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Impairment to social functioning has been consistently found among children with Attention-Deficit/Hyperactivity Disorder (AD/HD) with research indicating it extends into adulthood for 30-50% of these individuals (Jackson & Farrugia, 1997). Recent research has found that even a single, high-quality friendship can act as a buffer against the negative outcomes associated with peer rejection (Hodges and Boivin, 1999), and that parents play an especially important role (Frankel 1996, 2003; Frankel & Myatt 2003; Ladd & Hart 1992; Krappman, 1986). However, parents of children with AD/HD have been commonly found to experience psychopathology of their own. (Hechtman, 1996, in Johnson & Mash, 2001; Chronis-Tuscano & Clarke, 2008). The goal of this study was to examine the role of parental psychopathology in the number and quality of friendships of children with AD/HD.

Participants in this study included 28 children between the ages of 7-11 and one caregiver. Multiple regression analyses did not find a significant relation between parental psychopathology and child friendships. However, post-hoc analyses indicated that this study may have been under-powered. Post-hoc analyses also revealed a relation between aggressive behavior and the quality, but not the number, of child friendships.

THE ROLE OF PARENTAL PSYCHOPATHOLOGY
IN FRIENDSHIP AMONG CHILDREN

WITH AD/HD

by

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TABLE OF CONTENTS

	Page
LIST OF TABLES	v
CHAPTER	
I. INTRODUCTION	1
II. REVIEW OF THE LITERATURE.....	3
Attention-Deficit/Hyperactivity Disorder	3
Social Impairment and AD/HD	4
Friendship	5
Social Skills	6
Parents and Friendship.....	8
Challenges for Parents of Children with AD/HD	10
Goals and Hypotheses of the Present Study	12
III. METHODS	14
Participants.....	14
Measures	15
Procedures.....	19
IV. RESULTS	21
Preliminary Inspection of the Data	21
Description of the Sample.....	21
Correlations Among Variables	23
Predicting Number and Quality of Child Friendships	25
Post-Hoc Analyses	26
Re-examination of Power	27
V. DISCUSSION	28
Limitations	31
Implications for Future Research.....	35
Conclusions.....	38
REFERENCES	39

APPENDIX A. CONSENT TO ACT AS A HUMAN PARTICIPANT	47
APPENDIX B. CONSENT FOR A MINOR TO ACT AS A HUMAN PARTICIPANT	50
APPENDIX C. CHILD ASSENT FORM	53
APPENDIX D. SUMMARY OF PARTICIPANT MEASURES.....	55
APPENDIX E. SAMPLE FEEDBACK LETTER.....	56
APPENDIX F. SUMMARY OF CHILD ASSESSMENT RESULTS.....	57

LIST OF TABLES

	Page
Table 1. Sample Characteristics.....	59
Table 2. Descriptive Statistics.....	60
Table 3. Correlations Among Predictor and Outcome Variables	61
Table 4. Multiple Regression Examining Role of Parental Psychopathology in Number of Parent-Reported Child Friendships.....	62
Table 5. Multiple Regression Examining Role of Parental Psychopathology in Quality of Parent- Reported Child Friendships.....	63

CHAPTER I

INTRODUCTION

Impairment associated with Attention-Deficit/Hyperactivity Disorder (AD/HD) has been linked to negative long-term outcomes across several domains of functioning, including executive functioning, academic functioning, emotion regulation, and social functioning (Oosterlan, Sheres, and Sargeant, 2005; Barbaresi, et. al., 2007; Anastopoulos et. al., 2010; Torgersen, et. al., 2006). To date, social impairment research has focused on peer rejection, conceptualizing social skills as the point of intervention for individuals with AD/HD. Children with AD/HD have been consistently been found to be more likely to be rejected by their peers (Hoza et al. 2005). This peer rejection has been associated with negative long term outcomes, including substance abuse, school dropout, delinquency, academic problems, and psychopathology (Bagwell et al., 2001). However, recent research has found that having even one high-quality friendship can buffer against the negative long-term outcomes of peer-rejection (Hodges and Boivin, 1999). Based on these findings, as well as a body of literature indicating that parents can play an important role in managing and supervising their children's friendships (Frankel 1996, 2003; Frankel & Myatt 2003; Ladd & Hart 1992; Krappman, 1986), recent research has focused on parent-based friendship interventions for children with AD/HD, with promising findings (Mikami, 2010). However, to date, no research has examined the role

of parental psychopathology on child friendships among children with AD/HD. This may be an especially important consideration for this population, wherein parents are at elevated risk for psychopathology in general, including AD/HD and depression (Hechtman, 1996, in Johnson & Mash, 2001; Chronis-Tuscano & Clarke, 2008). To address this gap in the literature, this study examined the relation of parental psychopathology with the number and quality of child friendships among a clinical sample of children with AD/HD. This paper will first provide a brief overview of AD/HD, as well as the literature pertaining to social impairment as examined through peer rejection. Next, a review of research relating to friendship will be presented, in comparison research relating to social skills. This will be followed by a review of literature pertaining to the role of parents in children's friendships, and the specific challenges faced by parents of children with AD/HD. Finally, the specific goals and hypotheses of this study will be provided.

CHAPTER II

REVIEW OF THE LITERATURE

Attention-Deficit/Hyperactivity Disorder

Attention Deficit/Hyperactivity Disorder (AD/HD) is currently among the most common childhood diagnoses (Barkley, 2006). The Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV, American Psychiatric Association, 2000) defines AD/HD as “a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequently displayed and is more severe than is typically observed in individuals at a comparable level of development.” Symptoms of AD/HD are divided into two categories; inattention and hyperactivity-impulsivity. Symptoms of inattention include failure to give close attention to detail, difficulty sustaining attention in tasks or play activities, difficulty listening when spoken to directly, forgetfulness, and a tendency to be easily distracted (among others). Symptoms of hyperactivity-impulsivity include excessive fidgeting, running, climbing, and talking, as well as difficulty engaging in quiet activities, blurting out answers, sometimes before a question has been completed, difficulty awaiting turn, and interrupting or intruding on others. To meet criteria for a diagnosis, an individual must have functional impairment in at least two domains as a result of 6 more symptoms from either subset of inattention symptoms or hyperactivity-impulsivity symptoms and not better accounted for by another diagnosis.

Symptoms of AD/HD have been associated with impairment in several domains of functioning. For example, AD/HD has been associated with broad impairments in executive functioning (Oosterlan, Sheres, and Sargeant, 2005). Perhaps as a result of these impairments, AD/HD is also strongly associated with impairment in academic functioning, and children with AD/HD commonly have poor long-term school outcomes (Barbarese, et. al., 2007). Impairments in emotion regulation are also strongly associated with AD/HD symptomatology (Anastopoulos et. al., 2010). Children with AD/HD have been found to have a higher degree of negative expressed emotions than typically developing children (Cole, Zahn-Waxler, & Smith, 1994). A general emotional hyper-responsiveness, including irritability, hostility, and excitability, is consistently found among individuals with AD/HD (Barkley, 2006). The literature also indicates a wide array of impairment in family functioning among families of children with AD/HD. This impairment has been found to include “disturbances to family and marital functioning, disrupted parent-child relationships, patterns of parental cognitions about child behavior and reduced parenting self-efficacy, increased levels of parenting stress and parental psychopathology” (Johnston & Mash, 2001).

