures for the ADHD Sample

Variable	LSDQ Total Score	SDQ-I Peer Relations Scale	TRS Social Acceptance Scale
Child-reported parental rejection	-.22†† (*n* = 53)	-.10 (*n* = 53)	-.22 (*n* = 35)
Parent-reported parental rejection	-.07 (*n* = 53)	-.03 (*n* = 52)	.01 (*n* = 35)

††$p < .15$.

Table 14

Mean Scores and Standard Deviations for Measures of Peer Acceptance as a Function of ADHD Status and Positive Parental Behavior Level (PPB) (n = 80)

	Measures of Peer Acceptance			
	SDQ-I Peer Relations		LSDQ Total	
Group	*M*	*SD*	*M*	*SD*
ADHD Status				
ADHD	45.35	10.41	39.24	6.60
Control	48.29	9.51	39.50	6.75
PPB				
High	47.00	8.89	41.00	5.36
Low	45.92	11.41	37.84	7.52

Note. PPB is the mean of the z-scores of the codes Positive Affect and Positive Personal Comments.

Table 15

Multivariate and Univariate Analyses of Variance F Ratios for ADHD Status X Positive Parental Behavior (PPB) for Peer Acceptance Measures (n=80)

		ANOVA	
	MANOVA	SDQ-I Peer Relations	LSDQ Total
Variables	*F* (2, 75)	*F* (1, 76)	*F* (1, 76)
ADHD Status	.82	1.64	.33
PPB level	2.62†	.64	5.09*
ADHD Status X PPB level	.63	1.28	.28

Note. F ratios were generated from Wilk's Lambda statistic. MANOVA = multivariate analysis of variance; ANOVA = univariate analysis of variance. PPB = mean of the z-scores of the codes Positive Affect and Positive Personal Comments.

*$p < .05$. †$p < .10$

Table 16

Mean Scores and Standard Deviations for Measures of Peer Acceptance as a Function of ADHD Status and Negative Parental Behavior Level (NPB) (n = 83)

	Measures of Peer Acceptance			
	SDQ-I Peer Relations		LSDQ Total	
Group	*M*	*SD*	*M*	*SD*
ADHD Status				
ADHD	45.38	10.31	39.20	6.54
Control	46.93	9.44	40.15	6.76
NPB				
High	46.75	10.11	39.80	5.81
Low	46.92	10.17	39.33	7.47

Note. NPB is the mean of the *z*-scores of the codes Negative Affect and Negative Personal Comments.

Table 17

Multivariate and Univariate Analyses of Variance F Ratios for ADHD Status X Negative Parental Behavior (NPB) for Peer Acceptance Measures (n = 83)

		ANOVA	
	MANOVA	SDQ-I Peer Relations	LSDQ Total
Variables	*F* (2, 78)	*F* (1, 79)	*F* (1, 79)
ADHD Status	1.24	2.44†	.38
NPB level	.08	.04	.17
ADHD Status X NPB level	.77	1.49	.19

Note. F ratios were generated from Wilk's Lambda statistic. MANOVA = multivariate analysis of variance; ANOVA = univariate analysis of variance. NPB is the mean of the z-scores of the codes Negative Affect and Negative Personal Comments.

†$p < .15$

Table 18

Mean Scores and Standard Deviations for Measures of Peer Acceptance as a Function of ADHD Status and Parental Rejection Level (Child-PARQ) (n = 90)

	Measures of Peer Acceptance			
	SDQ-I Peer Relations		LSDQ Total	
Group	*M*	*SD*	*M*	*SD*
ADHD Status				
ADHD	45.94	10.40	39.38	6.42
Control	48.38	9.36	40.41	6.46
Parental Rejection				
High	45.90	9.91	38.44	6.38
Low	48.14	10.09	41.36	6.18

Table 19

Multivariate and Univariate Analyses of Variance F Ratios for ADHD Status X Parental Rejection (PR) Level (Child-PARQ) for Peer Acceptance Measures (n = 90)

		ANOVA	
	MANOVA	SDQ-I Peer Relations	LSDQ Total
Variables	*F* (2, 85)	*F* (1, 86)	*F* (1, 86)
ADHD Status	.60	1.20	.42
PR level	1.97†	1.00	4.00*
ADHD Status X PR level	.35	.001	.56

Note. F ratios were generated from Wilk's Lambda statistic. MANOVA = multivariate analysis of variance; ANOVA = univariate analysis of variance; PR = Parental Rejection

*$p < .05$. †$p < .15$

Table 20

Results of Exploratory Univariate Analyses of Variance F Ratios for Hypotheses 5-9 for the TRS Social Acceptance Scale

Effects	Group 1		Group 2		*df*	*F*	η_p^2
	M	*SD*	*M*	*SD*			
Hypothesis 5							
ADHD [a]	6.67	2.57	9.78	2.41	1,57	19.43*	.26
Hypothesis 6							
ADHD [a]	6.38	2.35	9.94	2.51	1,48	20.20*	.30
PPB [b]	7.75	2.99	7.46	2.92	1,48	.25	.01
Hypothesis 6							
ADHD [a]	6.38	2.35	9.71	2.47	1,51	21.41*	.30
PNUR [b]	7.70	3.11	7.61	2.70	1,51	.01	.00
Hypothesis 7							
ADHD [a]	6.38	2.35	9.60	2.48	1,50	19.72*	.28
NPB [b]	7.32	3.02	7.85	2.68	1,50	.39	.00

Note. ANOVA = univariate analysis of variance. PPB = Positive Parental Behavior. PNUR = Physical Nurturance. NPB = Negative Parental Behavior. Child-Reject = child reported parental rejection. Parent-Reject = parent-reported parental rejection. η_p^2 = partial eta squared (effect size).

[a]Group 1 = ADHD; Group 2 = Control.

[b]Group 1 = High Group; Group 2 = Low Group.

*$p < .01$.

Table 20 (continued)

Results of Exploratory Univariate Analyses of Variance F Ratios for Hypotheses 5-9 for the TRS Social Acceptance Scale

Effects	Group 1[a]		Group 2[b]		*df*	*F*	η_p^2
	M	*SD*	*M*	*SD*			
Hypothesis 8							
ADHD[a]	6.57	2.55	9.78	2.41	1,54	18.34*	.25
Child-Reject[b]	7.09	2.58	8.77	3.13	1,54	1.60	.03
Hypothesis 8							
ADHD[a]	6.71	2.60	9.78	2.41	1,54	18.26*	.25
Parent-Reject[b]	7.68	2.96	8.17	2.93	1,54	.002	.00

Note. ANOVA = univariate analysis of variance. PPB = Positive Parental Behavior. PNUR = Physical Nurturance. NPB = Negative Parental Behavior. Child-Reject = child reported parental rejection. Parent-Reject = parent-reported parental rejection. η_p^2 = partial eta squared (effect size).

[a]Group 1 = ADHD; Group 2 = Control.

[b]Group 1 = High Group; Group 2 = Low Group.

*$p < .01$.

Appendix C

Demographic Information and History Form

DYAD # _____
Today's Date _____

DEMOGRAPHIC INFORMATION AND HISTORY FORM

1. The parent (or guardian) who is filling out this questionnaire and participating with a child is the child's (please check one box):

(1) ❑ mother (2) ❑ father (3) ❑ stepmother

(4) ❑ stepfather (5) ❑ foster mother (6) ❑ foster father

(7) ❑ grandmother (8) ❑ grandfather

(9) ❑ other please specify: _____

2. Other guardians who live with you and this child are (check "yes" or "no" for each person):

	(1)Yes	(2)No		(1)Yes	(2)No
a. mother	❑	❑	b. father	❑	❑
c. stepmother	❑	❑	d. stepfather	❑	❑
e. foster mother	❑	❑	f. foster father	❑	❑
g. grandmother	❑	❑	h. grandfather	❑	❑

i. other (please specify): _____

3. Other parents who see this child every month or more but DO NOT live with you are (check "yes" or "no" for each person)::

	(1)Yes	(2)No		(1)Yes	(2)No
a. mother	❑	❑	b. father	❑	❑
c. stepmother	❑	❑	d. stepfather	❑	❑

e. other (please specify): _____

4. How many other children live in your household? (circle one)

0 1 2 3 4 5 6 7 8 9 10 or more

5. How many adults besides yourself regularly help you care for the child(ren)? [Do not include paid baby-sitters or daycare workers] (circle one)

0 1 2 3 4 or more

6. The participating child is a: (1) ❑ girl (2) ❑ boy

7. Have there been any months in this child's life when you did not live in the same house?

(1) ❑ Yes (2) ❑ No

If yes, please list age of child at separation from you, length of separation, amount of contact you did have with the child (if any) and the reason for separation:

Age of Child	Length of Separation	Contact?	Reason for Separation

8. Currently, about how many hours per day do you spend with this child (do not count time when child is asleep at night, but do count child's naptime if you are home with them). If it changes from day to day, figure an average:

(1) ❑ 1- 2 hours (2) ❑ 3 – 4 hours (3) ❑ 5 – 6 hours (4) ❑ 7 – 8 hours

(5) ❑ 9- 10 hours (6) ❑ 11 or more hours

9. Your date of birth:_____ 10. Your child's date of birth: _____

11. Your age today:_____ 12. Your child's age today:_____

13. Your child's grade in school (if completing during the summer, choose the grade that your child will enter next Fall):

(1) ❑ Not in school (2) ❑ pre-school (3) ❑ kindergarten

(4) ❑ 1st grade (5) ❑ 2nd grade (6) ❑ 3rd grade (7) ❑ 4th grade (8) ❑ 5th grade

(9) ❑ Other (please explain):_____

14. How would you describe your ethnic-racial background?

(1) ❑ Asian-American (2) ❑ Black (African-American) (3) ❑ Caucasian (White)

(4) ❑ Hispanic (5) ❑ Middle Eastern (Arab) (6) ❑ Native American Indian

(7) ❑ Biracial (please specify_____)

(8) ❑ Other (please specify_____)

15. Is English your first language? (1) ❑ Yes (2) ❑ No (please specify_____)

16. How would you describe your child's ethnic-racial background?
(1) ❑ Asian-American (2) ❑ Black (African-American) (3) ❑ Caucasian (White)

(4) ❑ Hispanic (5) ❑ Middle Eastern (Arab) (6) ❑ Native American Indian

(7) ❑ Biracial (please specify_____)

(8) ❑ Other (please specify_____)

17. Is English your child's first language? (1) ❑ Yes (2) ❑ No (specify_____)

18. List the country in which the following people were born. (If they have moved from their birth country to the US, how many years have they lived in this country?)