Social Impairment and AD/HD

Social impairment has also been found to be prevalent and pervasive among individuals with AD/HD. Social impairment has been consistently shown to exist in children with AD/HD (Torgersen, et. al., 2006), and research indicates that 30-50% of children diagnosed with AD/HD continue to be impaired into adulthood (Jackson & Farrugia, 1997). Most of the research concerning social impairment among children with

AD/HD has focused on peer rejection. Children with AD/HD have been found to be disliked by their peer group within hours of initial meeting (Erhardt & Hinshaw 1994). Hoza et. al., 2005). Moreover, over 50% of children and adolescents with AD/HD are estimated to be peer-rejected, compared to 15% of typically developing children and adolescents (Hoza et al. 2005). This peer rejection has been associated with negative long term outcomes, including substance abuse, school dropout, delinquency, academic problems, and psychopathology (Bagwell et al., 2001).

Friendship

More recently, research has begun to shift in focus from peer rejection to friendship. Friendship is defined as a close relationship between two children that is mutual and reciprocal. Results from The Multimodal Treatment Study (Jensen et. al., 2001) indicate that 56% of children with AD/HD have no reciprocated friends, while additional studies have put this rate as high as 76% among 3rd graders with AD/HD (Mikami, 2010). This stands in stark contrast to typically developing children, who, on average, have 3-4 friends during nursery school, with this number expanding into a broader network of friends over the course of elementary school (Ladd, 1999, Ladd, 1988). In particular, children with AD/HD are “overwhelmingly” rated less desirable as friends (Hoza et. al., 2005). Moreover, children with AD/HD reported that their friends were less involved in conventional activities compared with the non-AD/HD group, suggesting that friendships among children with AD/HD may be atypical. However, research suggests that children with AD/HD do not select fellow children with AD/HD as friends (Blachman & Hinshaw, 2002, Hoza et. al., 2005, in Mikami, 2010), and research

does not suggest self-aggregation of deviant peers among the AD/HD population (Hoza et. al., 2005). Additionally, a study by Bagwell et. al. (2001) found that parents of participants with AD/HD reported fewer close friendships compared with the non-AD/HD group. Overall, research indicates that social impairment can manifest as both peer rejection and a lack of meaningful friendships.

Social Skills

To date, the literature has conceptualized skills deficits as the source of social impairment among children with AD/HD (Pfiffner & McBurnett, 1997; Mrug et al., 2001). Children with AD/HD have been observed to engage in more negative verbal and physical behavior towards peers, including teasing and aggression (Whalen & Henker, 1992, in Hurt, Hoza, & Pelham, 2007). Although some research suggests that comorbid aggression may be a driving force behind observed social difficulties, Pelham and Bender (1982) report that AD/HD behaviors commonly associated with hyperactivity-impulsivity (e.g., intrusiveness, acting as a class clown) were independently associated with low numbers of friendships. Thus, as Hoza et. al. (2005) state, “it appears that the path to peer difficulties in children with AD/HD is not only through comorbid aggression.”

Despite the hypothesized importance of social skills to peer relationships, interventions focused on teaching social skills have thus far been unable to normalize the social status of children with AD/HD (Landau et al., 1998, in Hoza & McQuade, 2008).

A study by Ronk (2008) found that:

boys with AD/HD engaged in a higher frequency of incompetent entry behaviors, were rated by observers as less able to maintain the group's frame-of-reference,

received a higher frequency of less favorable responses from hosts, were viewed by hosts as less likeable, and were rated by observers as having more difficulty entering and playing the game. However, entry boys with and without AD/HD did not differ in frequency of competent entry behaviors.

This pattern of findings suggests that impairments in peer relations among the AD/HD population result from a performance deficit, as opposed to a skills deficit, in social interactions. Further supporting this conclusion, children with AD/HD have been observed to leave a social skills training session during which they successfully practiced negotiation during conflict situations, only to fight about seating arrangements during the bus ride home (Abikoff & Gittelman 1985, in Mikami 2010). Most children with AD/HD are able to provide correct responses in the controlled environment of a social skills training group; however, their AD/HD symptoms interfere with their ability to appropriately regulate social behavior in actual peer situations, especially in context of regulating their social behavior during actual peer interactions that involve conflict. (Hoza, 2007)

This conceptualization of social impairment among individuals with AD/HD as resulting from a performance deficit is consistent with what has been termed a “point of performance” deficit (Barkley, 2006). Per this model, although individuals may possess the necessary skills, they fail to apply them consistently in day-to-day life. Findings such as these prompted Hoza to state in her 2007 article; “Peer interventions need to move beyond a skills deficit model.” Friendship-focused, rather than skill-based, interventions may therefore be better able to address such a deficit.

Strikingly, the number and quality of friendships a child has, rather than the level of social skills, have been linked to positive outcomes. Hodges and Boivin (1999) found that internalizing and externalizing behaviors, such as those characteristic of children with AD/HD, were linked to peer victimization. However, even a single positive friendship was found to attenuate this relation and reduce the likelihood of victimization (Hodges and Boivin, 1999). Friendships have been shown to have greater protective value for children with AD/HD than for typically developing children (Mikami, 2010), and researchers have speculated that encouraging good friendships among children with AD/HD may buffer negative future outcomes (Hoza 2007; Mrug et al. 2001; Normand et al. 2007, in Mikami, 2010).

Parents and Friendship

Research indicates that parents play a key role in facilitating friendships for their children. Current research suggests that pre-arranged play sessions between children, outside of school or organized activities, typically held at one child's house, are a primary basis of friendship development among preadolescent children (Frankel 1996, 2003; Frankel & Myatt 2003; Ladd & Hart 1992). Krappman (1986) found that children tended to form friendships that were closer and more stable when their parents actively arranged and supervised their peer relations. Further supporting this conclusion, more frequent parent initiations of social opportunities for their children have been associated with higher levels of pro-social behavior and lower levels of nonsocial behavior among children, as well as greater peer acceptance in preschool among boys (Ladd, 1992). Additionally, children's social and personality development has been found to be related

to parental child-rearing behaviors (e.g., Lamb, 1981; Maccoby, 1980, Rosser, 1981). Indeed, Parke et. al. concluded that the parent's role as "supervisor who directly assists the children to initiate their play together, maintains the interaction, and assists the children in resolving their difficulties and agreements" is especially important to the child's development of high quality friendships (Parke et. al., 1988, in Finnie & Russel, 1989). Based on these findings, "parents may need to be taught specific skills for supervising interactions between their own child and another child who displays an elevated level of problematic behaviors" (Hoza et. al., 2003).

Parents may play a particularly important role for children with AD/HD. Research indicates a stronger relationship between parental behaviors and peer relationships for AD/HD children than for typical controls (Mikami, 2010). Findings from the Summer Treatment Program (STP), an intensive summer camp intervention for children with AD/HD which included a friendship component by pairing each participant with a "buddy," found that parental compliance with the buddy system played a key role in child bonding with the buddy (Hoza et. al., 2003; Pelham, et. al., 1996). Parental compliance with the buddy system predicted camper's perceptions of companionship, as well as marginally predicted counselor's ratings of camper's positive adaptation at the end of the STP. The more frequently parents brought buddies together outside of the STP, the better adapted these children were rated by the counselors (Hoza, et. al., 2003). Additionally, campers whose parents arranged for them to meet with their buddies outside of the STP rated their buddy relationship as providing more companionship (Hoza et. al., 2003). Parental ability to actively foster and monitor their children's friendships may be related

to parental social competence. Mothers of unpopular children have been observed to demonstrate negative social behaviors in parallel to their children, evincing a greater tendency to “attempt to dominate the group and ignore the ongoing activity when trying to integrate their child,” whereas “both popular children and their mothers tended to approach entry tasks in a more group oriented way” (Ladd, 1992). In a study of a playgroup consisting of AD/HD children, parent socialization with other parents in the playgroup was positively correlated with teacher ratings of a greater number of peers “liking and accepting” the child, and with increased positive sociometric nominations received by the child (Mikami, 2010). Parents facilitate social interactions not only by responding to child requests for play-dates with particular other children, but also by arranging for their children to play with the children of their own friends (Howes 1996). Even if two children like one another, research suggests that a play-date will not be arranged unless the parents know one another and both think that the other child comes from a “nice family with a likeable mother” (Howes, 1996).

Challenges for Parents of Children with AD/HD

Parents of children with AD/HD may have increased difficulty facilitating their children’s social interactions. Parent–child relationships in the AD/HD population are frequently conflictual (Johnston & Mash 2001), which may constrain parental ability to facilitate their children’s’ social interactions in a manner to which children would be receptive. Moreover, day-to-day life as the parent of a child with AD/HD can be riddled with challenges, including struggles over homework, chores, and morning routine, each of which children with AD/HD complete slowly (Pffner & McBurnett, 1997). Such

daily struggles may limit parental time, energy, and motivation to proactively encourage their children's friendships (Johnson & Mash, 2001). Parents of children with AD/HD are also at elevated risk for psychopathology in general. This can include AD/HD symptoms (Hechtman, 1996, in Johnson & Mash, 2001) or other psychopathology, such as depression (Chronis-Tuscano & Clarke, 2008). The impairments associated with these diagnoses may interfere with parental capacity to plan play-dates and to model appropriate social behavior for their children (Johnson & Mash, 2001). For example, mothers with AD/HD have been observed to report less consistent parenting behaviors and lower monitoring and knowledge of their children's activities, as well as to generate lower-quality solutions to child behavior problems during lab observations (Murray & Johnston, 2006). Maternal awareness of behavior in the supervisory role has also been associated with impairments in social skills among mothers with AD/HD (Finnie & Russel, 1989). Such findings may have important implications for the peer relationships of children of parents with AD/HD.

Mothers of children with AD/HD are also at elevated risk for depression (Nigg & Hinshaw, 1998). Maternal depression has been shown to be a risk factor for development of conduct problems among children with AD/HD (Chronis et. al., 2007), as well as with elevated negative parenting practices and negative biases of children's AD/HD symptoms (Hinshaw, 2001). Additionally, parental anxiety has been associated with comorbid anxiety disorders among children with AD/HD (Piffner & McBurnett, 2006).

Goals and Hypotheses of the Present Study

To date, our understanding of the peer relationship problems among children with AD/HD stems from a consideration of child AD/HD symptoms and associated features with regards to child social skills and peer rejection. However, the literature suggests that examining peer relationship problems solely from a child psychopathology perspective overlooks the crucial role parent characteristics play in the development of child friendships. Moreover, the focus on skills, rather than performance, deficits, has yielded little result in terms of effective interventions. The literature indicates that parent behaviors moderate child friendships, such that skilled parents can increase the number and quality of child friendships, whereas less skilled parents are less likely to do so.

No research to date has examined the relationship between parental psychopathology and child friendships within an AD/HD population. Considering the important role of parents in their children's friendships, as well as the unique challenges facing parents of children with AD/HD, a better understanding of the relation between parental psychopathology and child friendships could lay the foundation for a parent training intervention that assists parents of children with AD/HD to proactively foster their children's friendships. Parental anxiety and depression may precede child AD/HD symptoms, but they may also be a direct result of child AD/HD symptoms or exacerbated thereby. Thus, parental anxiety and depression may demonstrate a different relation with child friendships than parental AD/HD, which necessarily precedes child AD/HD. Additionally, given the elevated rate of AD/HD among parents of children with AD/HD (Hechtman, 1996), research as to the impact of parental psychopathology on the

association between parent and child friendships could further inform the development of an intervention tailored to meet the unique challenges faced by this population.

To address the current gap in the literature, this study examined the association between parental psychopathology and child friendships among children with AD/HD. In particular, this study examined the impact of parental psychopathology on the relation between child AD/HD and child friendships. It was hypothesized that parental psychopathology in general, and parental AD/HD in particular, would negatively moderate the relation between child AD/HD symptomatology and child friendships. More specifically, a higher degree of parental AD/HD and overall psychological distress was expected to be associated with fewer and lower quality friendships among children with AD/HD.

CHAPTER III

METHODS

Participants

Twenty-eight children aged 7-11 and their caregivers participated in this study. The mean age of child participants was 9.75 years ($SD=1.28$), and all were enrolled in grades 2-6, although two participants reported being home schooled. Fifty percent of participants were Caucasian, 34.6% African American, and 2% self-identified as Other, which is roughly consistent with the makeup of the Greensboro community. All child participants were reported to have been on medication within the last year, and all received a formal diagnosis of AD/HD from either the AD/HD Clinic at UNCG or community practitioners.

All caregivers were biological or adoptive mothers of participants, ranging in age from 28 to 63 years ($M=41.76$, $SD=7.8$). Racial composition of caregivers matched that of their children, with the exception of two Caucasian caregivers of children reported to be multiracial or other. With regards to marital status, 69.2% reported being currently married, 3.8% of participants reported being never married and currently living without a partner, 3.8% indicated that they had never married, but were currently living with a partner, and 11.5% reported being currently divorced. No caregivers indicated that they were separated or a widow/widower. All children met DSM-IV diagnostic criteria for

AD/HD (any subtype), were between the ages of 7 and 11, and had at least one parent or guardian who was willing to participate. AD/HD status was determined on the basis of positive parental responses to the AD/HD module of the C-DISC-IV, accompanied by T-scores at or above 60 on the Inattention and/or Hyperactivity-impulsivity subscales of the parent-rated BASC-2. Participants who had received a diagnosis of AD/HD after completing a comprehensive evaluation at the AD/HD Clinic at UNCG were also included in the study. The age range of 7-11 was selected as a period of development during which parents continue to play a pivotal role in the fostering of child friendships, but during which one could reasonably expect that an association with parental impairment, if such an association exists, will have already begun to manifest in child relationships. Children were permitted to be on stimulant medication for AD/HD at the time of participation in the study.

Measures

Demographic and background characteristics. Demographic information relating to gender, ethnicity, age, and grade level for the child, as well as relationship to child, age, and marital status was collected from questionnaires completed by parents.