	Country of Birth	Number of Years in USA
a. Child		
b. Child's Mother		
c. Child's Father		
d. Child's Maternal Grandmother (Mother's Mother)		
e. Child's Maternal Grandfather (Mother's Father)		
f. Child's Paternal Grandmother (Father's Mother)		
g. Child's Paternal Grandfather (Father's Father)		

19. Which category best describes your current marital status?
(1) ❑ never married (2) ❑ married (3) ❑ separated

(4) ❑ divorced (5) ❑ widowed (6) ❑ separated

(7) ❑ other (explain_____)

20. Which category best describes your current relationship status?
(1) ❑ single, not dating (2) ❑ single, but dating casually

(3) ❑ single, but dating seriously (4) ❑ living together/engaged

(5) ❑ married (6) ❑ separated

(7) ❑ other (please explain_____)

21. How long have you been in your current relationship?
(1) ❑ I'm not in a relationship (2) ❑ 3 months or less (3) ❑ 3- 9 months

(4) ❑ about 1 year (5) ❑ about 2 years (6) ❑ 3-4 years

(7) ❑ 5 years of more

22. What is the highest degree you've earned or the last grade in school you completed?
(1) ❑ 8th grade (2) ❑ 9th grade (3) ❑ 10th grade (4) ❑ 11th grade

(5) ❑ 12th grade (H.S. diploma or GED) (6) ❑ technical/trade school diploma

(7) ❑ community college degree (8) ❑ university degree, specify_____

(9) ❑ advanced degree, specify _____

(10) ❑ other, please specify_____

23. Are you currently a student? (1) ❑ Yes, part-time (2) ❑ Yes, full-time (3) ❑ No

24. Are you currently employed? (1) ❑ Yes, part-time (2) ❑ Yes, full-time (3) ❑ No

25. If yes, what is your job? _____

- -

IN THIS SECTION, PLEASE ANSWER FOR THE CHILD'S OTHER PRIMARY PARENT (OR GUARDIAN), IF THEY HAVE ONE. Choose the person with whom the child lives at least some of the time (for example, your significant other or, if you are divorced, the child's other biological parent). [If there is more than one person in this category, choose the one with whom the child spends the most time.] If there is no other parent/guardian, skip to #30.

26. What is the highest degree this parent/guardian has earned or the last grade in school they completed?

(1) ❑ 8th grade (2) ❑ 9th grade (3) ❑ 10th grade (4) ❑ 11th grade

(5) ❑ 12th grade (H.S. diploma or GED) (6) ❑ technical/trade school diploma

(7) ❑ community college degree (8) ❑ university degree, specify _____

(9) ❑ advanced degree, specify _____

(10) ❑ other, please specify _____

27. Are they currently a student? (1) ❑ Yes, part-time (2) ❑ Yes, full-time (3) ❑ No

28. Are they currently employed? (1) ❑ Yes, part-time (2) ❑ Yes, full-time (3) ❑ No

29. If yes, what is their job? _____

- -

30. What is your approximate yearly household income before taxes (include child support received, if that applies to you)?

(1) ❑ less than 10,000 (2) ❑ 10,000 – 20,000 (3) ❑ 20,000 – 30,000

(4) ❑ 30,000 – 40,000 (5) ❑ 40,000 – 50,000 (6) ❑ 50,000 – 60,000

(7) ❑ 60,000 – 70,000 (8) ❑ 70,000 – 100,000 (9) ❑ over 100,000

31. Have you ever taken parenting classes? (1) ❑ Yes (2) ❑ No

If yes, please describe the type of classes you had and for how long:
Description of Parenting Classes Number of Classes (or time span)

32. Have you ever attended counseling? (1) ❑ Yes (2) ❑ No

If yes, please describe the type of counseling you had and for how long:
Description of Counseling Number of Sessions (or time span)

33. Has the child who is participating in this study ever attended counseling?
(1) ❑ Yes (2) ❑ No

If yes, please describe the type of counseling he or she had and for how long:
Description of Counseling Number of Sessions (or time span)

34. Has this child ever repeated a grade? (1) ❑ Yes (2) ❑ No

35. If yes, which grade? _____

36. Has this child ever skipped a grade? (1) ❑ Yes (2) ❑ No

37. If yes, which grade? _____

38. Does your child receive special education services at school? (1) ❑Yes (2) ❑ No

If yes, what is your child's eligibility? (Check all that apply)

	(1) Yes	(2) No
b. Orthopedically Impaired	❑	❑
c. Other Health Impaired	❑	❑
d. Auditorially Impaired	❑	❑
e. Visually Impaired	❑	❑
f. Deaf-Blind	❑	❑
g. Mentally Retarded	❑	❑
h. Emotionally Disturbed	❑	❑
i. Learning Disabled	❑	❑
j. Speech Impaired	❑	❑
k. Autistic	❑	❑
l. Traumatic Brain Injury	❑	❑