Diagnostic Status Measures

Computerized Diagnostic Interview Schedule for Children Version IV (NIMH C-DISC-IV; Schaffer, D., Fisher, P., Christopher, P., Dulcan, M., Schwab-Stone, M., 2000) The Diagnostic Interview Schedule for Children-IV is a broadband diagnostic interview designed for use in research and based on the DSM-IV. For the purpose of this study, mother's responses to the AD/HD module were used to ascertain diagnostic status.

Behavior Assessment System for Children, Second Edition (BASC-2; Reynolds & Kamphaus, 2004) The BASC-2, a broadband measure of child behavior, is commonly used in child assessments. Mothers rated the frequency of behaviors described in each item on a 4-point scale ranging from “never” to “almost always.” The BASC-2 yields 14 subscale and 5 composite scores, and has been found to have internal consistency in the 0.8-0.89 range (Merenda, 1996). The Attention Problems and Hyperactivity subscales of the BASC-2 were used to establish AD/HD diagnosis. Additionally, the Aggression, Social Skills, Adaptive Behaviors, Activities of Daily Living, and Leadership subscales were used in post-hoc analyses.

Predictor Measures: Child AD/HD Symptomatology

ADHD Rating Scale IV (ADHD-RS; DuPaul, Power, Anastopoulos, & Reid, 1998) Mothers completed the ADHD-Rating Scale IV about child participants. The ADHD-RS is an 18-item measure based on the AD/HD symptom criteria listed in the DSM-IV (APA 2000), with 9 items relating to symptoms of inattention and 9 items relating to symptoms of hyperactivity-impulsivity. Parents rated the occurrence of each symptom on a scale from 0 (not at all) to 3 (very often). A minimum score of 0 therefore indicated an absence of AD/HD symptoms and a maximum score of 54 indicated that all symptoms were present at maximum severity. The ADHD-RS has been found to have excellent psychometric properties for the screening and assessment of AD/HD (DuPaul, Power, McGoey, Ikeda, & Anastopoulos, 1998). For the purposes of this study, the total AD/HD score generated from summing the scores across all 18 items was used as a measure of overall symptom severity. Additionally, totals from the 9 items relating to inattention and

9 items relating to hyperactivity/impulsivity were also used to measure severity of inattention and hyperactivity/impulsivity, respectively.

Outcome Measures: Child Friendships

Number of Friendships: To assess for friendships that involve interaction outside of organized settings, parents listed the number of friendships they believed their child to have based on observations from the last six months. Children also reported the number of children who did not live in the home, to whom they were not related, that they would consider a friend in the last 6 months. For the purpose of this study, friendships reported by children and their mothers were used as separate outcome indices.

Friendship Quality Questionnaire (FQQ, Parker and Asher, 1989). Children completed the Friendship Quality Questionnaire (FQQ, Parker & Asher, 1989) about the two friends they considered to be their “best” friends. The FQQ consists of 40 items plus one “warm-up” item, and asks children to indicate on a 5-point scale how true a particular quality is of their relationship with a specific friend (e.g., "Jamie and I loan each other things all the time"). The scale ranges from not at all true (0) to a little true (1) to somewhat true (2) to pretty true (3) to really true (4). The FQQ is commonly used to assess for quality of child friendships (Parker & Asher, 1993). Items are divided into 6 subscales: validation and caring, conflict and betrayal, companionship and recreation, help and guidance, intimate exchange, and conflict resolution. For the purpose of this study, items relating to conflict and betrayal were reverse scored, and a total of ratings from across all items was used to provide a score for overall friendship quality.

Additionally, total ratings for each subscale were calculated and examined in post-hoc analyses.

Moderator Variables: Caregiver Characteristics

Adult ADHD Rating Scale-IV. To specifically assess for AD/HD, caregivers completed a version of the ADHD-RS (DuPaul et. al., 1998) modified for use with adults by including two time periods for rating. This self-report version of the ADHD-RS uses a 4-point likert scale to probe for these symptoms during two time periods; ages 5-12 and the past 6 months. A minimum score of 0 therefore indicated an absence of AD/HD symptoms and a maximum score of 54 indicated that all symptoms were present at maximum severity within each time period. As with the child ADHD-RS, the total AD/HD score generated from summing the scores across items from the past 6 months was used as a measure of total symptom severity. Total scores from the 9 items pertaining to inattention and hyperactivity/impulsivity were also used to measure severity of each symptom type, respectively. Endorsement of 6 items from either subscale is necessary to meet criteria for AD/HD on this measure.

Symptom Checklist-90-Revised (SCL-90-R, Derogatis & Leary, 1983) The SCL-90-R is a broadband measure of adult psychopathology commonly used to detect psychopathology in the general population. It consists of 90 items divided into 9 Primary Symptom Dimensions and 3 Global Indices. Raters select whether a described symptom applies to them within the past 7 days on a 5-point likert scale. Internal consistency has been found to be excellent (alpha of .85-.91), and the SCL-90-R has been shown to have a high discriminative value among psychiatric patients (Hafkenscheid, 1992). Because

this study focused on general psychopathology, the General Severity Index, an average rating drawn from all 90 items, was used as a measure of general psychological distress. Additionally, scores from the depression subscale were used as a measure of distress relating specifically to depressive symptoms. T-scores above 65 are considered to be in the clinical range.

Procedures

Recruitment targeted several private schools in the community, and an AD/HD Parent Support Group using fliers and handouts containing a description of the study and the contact information of the primary investigator. Previous clients from the AD/HD Clinic at UNCG and participants from other research studies at the AD/HD Clinic who expressed interest in participating in research were also contacted regarding study participation. Of the total sample for this study, 38.5% were recruited through the AD/HD clinic, 38.5% from other research projects at the AD/HD clinic, and 15.4% from the AD/HD Parent Support Group. 4% were recruited from fliers posted in surrounding schools, and 4% were referred by other participants. Of the participants recruited from other research projects at the AD/HD Clinic, 20% had received an evaluation at the AD/HD Clinic.

The student investigator contacted caregivers who had expressed interest in participating by phone to describe the study and discuss participation requirements. Interested participants then scheduled a research appointment to complete the C-DISC-IV with the student investigator. During this appointment, after completing consent and assent forms, they also received the BASC-2 and ADHD-RS to be completed about the

child, and the SCL-90-R and ADHD-RS to be completed about the parent. While parents completed questionnaires, the child participant completed the FQQ with the assistance of the examiner. The examiner assisted the child in completing the FQQ by reading the items aloud and pointing to each of the four responses on the questionnaire, so that the child could respond verbally or by pointing. Upon completion of all questionnaires, participants were mailed a \$20 gift card and a letter summarizing questionnaire results.

To maintain confidentiality, all participants were assigned a unique code number, which was used as the only identifying information on questionnaires. Questionnaires were stored in a locked cabinet at the AD/HD Clinic at UNCG. Contact information was maintained for the purpose of mailing out summary letters and gift cards on a secure network drive. Consent forms containing participant names were kept in a locked cabinet, separate from collected data.

CHAPTER IV

RESULTS

Preliminary Inspection of the Data

Kolmogorov-Smirnov tests for normality indicated that none of the variables used in planned analyses violated assumptions of normality. Further assessment for skewness and kurtosis indicated abnormality among the number of friends reported by both children and their parents. These data were square root transformed to meet assumptions of normality prior to further analysis.