39. If yes, grade your child began receiving special education services _____

40. Is this child currently taking any medication? (1) ❑ Yes (2) ❑ No

41. If yes, please list the name of the medication(s) and dosage(s).

_____

_____

42. Has your child ever been diagnosed with any of the following: (Check all that apply)

	(1) Yes	(2) No	(3) Never diagnosed, but I suspect this child has this disorder
a. Attention-Deficit/Hyperactivity Disorder (ADHD)	❑	❑	❑
b. Oppositional Defiant Disorder	❑	❑	❑
c. Conduct Disorder	❑	❑	❑
d. Tourette's Disorder	❑	❑	❑
e. Separation Anxiety Disorder	❑	❑	❑
f. Generalized Anxiety Disorder	❑	❑	❑
g. Major Depressive Disorder	❑	❑	❑
h. Dysthymic Disorder	❑	❑	❑
i. Bipolar Disorder	❑	❑	❑
j. Other (please specify _____)	❑	❑	❑

43. If you answered "yes" to any disorder listed in Question #42, how old was your child when first diagnosed? _____

44. If you answered "yes" to any disorder listed in Question #42, who was your child first diagnosed by?

School counselor/psychologist (LSSP, Ph.D.)	(1) ❑
Other counselor/psychologist (M.S., Ph.D., Psy.D.)	(2) ❑
Psychiatrist (M.D.)	(3) ❑
Family physician/general practitioner (M.D.)	(4) ❑
Other (please specify _____)	(5) ❑

45. Is your child currently receiving counseling for the disorder(s) checked in #42?

(1) ❑ Yes (2) ❑ No, never (3) ❑ In the past only (4) ❑ Does not apply (no disorder)

46. Which category best describes your religious preference?

Agnostic	(1) ❑	
Atheist	(2) ❑	
Buddhism	(3) ❑	
Catholicism	(4) ❑	
Hindu	(5) ❑	
Judaism	(6) ❑	
Muslim	(7) ❑	
Protestant	(8) ❑	Specify Denomination _____
Other	(9) ❑	Specify _____

47. How often do you attend religious services?

More than once per week	(1) ❑
About once per week	(2) ❑
About once per month	(3) ❑
About once or twice per year	(4) ❑
Seldom (less than once per year)	(5) ❑
Never	(6) ❑

48. Have you ever been diagnosed with any of the following: (Check all that apply)

	(1) Yes	(2) No	(3) Never diagnosed, but I suspect I have this disorder
a. Attention-Deficit/Hyperactivity Disorder (ADHD)	❑	❑	❑
b. Personality Disorder	❑	❑	❑
c. Substance Abuse or Dependence	❑	❑	❑
d. Generalized Anxiety Disorder	❑	❑	❑
e. Major Depressive Disorder	❑	❑	❑
f. Dysthymic Disorder	❑	❑	❑
g. Bipolar Disorder	❑	❑	❑
h. Other (please specify _____ _____)	❑	❑	❑

49. If you answered "yes" to any disorder listed in Question #48, are you currently taking mediation(s) for the disorders?

(1) ❑ Yes (specify _____)

(2) ❑ No (3) ❑ Does not apply (no disorder)

50. Has the participating child's other biological parent ever been diagnosed with any of the following: (Check all that apply)

	(1) Yes	(2) No	(3) He/she has never been diagnosed, but I suspect they have this disorder	(4) I don't know
a. Attention-Deficit/Hyperactivity Disorder (ADHD)	❑	❑	❑	❑
b. Personality Disorder	❑	❑	❑	❑
c. Substance Abuse or Dependence	❑	❑	❑	❑
d. Generalized Anxiety Disorder	❑	❑	❑	❑
e. Major Depressive Disorder	❑	❑	❑	❑
f. Dysthymic Disorder	❑	❑	❑	❑
g. Bipolar Disorder	❑	❑	❑	❑
h. Other (please specify _____)	❑	❑	❑	❑

Appendix D

Consent Form

UNIVERSITY OF NORTH TEXAS
COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS
RESEARCH CONSENT FORM

Subject Name:_____ Date: _____

Title of Study: Parent-Child Relationships and Social Functioning in Children with and without ADHD

Principal Investigator: Patricia Kaminski, Ph.D.
Co-Investigators: Sarah L. Durrant, M.S., Shelly Warren, M.S., & Corinne Smith, M.S.

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the proposed procedures. It describes the procedures, benefits, risks, and discomforts of the study. It also describes the alternative treatments that are available to you and your right to withdraw from the study at any time. It is important for you to understand that no guarantees or assurances can be made as to the results of the study.

PURPOSE OF THE STUDY AND HOW LONG IT WILL LAST:
The purpose of this study is to observe parent-child interactions and how children function socially. Each parent's involvement will consist of 3 hours. Each child's involvement will be about 2 hours

DESCRIPTION OF THE STUDY INCLUDING THE PROCEDURES TO BE USED:
Parents and children will come to the UNT campus for the study. Each parent-child pair will be videotaped while they play together with a specific set of toys. A research assistant will interrupt the play frequently and suggest a new storyline. After 30 minutes of play, each person will watch a few minutes of the videotape and be asked some questions about it. Then, each parent will answer a set of written questionnaires related to parenting behaviors, attitudes, stressors, parent's and child's psychological symptoms (for example: worrying, hyperactivity, depression, etc.), and the demographics and brief medical history of their family [for example, level of education, marital status, number of children, and current medications (child only)]. While the parent is completing the questionnaires, the child will go to a separate room with a graduate student to complete 3 questionnaires that ask about parent behaviors (for example: "[My mother] tries to help me when I am scared or upset."), and how they feel about themselves in relation to their physical, academic, and social functioning (for example: "Do you have lots of friends at school?"). The graduate student will read each question to the child, and the child will mark his/her responses on the questionnaires. The child will be given play and snack breaks as needed. If the child finishes his/her questionnaires before their parent is done, a research assistant will be available to supervise (and play with) the child. In addition, each parent may choose to complete a letter addressed to the child's teacher asking their help in completing two measures regarding the child's social behavior at school (we will have the 2 surveys available for the parent to review before deciding whether or not to have the child's teacher involved).

Because a primary purpose of this study is the comparison of children with and without attention deficits, children who have ADHD cannot be on their stimulant medication during the videotaped play. During the phone contact that set up the appointment, parents were asked to make sure that their child has not taken their latest dose of stimulant medication (e.g., Ritalin, Adderall). Furthermore, parents were asked to bring their child's stimulant medication with them so that the child can take the medication immediately before the videotaped play. Since the medication is not effective for about 30 minutes, we can get the data we need and minimize the time the child needs to be off his/her medication.

Researchers will study the videotapes of over 100 different parent-child pairs. The long-term goal is to better understand the relationship between parents and children and how it relates to children's functioning in school, family, and peer relationships.

Subject Name:_____ Date: _____

Title of Study: Parent-Child Relationships and Social Functioning in Children with and without ADHD
Principal Investigator: Patricia Kaminski, Ph.D.
Co-Investigators: Sarah L. Durrant, M.S., Shelly Warren, M.S., & Corinne Smith, M.S.

DESCRIPTION OF PROCEDURES/ELEMENTS THAT MAY RESULT IN DISCOMFORT OR INCONVENIENCE:

There is a chance that some parent-child pairs will feel uncomfortable during the play exercise when the research assistant suggests a storyline that presents a problem that needs to be solved. An example of this would be: "{Child's Name} wants to look at the tigers and {Mom} wants to look at the hippos. Play out what happens together." Although certain tasks may suggest a disagreement, a researcher will be present at all times to minimize any discomfort that arises. Additionally, at the end of the play exercise, you and your child will have time to talk about your experiences. Any questions that might arise during the play exercise or questionnaire section of the study will be answered by the researcher.

DESCRIPTION OF THE PROCEDURES/ELEMENTS THAT ARE ASSOCIATED WITH FORESEEABLE RISKS:

Only minimal risk of psychological discomfort is associated with participation in this study.

BENEFITS TO THE SUBJECTS OR OTHERS:

By participating in this study, you and your child can benefit by learning more about one another. Also, you will be indirectly benefiting other parents and children because the information gathered by the researchers will help us learn about what makes parents and children get along the best or what can lead to difficulties in the relationship. Further, the results of this study will contribute to the understanding of how parent-child relationships are related to children's functioning at home and school, especially for children with attention deficits. Once we understand these issues, professionals can provide more appropriate services to children with ADHD and those experiencing relationship problems with their parents and their friends. In addition, we will pay you a small amount as a way of thanking you for your time. That amount is $10 per hour (approximately $30 total). Finally, we also offer referral information to you when you complete the study in case you or your child would like to speak to a mental health professional about your relationship (or other matters).

CONFIDENTIALITY OF RESEARCH RECORDS:

Your identity and all of your information will be kept private (confidential). Researchers will not mention your last name while the videocamera is recording. All records (questionnaires, videotapes, and our copy of this form) will be kept in a securely locked file cabinet in a locked room in Terrill Hall at UNT. Once all of the measures are completed, your name will not be associated with the videotape or any information you provide. We will assign a random number to all of your records, and that number will be the only identifier. There will only be one list that matches the name and number, and only the primary researchers will have access to that confidential list, which will be kept in a locked file cabinet in a locked room.

REVIEW FOR PROTECTION OF PARTICIPANTS:

This research study has been reviewed and approved by the UNT Committee for the Protection of Human Subjects (940) 565-3940.

UNIVERSITY OF NORTH TEXAS
COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS
RESEARCH CONSENT FORM
Page 3 of 4

Subject Name:_____ Date: _____

Title of Study: Parent-Child Relationships and Social Functioning in Children with and without ADHD
Principal Investigator: Patricia Kaminski, Ph.D.
Co-Investigators: Sarah L. Durrant, M.S., Shelly Warren, M.S., & Corinne Smith, M.S.

RESEARCH SUBJECTS' RIGHTS:
I have read or have had read to me all of the above.

This study has been explained to me via this form and/or via other communication with the investigators. I have been told the risks or discomforts and possible benefits of the study. I have been told of other choices of treatment available to me.

I understand that I do not have to take part in this study, and my refusal to participate will involve no penalty or loss of rights to which I am entitled. I may withdraw at any time without penalty or loss of benefits to which I am entitled. The study personnel can stop my participation at any time if it appears to be harmful to me, if I fail to follow directions for participation in the study, if it is discovered that I do not meet the study requirements, or if the study is canceled.