Description of the Sample

Descriptive statistics for predictor, moderator, and outcome variables can be found in Table 2. Caregivers endorsed an average of 10.75 total symptoms of AD/HD (SD=4.91), 5.75 counts of inattention (SD=2.91), and 4.61 counts of hyperactivity-impulsivity (SD=3.11). 21.4% of child participants met criteria for AD/HD- Inattentive subtype, and 75% for Combined Type on the C-DISC-IV. One participant did not meet criteria on the C-DISC-IV, but had a prior diagnosis from the AD/HD Clinic at UNCG. No participants met criteria for AD/HD-Hyperactive/Impulsive subtype on the C-DISC-IV. On the BASC-2, caregivers endorsed items on the Inattention scale with an average T-score of 66.64 (SD=5.69), and on the hyperactivity-impulsivity scale with an average T-score of 67 (SD=11.72), indicating presence of clinical levels of both inattention and hyperactivity/impulsivity. In terms of caregiver psychopathology, caregivers reported an

average of 2.6 total counts of AD/HD symptoms ($SD=3.43$), 1.61 inattention symptoms ($SD=2.20$), and 1.04 hyperactivity-impulsivity symptoms ($SD=2.70$) within the last 6 months. Caregivers also reported an average of 10.35 total AD/HD symptoms ($SD=4.91$), 2.29 hyperactive-impulsive ($SD=2.98$), and 2.25 inattention symptoms ($SD=2.90$) during the age range of 5-12. Caregivers reported an average T-score of 56.59 ($SD=11.05$) on the General Severity Index of the SCL-90-R, as well as an average T-score of 57.56 ($SD=11.33$) on the Depression Index, indicating that caregivers in this sample were experiencing a slightly elevated average level of psychopathology.

With regards to outcome variables, caregivers reported that their children had an average of 6.54 friends in the last 6 months ($SD=7.69$), while children reported an average of 16.29 friends ($SD=16.65$). Although parent report is consistent with what might be expected based on the literature (e.g., Ladd, 1999), child report was somewhat higher. T-tests revealed a significant difference between the number of friends reported by parents and the number of friends by child self-report ($t=-2.69$, $p=.002$, $df=27$), and this difference remained significant even when one outlier was dropped (one child reported having 74 friends), as well as when children who reported 26 or more friends were dropped ($n=5$) from analyses. These reports were also highly correlated, indicating that, although children reported consistently more friends than did their caregivers, children who reported more friends tended to have caregivers who also reported a relatively higher number of friends ($r=.44$, $p=.02$). In terms of friendship quality, children reported an average quality rating of 109.05 for the first friend they indicated, and 99.15 for the second friend, for an average total score of 208.2. FQQ scores for the first friend

tended to be higher than those for the second friend at a level that approached significance ($t=2.00$, $p=.06$, $df=27$). Considering that possible FQQ scores range from 0-160, with a maximum possible total score for two friendships of 320, these scores are indicative of friendship ratings in the middle-high range. This suggests that children in this sample may have rated their friendships more favorably than those in the sample on which the FQQ was normed, where item ratings fell more consistently in the low-middle range (Parker and Asher, 1993).

Correlations Among Variables

An analysis of bivariate correlations among the variables was conducted, with results depicted in Table 3. Parent and child-reported number of friends did not correlate with any other variable, including friendship quality. However, friendship quality correlated with several other variables at significant and trend levels. Friendship quality was significantly correlated with the Activities of Daily Living subscale of the BASC-2 ($r=.53$, $p=.004$). Similarly, scores on the Aggression subscale of the BASC-2 were negatively and significantly related to the quality, but not the number, of child friendships ($r=-.42$, $p=.03$). An examination of correlations with subscales of the FQQ revealed that this correlation may have been driven by associations with the validation and caring ($r=-.431$, $p=.022$) and companionship and recreation subscales ($r=-.504$, $p=.006$). The companionship and recreation subscale consists of items pertaining to shared activities (e.g., “Do you and (*NAME*) always sit together at lunch?”), while the validation and caring subscale assesses for displays of support (e.g., Does (*NAME*) stick up for you even if others talk behind your back?”). Thus, these scores indicate that children with higher

aggression scores tended to report less supportive friendships involving fewer shared activities. Also of note, friendship quality was positively correlated with the Adaptability Scale of the BASC-2 at a trend level ($r=.32$, $p=.09$). Additionally, child inattention severity was correlated with the Social Skills ($r=.342$, $p=.08$), and Activities of Daily Living subscales of the BASC-2 at trend levels and ($r=-.346$, $p=.072$). Taken together, these findings suggest that friendship quality may have been more meaningfully related to adaptive child characteristics than was friendship number within this sample.

Because a significant portion ($n=8$) of children in this sample reported 20 or more friends, the sample was divided at the median child reported number of child-reported friends (10), to examine possible differences in relations among variables for children who reported more or less than 10 friends. The relation between aggression and quality of friendships was found among children with 10 or more friends, but was non-significant among children with less than 10 friends (Children with >10 friends: $r=-.624$, $p=.02$; Children with ≤ 10 friends: $r=-.068$, $p=.81$). However, these groups were not found to differ in terms of any examined characteristics, including aggression ($t=1.092$, $df=26$, $p=.77$). That the groups did not differ significantly in terms of average aggression scores, but that aggression was found to predict greater numbers of friendships, suggests that children with more than 10 friends in this sample may have been more likely to use aggressive tactics to accrue larger numbers of friends. These findings are consistent with the negative association between aggression and friendship quality.

On the whole, caregiver self-report of psychopathology tended to be correlated significantly or at a trend level for both current and lifetime reports. Caregiver total

severity scores on the ADHD-RS correlated significantly with caregiver inattention ($r=.93$, $p=.00$) and hyperactivity scores ($r=.91$, $p=.00$), as well as with SCL-90-R GSI scores ($r=.424$, $p=.03$). These correlations were all positive, indicating that caregivers who tended to report a greater degree of symptomatology on one measure also tended to do so on other measures. Taken together, these findings suggest that caregivers were consistent in their reporting of their own psychopathology. Caregiver hyperactivity/impulsivity in the last 6 months was also correlated with child hyperactivity/impulsivity ($r=.38$, $p=.041$) and total severity scores ($r=.38$, $p=.05$), respectively), and caregiver total severity in the last 6 months was correlated with child total severity at a trend level ($r=.33$, $p=.082$), consistent with findings in the literature. Additionally, caregiver SCL-90-R GSI scores were significantly correlated with the companionship and recreation ($r=-.347$, $p=.076$) and the conflict resolution ($r=.424$, $p=.028$) subscales of the FQQ, suggesting that higher levels of parental distress were associated with child friendships that were rated as lower in shared activities, but, interestingly, higher in successful conflict resolution.