In case there are problems or questions, I have been told I can call Patricia Kaminski, Ph.D., Sarah L. Durrant, M.S., Shelly Warren, M.S., or Corinne Smith, M.S. at telephone number (940) 565-2671.

I understand my rights as a research subject, and I voluntarily consent to participate in this study. I understand what the study is about and how and why it is being done. I will receive a signed copy of this consent form.

_____ _____
Subject's Signature Date

_____ _____
Signature of Witness Date

Informed Consent for Videotaping (Choose & initial one statement below):

_____ I give my permission for my child and I to be videotaped and for that videotape to be shown in professional settings.

_____ I give my permission for my child and I to be videotaped, but I do not agree to have that videotape shown to anyone who is not directly involved with Dr. Kaminski's research.

For the Investigator or Designee:
I certify that I have reviewed the contents of this form with the person signing above, who, in my opinion, understood the explanation. I have explained the known benefits and risks of the research.

_____ _____
Principal Investigator's or Designee's Signature Date

UNIVERSITY OF NORTH TEXAS
COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS
RESEARCH CONSENT FORM

Subject Name:_____ Date: _____

Title of Study: Parent-Child Relationships and Social Functioning in Children with and without ADHD
Principal Investigator: Patricia Kaminski, Ph.D.
Co-Investigators: Sarah L. Durrant, M.S., Shelly Warren, M.S., & Corinne Smith, M.S.

CHILD ASSENT:
If the parent chooses to sign the Informed Consent, they may read the following to their child or have the researcher do so, **"[I/Your Mom/Dad] [have/has] just agreed to help today, but [they/we] need your help, too. You can decide whether or not you want to help. What [they/we] need you to do is play with certain toys with [me/your mom/dad] while [they/we] make a movie of [us/you]. [Researcher's name/I] will play with [us/you and your Mom/Dad] and give ideas about what is happening. When we're done making the movie [Researcher's Name/I] will show you some of it and ask you some questions about it. [Researcher's name/I] will help you answer some questions on paper. Would you like to do that?"**

Wait for the child response.

If the child verbalizes assent or signals assent by nodding their head, point to the appropriate spot below and say, **"OK, thank you. To show that you said 'yes' I need you to write your first name or put an 'X' in this space here."**

YES_____

If the child does no verbalize or signal assent or communicates dissent, point to the appropriate spot on below and say, **"OK, thank you. To show that you said 'no' I need you to write your first name or put an 'X' here."**

NO_____

For the Investigator or Designee:
I have read or observed the reading of the appropriate passages above to the child participant and interpreted his/her wishes to the best of my ability.

_____ _____
Investigator's or Designee's Signature Date

Appendix E

Child Administration Procedures

Procedures for Administration of
Child Packet Questionnaires

1. During PCIA set-up, the Child Packet should be placed in Room #127, including the following materials:
   - Adapted Child-Parental Acceptance Rejection/Control Questionnaire (Adapted Child-PARQ/Control) – Be sure the appropriate version is included to match the participating parent (Mother/Father)
   - Administrator Version of the Adapted Child-Parental Acceptance Rejection/Control Questionnaire (Administrator Version - Adapted Child-PARQ/Control)
   - Loneliness and Social Dissatisfaction Questionnaires (LSDQ)
   - Self Description Questionnaires (SDQ-I)
   - 1 "Child Administration Data" sheet
   - 2 Markers/Pens/Crayons
   - 1 Egg Timer (Kitchen Timer)
   - 1 Stopwatch
   - 1 Laminated Sheet of Blue Paper

2. The number on the outside of the Child Packet is the dyad's assigned number, which should match the numbers on one of each questionnaire and the "Child Administration Data" sheet in the packet and the numbers on the Parent Packet and videotapes. The researcher assigned to complete PCIA set-up should verify that these numbers match.

3. Following completion of the child inquiry phase of the PCIA, the researcher administering the PCIA will bring the child to Room #181, where the snacks and drinks are set up.

4. If the researcher administering the PCIA is a graduate student, she will complete the parent inquiry phase of the PCIA and then return to Room #181. If the researcher administering the PCIA is an undergraduate student, the graduate researcher (GRA) will be waiting in Room #181 for the child to arrive.

5. The researcher who greets the child in Room #181 will offer him/her a snack and restroom break. The break should last no more than 10 minutes, or the amount of time for the parent inquiry phase of the PCIA. If the child has not finished his/her snack during that time, the child will be reassured that he/she will have time to finish the snack later.

6. Following the break, the GRA will then say to the child, **"Now it's time for me to help you answer some questions on paper. We're going to another room down the hall."**

7. The GRA will escort the child to Room #127 and leave the door open at all times.

8. The GRA will direct the child to sit next to her at the table. Then, the GRA will say to the child, **"I'm going to read you some questions on three different forms. I will help you mark your answers on the forms. There are no 'right' or 'wrong' answers to these questions; you should just try to tell me which answer is most like you or your [mom/dad]. I am going to read each question <u>two</u> times. Some questions might be confusing, so it's okay to ask questions."**

9. The GRA will write the current time in the first space next to "Admin Time" on the "Child Administration Data" sheet.

10. The GRA will administer the Adapted Child-PARQ/Control, LSDQ, and SDQ-I in the order specified on the "Child Administration Data" sheet.