Predicting Number and Quality of Child Friendships

A planned 5-step multiple regression analysis was conducted to test the hypothesis that caregiver psychopathology would moderate the number of child-reported friendships over and above interactions with child AD/HD symptoms. Child total severity scores on the ADHD-RS were entered at the first step, followed by caregiver ADHD scores on the ADHD-RS at the second step. At the third step, caregiver scores on the General Severity Index (GSI) of the SCL-90-R were entered. To account for a possible

interaction between child and caregiver ADHD scores, a new variable was computed by multiplying child total severity scores on the ADHD-RS and caregiver total severity scores from the last 6 months on the ADHD-RS, and this score was entered at the fourth step. Similarly, to account for a possible interaction between child AD/HD and caregiver GSI scores, a new variable was computed by multiplying child AD/HD and caregiver GSI scores, and this variable was entered at the fifth step. The same regression was repeated using parent report of the number of child friends and total score on the FQQ to further assess for impact of caregiver psychopathology on the number and quality of child friendships. The results of these regressions are reported in Tables 4 and 5. These analyses were not found to be significant at any step, and parental psychopathology was not found to significantly predict number or quality of child friendships. Because child AD/HD did not predict child friendships, this analysis cannot be interpreted as a test of moderation.

Post-Hoc Analyses

Because this study did not exclude participants with comorbid disorders, an exploratory analysis was conducted to examine whether comorbid child aggression and other behavior problems may be associated with the number and quality of friendships. Child and parent reports of number of friendships were regressed on the Conduct Problems and Aggression subscales from the BASC-2. Although neither child or parent reported number of friendships were significantly predicted by the Conduct Problems subscale, the Aggression subscale did predict the number of child friendships reported by parents at a level that approached significance ($\beta=.357$, $p=.063$). This relation was

positive, suggesting that parents of children with higher aggression scores may have tended to report more friendships.

Re-examination of Power

A power analysis was conducted to assess whether sample size was sufficient to detect effect sizes found in the data. An examination of r values from the regressions used to examine the role of parental psychopathology in number and quality of child friendships over and above child symptomatology and the interaction between child and adult symptomatology yielded r values ranging from $r=.352$ to $r=.376$, indicating a medium effect size, consistent with findings in the literature (Mikami, 2010). A minimum of 91 participants would have been necessary to detect a medium effect size with a power of .8 at an alpha level of .05. This stands in contrast to the 28 participants this project was able to recruit.

CHAPTER V

DISCUSSION

Social impairment is well-established among individuals with AD/HD.

Traditionally, research has explored social impairment through the construct of peer rejection, but more recent literature has focused on friendship, finding it to have long-term and pervasive benefits. Even a single high-quality friendship has been found to buffer against the negative outcomes of peer rejection (Hodges and Boivin, 1999).

Friendship may be particularly beneficial for children with AD/HD, who are at elevated risk for negative outcomes associated with peer rejection as well as due to their AD/HD symptoms, and a high percentage of whom report having no friends in the third grade (Barbarese, et. al., 2007, Mikami, 2010). Considering the important role parents play in children's friendships (Krappman, 1986), and the fact that parents of children with AD/HD are at elevated risk for a variety of psychopathology, including AD/HD and depression (Hechtman, 1996, in Johnson & Mash, 2001; Chronis-Tuscano & Clarke, 2008), children with AD/HD may be at increased risk with regards to making friends.

This study aimed to examine the relation between parental AD/HD and overall psychopathology with the number and quality of friendships among children with AD/HD. It was hypothesized that caregiver AD/HD would be associated with fewer and lower quality friendships, over and above the role of child AD/HD symptoms, thus having a moderating effect. It was also hypothesized that caregiver psychopathology in

general would demonstrate a similar relation. Planned multiple regression analyses, however, did not find a significant relation with either caregiver SCL-90-R GSI scores or Total Severity scores from the ADHD-RS and number or quality of child friendships. Of note, these analyses were insignificant from the first step (a regression of caregiver AD/HD on child AD/HD severity), indicating that several expected relations were not found among this sample. Caregiver and child AD/HD were related at a trend level, but child AD/HD severity was not found to be related to child friendships.

Aggression is frequently comorbid with AD/HD and commonly associated with social impairment. However, this study did not control for comorbidity. The mean T-score on the Aggression subscale among children in this sample was 59.2, suggesting that comorbid aggression may have mitigated the role of parental psychopathology among this sample. Aggression scores were negatively and significantly correlated with FQQ total scores ($r=-.418$, $p=.027$). Interestingly, the relation between parent reported number of friends and child T-Scores on the Aggression subscale was positive and approached significance ($r=.36$, $p=.06$), suggesting that parents of children with higher levels of aggression tended to report a greater number of friendships. This finding suggests that aggressive behavior may not negatively impact, and even increase, the number of friends a child with AD/HD has, but that these friendships may tend to be of lower quality.

Children were found to report significantly more friends than did their mothers. These findings suggest that mothers may not take part in the bulk of child friendships, further minimizing the role of parental psychopathology. Alternatively, child report may have been subject to positive illusory bias. In particular, children with AD/HD have been

found to rate their social interactions more positively than do objective observers, such that children with AD/HD may simply believe they have more friends than they actually do (Hoza et. al., 2000). Additionally, in Griggs and mikami's 2011 study, wherein parental AD/HD was found to moderate outcomes in a parent-based friendship intervention, child friendships were assessed using teacher report and examiner observation, suggesting that reliance on parent and child self-report may have impacted the findings of this study. Future research in this domain could further explore this question by including a teacher measure of number and quality of child friendships, and examining whether these associations were also apparent in teacher reports.

Friendship quality was correlated with several other variables at significant and trend levels, while number of friendships was not. For example, friendship quality was significantly and positively correlated with the Leadership and Activities of Daily Living subscales of the BASC-2 ($r=.53$, $p=.00$), as well as the Leadership subscale ($r=.42$, $p=.03$), and was correlated with the adaptability subscale at a trend level ($r=.32$, $p=.09$). This suggests that behaviors associated with high-quality friendships (e.g., making each other "feel important and special," resolving conflicts peacefully, working together on homework and cooperating during recreational activities) may be also be associated with leadership skills and the ability to handle a greater degree of responsibility. The validation and caring, conflict resolution, and companionship and recreation subscales appear to have driven these relations, suggesting that these may be particularly important aspects of friendship for overall functioning. Similarly, the ability to cooperate and resolve conflicts also requires a high degree of adaptability, which may explain the

relation with the Adaptability subscale. Moreover, the companionship and recreation subscale was negatively related to parental SCL-90-R GSI scores. As this scale assesses a shared activities dimension of friendship, this correlation may suggest that parents with higher general distress created fewer situations for their children to engage socially. Additionally, the conflict resolution subscale was positively related to parental SCL-90-R GSI scores. Although this finding is not in the expected direction, it may indicate that children whose parents are experiencing distress develop conflict resolution skills as a coping strategy, perhaps in an attempt to avoid conflicts with the distressed parent. Number of friendships was not correlated with any of these adaptive subscales, and was in fact positively correlated with aggressive behaviors, suggesting that the ability to make and maintain friends may be a separate construct from the ability to engage in positive, supportive relationships. Taken in consideration with literature suggesting that even a single, high-quality friendship can buffer against the negative impact of bullying (Hodges and Boivin, 1999), these findings suggest that research may be best directed toward helping children improve the quality of their friendships by encouraging cooperation and peaceful conflict resolution, rather than focusing on helping children to simply make more friends.