11. For each questionnaire administration, the GRA will give one copy of the questionnaire to the child and keep one copy for himself/herself.

12. The GRA will begin each questionnaire administration by reading aloud the directions on the questionnaire and making sure the child understands them before moving on to the questions. If the child does not understand the directions, the GRA will explain them further and ascertain whether the child understood.

13. During the administration of the LSDQ and the SDQ-I, the GRA will read the questions aloud **twice**, and the child may read along with his/her copy of the questionnaire. On the Adapted Child-PARQ/Control, some items have standard rewordings and will be noted on the Administrator Version of the Adapted Child-PARQ/Control. If a standard rewording was developed, then the GRA will first read the original item. Then they will make a statement that says, **"This means…"** and will read the standard rewording. For the items that require no rewording, each item will be read twice for emphasis. For all questionnaires, the GRA will make sure to have the child's attention before reading the questions.

14. The GRA will help the child follow along with the questions by using the blue laminated sheet of paper to cover up unanswered questions and moving the paper down to reveal each new question as it is read aloud. If the child says he/she can complete the questionnaire without the blue paper to help them follow along, the GRA will say, **"The paper helps me to know where we are."**

15. During each questionnaire administration, on the first four questions, the GRA will ask, **"Do you understand what that means?"** before obtaining a response. During the remainder of the administration, the GRA will periodically ask the child if he/she understood the questions.

16. The GRA will request an answer from the child as specified by the directions on the particular questionnaire.

17. On the Adapted Child-PARQ/Control, the child may mark his/her response on the questionnaire, or the GRA may mark the child's verbal responses, depending on the child's preference. On the SDQ-I and the LSDQ, the GRA will mark the child's responses on the questionnaire according to the rating scale at the top of the page. The GRA will make sure the responses are written clearly and recorded on the questionnaire with the dyad's number on it.

18. If the child chooses to mark his/her responses, the GRA will make sure the child marks the answer space that corresponds with the question.

19. If the child does not understand the question, the GRA will explain the question further, ascertain whether the child understands the question, reread the question, and request a response. Explanations should help define the items in a neutral way, without implying that any particular answer is more right or "better." If the child appears anxious or is looking for approval for a particular answer, remind him/her that there are no "right" answers.

20. The GRA will record the number of the question(s) that the child does not understand and child's verbalizations about his/her difficulty understanding the particular question(s) on the "Child Administration Data" sheet.

21. If the child does not respond to a question following further explanation, the GRA will circle the item and reread the question after the administration of remaining items. If the child still does not respond appropriately, the GRA will ask whether he/she understands the question. If the child does not understand the question, the GRA will further clarify the question and request a response. Make sure such difficulty with an item is recorded on the "Child Administration Data" sheet.

22. The GRA will make sure not to reinforce or make evaluative comments on any responses verbally or nonverbally. However, the GRA will provide encouragement for the child's hard work and attentiveness.

23. If the child comments on the similarity between questions on the various questionnaires (e.g., "I already answered that question."), the GRA will state, **"Some questions ask about the same kinds of things. Just answer the best you can."**

24. If at any time during administration the child requests a restroom break, the GRA will stop administration and escort him/her to the restroom.

25. If at any time during administration, the child becomes fidgety or requests a break, the GRA will allow the child to take a break for no more than 5 minutes. The GRA will write the time in the space next to "Break Time" on the "Child Administration Data" sheet for each time the child takes a break. The GRA will set the egg timer for five minutes so that the child can see the time limit.

26. Twenty minutes after the first "Admin Time" or the end of the last break (whichever is later), the GRA will say to the child, **"Now it's time to take a break for 5 minutes. When this timer goes off, it will be time to finish the questions."** The GRA will write the time in the space next to "Break Time" on the "Child Administration Data" sheet, and set the egg timer for five minutes so that the child can see the time limit.

27. During the break, the GRA will offer the child a restroom break and then offer the child 2 play options: Tic Tac Toe or a velcro lacrosse game. When the timer rings after 5 minutes, the GRA will say to the child, **"Now it's time to finish the questions. We can play more later."**

28. Administration will resume according to directions specified above. The break sequence will be repeated every 20 minutes, until the questionnaires are completed. All break times should be noted on the "Child Administration Data" sheet. Children requesting more frequent breaks should be encouraged to stay on task longer, and the GRA can use the egg timer so the child will know when it is time for their next break.

29. Once all questionnaires are completed, the GRA will write the time in the last space next to "Admin Time" on the "Child Administration Data" sheet, and place all materials in the Child Packet.

30. The GRA will say to the child, **"Thank you for working so hard today. Your answers will help us to help kids who are having different kinds of problems."** The GRA will give the

child the option of having 5 more minutes of play in Room #127 or going directly to the playroom in Room #180.

31. The GRA will escort the child to Room #180, where the toys are set up. The GRA or another researcher will play with the child until his/her mother completes the Parent Packet. The GRA should be sure to have at least 5 more minutes of play with the child, since that was promised.

32. After the debriefing form has been reviewed and the dyad has been escorted to the exit, the GRA will place the Child Packet with the Parent Packet in the "PCIA-Day Data to be Entered" file in the 2nd file drawer in Room #252.

Child Administration Data

Order of Administration:	***Administration Times:***
_____ SDQ-I	Admin Time _____ *to* _____
_____ LSDQ	Break 1 Time_____ to _____
_____ Child-PARQ	Admin Time _____ to _____
The child should take a 5-minute	Break 2 Time_____ to _____
break every 20 minutes. Other	Admin Time _____ to _____
breaks should be noted in the	Break 3 Time_____ to _____
spaces as necessary.	Admin Time _____ to _____

Child Comments/Questions:

Please write all of the child's comments and questions. Be sure to include the name of the questionnaire and numbers of the questions on which the child experiences difficulty. *(E.g., SDQ; Question #51: Child: "What does popular mean?" GRA: "Liked by kids.")*

Appendix F

Letter to Teacher

Dear Mr./Ms. _____,
(Teacher's Name)

My son/daughter, _____, and I, _____, have participated in a research project at the University of North Texas looking at parent-child relationships and social functioning.* Your help is greatly needed. Please complete the following two forms (ADHD-IV-Rating Scale: School Version and the Teacher Rating Scale) with regard to my child. It will only take 10 to 20 minutes of your time. As you'll see on the top of each form, my child's anonymity is protected in that a code number has been assigned; please do not write his/her name on the forms.

Please return the forms to the researcher as soon as possible, using the enclosed stamped envelope. Upon receipt of the forms, the researchers will send you $5 as compensation for your time and effort.

Thank you so much for your help.

Sincerely,

_____

Parent's signature Date

* This study has been reviewed and approved by the UNT Committee for the Protection of Human Subjects 940-565-3940.

Appendix G

Procedure for Teacher Letter

Procedure for Teacher Letter

1. Explain to the parent about the teacher letter, saying something like: "**We would like to have [child's] teacher fill out two forms to help us better understand her/him and what he/she is like at school**."

2. Show the parent the two questionnaires (Teacher-Rating Scale & ADHD Rating Scale-IV: School Version). Tell them: "**These are the two forms we would like [child's] teacher to complete. You may look over the forms if you like. Each form asks questions about [child's] behavior at school**."

3. Say: "**Do we have your permission to send these forms to [child's] teacher?**"

4. If parent says yes: Show them the form letter that begins Dear Mr./Mrs. _____. Say something like, **"O.K., please read this letter and sign it at the bottom."**

5. If parent says no: Say something like, **"Thank you, please let us know if you change your mind later."**

Contents of envelope to teacher (make sure letter to teacher is "on top"):

1. Letter to teacher, with parent's signature.
2. SASE (self addressed stamped envelope) – with Trish's UNT address on it
3. Teacher's request for payment slip.
4. Teacher-Rating Scale with child's Dyad ID number on it.
5. ADHD Rating Scale-IV: School Version with child's Dyad ID number on it.

Appendix H

Debriefing Statement

Debriefing Statement

Dear Research Participant:

Thank you for your participation in our study! Our aim is to learn more about how different parents and children interact, especially when they are in situations with the potential for disagreement. Your participation today will be very beneficial in many research projects. Our results should have uses in many areas, including parenting programs and studying behavior disorders of childhood (such as ADHD).

We hope that making the zoo and solving the "conflicts" was not too stressful for you or your child. Sometimes, however, a certain play story might bring out tension or confusion in real life. You may want to talk with your child about their experiences today. If you or your child have any concerns or would like to talk to someone about today's activities, your parenting stress, or your child's behavior, please let the researcher know right now. We can help you get an appointment with a mental health professional. If you have questions after you leave today or would like help with a referral at a later date, call Dr. Trish Kaminski at (940-565-2671).

There are many other places for parents, children, and families to get help in the Metroplex that you can contact on your own. In addition to talking to your child's school counselor or physician, you can check your local Yellow Pages under "Psychotherapists" or "Psychologists." For your convenience, the following is a list of the names and phone numbers of several agencies that offer counseling and other services to families. (These agencies are all listed in the Denton County Community Services Directory; for additional information about these or other agencies, call the United Way's Information & Referral Helpline at 940-566-2688).

Child & Family Resource Clinic (UNT, Denton) - offers play therapy and family therapy with fees set according to income level [940-565-2066].

Family Guidance Center (Dallas & Lewisville) - offers couples counseling and family therapy with fees set according to income level [214-351-3490].

Family Resource Center (Denton) - offers a resource library, parenting classes, & support groups [940-566-1800].

Friends of the Family (Denton) - provides shelter and counseling following family violence [800-572-4031].

Marriage & Family Clinic (TWU, Denton) - individual, marital & family counseling for all ages with fees set according to income level, but no one is refused service if unable to pay [940-898-2600].

Psychology Clinic (UNT, Denton) - individual, marital, group & child assessment & therapy for all ages with fees set according to income level [940-565-2631].

Youth & Family Counseling (Flower Mound) - offers counseling programs for youth and their parents with fees set according to income level [972-724-2005].

The results of our study will be available to you in the future. If you would like a copy of our results, please give us your address now or contact us at a later date. You may keep this sheet for your records.

Sincerely,
Dr. Trish Kaminski

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