Limitations

The absence of significant findings from this study may be related to its limitations. A power analysis based on effect sizes found in initial analyses indicates that this project may have been underpowered to detect the existent effect sizes at a significant level. The necessary number of participants to detect a medium effect sizes

comparable to those found by Mikami et. al. (2010) would have been 91, which is more than three times this study's 28 participants. Moreover, the effect sizes used in this power analysis were derived from literature in which parents were engaging in a parent-based friendship intervention, such that the effect sizes among this non-intervention population may have actually been substantially smaller. Although it was not formally collected as data, many children reported engaging in the majority of their friend-interactions at school, such that the effect sizes among this sample may have realistically been very small.

There is also the question of whether the sample recruited for this study is representative of the more general population of children with AD/HD and their parents. 38.5% of participants in this study had received services through the UNCG AD/HD Clinic, while an additional 15.4% were recruited through a local parent support group. Caregivers who actively seek services from a specialty clinic and participate in support groups may be especially motivated to assist their children in dealing with the implications of an AD/HD diagnosis. This motivation may have mitigated any effects of caregiver psychopathology on their child friendships. Additionally, many participants in the study were currently on medication and/or receiving other forms of services to manage their AD/HD symptoms. However, while providing diagnostic information, caregivers were asked to report about their children's behavior in the absence of medication. Thus, AD/HD symptoms among study participants may have been so effectively managed as to minimize their impact on child friendships. Moreover, inclusion of a purely clinical AD/HD sample may have resulted in a restriction of range

effect, such that the consistently clinical-level symptom severity of participants may have limited the range of findings.

Although sample characteristics were comparable in Mikami's investigation of the Parent Friendship Coaching intervention, 20 out of 62 participants were not currently on medication, in contrast to this study's 1 out of 28. Thus, although most participants in Mikami's study were on medication, the higher off-medication percentage may have allowed for a greater range of AD/HD symptoms severity than was present in this study. Moreover, participants were aged 6-10. This study aimed at including children aged 7-11 so as to ensure that participants would have transitioned to elementary school and had the opportunity to develop stable friendships. However, the differential findings may be due to developmental differences; younger children may make more dramatic social gains and may be more reliant on parents to do so, thus accounting for possible differences in effect sizes between projects. Moreover, Mikami et. al. specifically requested that the parent most involved in the child's social life participate in the study, such that her sample may have consisted of highly motivated parents. Nonetheless, the majority of caregivers that participated in Mikami's Parent Friendship Coaching Intervention were mothers, as was the case in this study.

Additionally, this study did not collect information pertaining to play dates, such that the actual rate of home-based friend interactions cannot be determined. Thus, whether the insignificant results are due to a minimal role of parental psychopathology on child friendships or simply lack of involvement of parents in their children's friend-interactions cannot be determined from the results of this study. This is consistent with findings from

Griggs and Mikami's 2011 project, which found significant improvements in social interactions relying entirely on teacher report. Teachers may simply have greater access to direct observation of children's social interactions than do parents, and this may be especially salient for parents of children with AD/HD. While teachers observe children interacting on a daily basis, parents often have to go out of their way to arrange these interactions. Arranging social interactions may be especially challenging for parents of children with AD/HD, given the often challenging nature of parent-child relationships in this population. Moreover, parents in this sample were found to have a slightly elevated mean level of general distress, such that organizing social interactions for their children may have been further hampered by their own psychopathology. This conceptualization is supported by the correlation between the companionship and recreation subscale of the FQQ and parent GSI scores on the SCL-90-R. While Mikami's Parent Friendship Coaching Intervention created a situation wherein parents directly observed and engaged in their children's social interactions, parents in this study most likely had substantially less opportunity to do so. Supporting this hypothesis, the moderating effect of parental AD/HD symptoms was found in the treatment, but not in the control group, of Griggs and Mikami's 2011 study. Measures of number of out-of-school friend interactions that parents arrange and supervise could be used to determine whether parents of children in this sample simply tended not to organize a substantial number of out-of-school play opportunities.

This study also did not include any standardized, observational measure of child friendships, relying entirely on child report as a measure of quality of friendship. This

may have resulted in reports that were inflated by positive illusory bias or otherwise inaccurate. Even in the absence of positive illusory bias, child reports of quality of friendship may have been inaccurate by a tendency to miss important social cues, due to the well-established social impairment among this population. Inclusion of a parent-report of events that took place during their child's most recent friend interaction could help to impart a more objective view of the quality of child's friendships. Similarly, inclusion of a teacher-report measure that details events taking place during children's friend interactions may also be able to impart a view of quality of friendships not impacted by well-established impairments among this population. Finally, a standardized examiner observation of child friendships would provide a means of objectively assessing friendship quality while minimizing reporter bias.

Implications for Future Research

The efficacy of parent-based friendship interventions indicates that parents can play an important role in their children's friendships (Mikami, 2010, Hoza et.al., 2003). Participation in a friendship intervention may cause parents to become more active in their children's friendships, such that the positive role parents can play in supervision and management of child friendships may be the result of a concerted effort that parents otherwise do not make. Thus, the effect size of parental involvement, in general, may be minimal in the absence of a direct intervention, and the direct role of parental psychopathology in child friendships may therefore also be minimal. Nonetheless, parental psychopathology may still reasonably be expected to impair the ability to effectively engage in a parent-based intervention. Thus, research as to the impact of parental

psychopathology on child friendships may be best conducted in the context of a parent-based intervention, so as to directly gauge the role of parental psychopathology on intervention efficacy. Results from Mikami et. al.'s 2011 follow-up to the 2010 Parent Friendship Coaching program indicating a moderating effect of parental AD/HD in the treatment group, but not the control group, support this hypothesis. If, in fact, parents play an important, positive role in children's friendships when active, but if otherwise this role is minimal, psychoeducation as to the positive effect parents can have when actively supportive of children's friendships may be especially important for this population.

Future research may also benefit from exploring the role of parental attitudes about the value of friendships for their children. Parents who believe that children are better off "fending for themselves" socially may believe that arranging and supervising home-based interactions is not only not beneficial, but possibly harmful to children's friendships. Similarly, parents who do not believe friendship is important for their children may not view friend-interactions as a valuable way for their children to spend time. Both of these factors may be especially salient among parents who are experiencing their own psychopathology, as is often the case in this population. Considering the positive long-term outcome associated with even one high-quality friendship, parents who evince negative attitudes may benefit from psychoeducation regarding the importance of friendship for their children.

Many of the children in this study reported having significantly more friendships than did their parents. Anecdotally, many participants casually told the examiner that the

majority of their friend-interactions took place at school. Children with AD/HD may form friendships at school that do not develop in the home for a variety of reasons. Children with AD/HD may be aversive to parents of other children at school they would consider friends, such that parents may actively avoid situations where they would be left in supervision of a child with AD/HD. Moreover, parents of children with AD/HD may suffer from their own social skills impairments relating to symptoms of AD/HD and depression that render them aversive to other parents in the classroom. For example, parental hyperactive/impulsive symptoms were significantly associated with child hyperactive/impulsive symptoms in this sample, suggesting that children with a greater degree of hyperactivity and impulsivity tended to have parents who shared similar characteristics. Either of these factors may limit opportunities for caregivers to actively support their children's friendships. Interventions may therefore need to not only encourage parents to arrange and supervise social interactions, but also provide skills training to help them interact more effectively with other parents.

Alternatively, regional culture may be shifting such that the majority of child play interactions now take place at school, rather than in the home. In this case, future interventions will need to focus on assisting parents in supporting their children's friendships from a distance, or possibly also assisting teachers in supporting positive friend-interactions in the classroom. Future research may wish to include a non-clinical control group, so as to address whether school-based friendships are specific to children with AD/HD, or a more general cultural trend. Similarly, future research may also benefit from exploring whether children with AD/HD and their caregivers report number and

quality of friendships in a manner that is discrepant from typically developing children and their caregivers. Inclusion of a typical control group will allow for examination of the role of parental psychopathology in children's friendships more broadly, permitting comparison to its role among children with AD/HD. Moreover, inclusion of a typical control group will address possible restriction of range issues inherent to research among a clinical population, allowing for examination of a broader spectrum of symptoms.

Conclusions

Overall, this study did not find the hypothesized relation between parental psychopathology and child friendships. Although the absence of predicted findings could suggest that no relation exists between parental psychopathology and child friendships, such a conclusion may be premature due to various methodological limitations, including the size and nature of the sample. Taken together with findings suggesting that parents can have a positive impact on children's friendships through directive interventions (Mikami, 2010; Griggs and Mikami, 2011), this finding suggests that, while parents may be able to positively impact their children's friendships through interventions and the organization and supervision of play dates, their role may otherwise be minimal. These findings emphasize the importance of psychoeducation as to the value of friendships for long-term outcomes, as well as the actions parents can take to foster their children's friendships. Future research should examine the possible impact of parental psychopathology on ability to effectively engage in parent-based friendship interventions, as well as its role compared to typical controls.

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APPENDIX A

CONSENT TO ACT AS A HUMAN PARTICIPANT

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO CONSENT TO ACT AS A HUMAN PARTICIPANT: LONG FORM

Project Title: The Role of Parents in the Friendships of Children with AD/HD

Project Director: Jenna Mendelson

Participant's Name: _____

What is the study about?

This is a research project. The aim of this research is to learn about the role of parents in the friendships of children with AD/HD.

Why are you asking me?

You are being invited to participate in this study because you have a child between the ages of 7 and 11 years old who has AD/HD.

What will you ask me to do if I agree to be in the study?

If you agree to participate in this study, you will be asked to complete several questionnaires about your child's AD/HD and friendships. You will also be asked to complete questionnaires about yourself regarding adult symptoms of AD/HD and other distress. Once questionnaires have been completed, you and your child will be invited for a one-time visit to the AD/HD Clinic at UNCG, during which your child will complete a questionnaire about his or her friendships with the assistance of the student investigator. This visit should take about an hour, and the study will take one and a half to two and a half hours to complete. If you have any questions about the study procedures, you may contact Jenna Mendelson, at (336)-346-3192 x 703.

What are the dangers to me?

The Institutional Review Board at the University of North Carolina at Greensboro has determined that participation in this study poses minimal risk to participants. The questionnaires and diagnostic interview ask about personal information, such as symptoms of AD/HD and other personal distress. You and your child will also be asked questions about their friendships. Answering these questions may make you feel uncomfortable. You may skip questions that you do not want to answer. Participation is completely voluntary.

If you have any concerns about your rights, how you are being treated or if you have questions, want more information or have suggestions, please contact Eric Allen in the Office of Research Compliance at UNCG at (336) 256-1482. Questions, concerns or complaints about this project or benefits or risks associated with being in this study can be answered by Jenna Mendelson who may be contacted at (336)-346-3192 x 703 or by Dr. Arthur Anastopoulos who may be contacted at (336)-346-3196 x 303.

Are there any benefits to me for taking part in this research study?

You will receive a summary of the measures that you and your child completed. This summary is intended as a summary of research data. It is not a tool for making decisions about your or your child's mental health care. However, this summary information may be of some use to clinicians working with you or your child.

Are there any benefits to society as a result of me taking part in this research?

Increased knowledge about the relation between number and quality of child friendships and caregiver AD/HD and other symptoms may lead to improved treatments for children with AD/HD and their families.

Will I get paid for being in the study? Will it cost me anything?

If you and your child participate in the study after having received an assessment at the AD/HD Clinic at UNCG, you will receive a \$5 gift card. If you and your child participate in the study without having received an assessment at the AD/HD Clinic at UNCG, you will receive a \$20 gift card. You will receive a gift card even if you or the child discontinue your participation in this study or do not answer certain questions on the questionnaires or interview. There are no costs to you or your child for being in this study.

How will you keep my information confidential?

The information that you provide as part of this research study will be kept confidential. Your name will not be written on any of the questionnaires that you and your child complete. You and your child will be assigned a unique number code, and this code will be used to identify you. Only the principal investigator and student investigator will have access to the key that links your name with your unique code. The questionnaires that you and your child complete will be stored in a locked file cabinet. Passwords will protect information that has been entered on the computer. You will not be identified by name when data from this project is published. All information obtained in this study is strictly confidential unless disclosure is required by law. The investigators are legally required to report incidence of child abuse, disabled adult abuse, gunshot/knife wounds, communicable diseases, and if you present an imminent danger to the health or safety of another or yourself.

What if I want to leave the study?

You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, it will not affect you in any way. If you choose to withdraw, you may request that any of your data which has been collected be destroyed unless it is in a de-identifiable state.

What about new information/changes in the study?

If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you.

Voluntary Consent by Participant:

By signing this consent form you are agreeing that you read, or it has been read to you, and you fully understand the contents of this document and are openly willing consent to take part in this study. All of your questions concerning this study have been answered. By signing this form, you are agreeing that you are 18 years of age or older and are agreeing to participate, or have the individual specified above as a participant participate, in this study described to you by Jenna Mendelson.

Signature: _____

Date: _____

It would be ok to contact me in the future about similar research projects (please check one):

Yes No

APPENDIX B

CONSENT FOR A MINOR TO ACT AS A HUMAN PARTICIPANT

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO CONSENT FOR A MINOR TO ACT AS A HUMAN PARTICIPANT: LONG FORM

Project Title: The Role of Parents in the Friendships of Children with AD/HD

Project Director: Jenna Mendelson

Participant's Name: _____

What is the study about?

This is a research project. The aim of this research is to learn about the role of parents in the friendships of children with AD/HD.

Why are you asking my child?

Your child is being invited to participate in this study because he or she is between the ages of 7 and 11 years old who has AD/HD.

What will you ask me to do if I agree to be in the study?

If you agree to allow your child to participate in this study, he or she will be asked to answer questions about his or her friendships with the assistance of the student investigator at the AD/HD Clinic at UNCG. This visit should take about 45 minutes, and the study will take one and a half to two and a half hours to complete. If you have any questions about the study procedures, you may contact Jenna Mendelson, at (336)-346-3192 x 703.

What are the dangers to my child?

The Institutional Review Board at the University of North Carolina at Greensboro has determined that participation in this study poses minimal risk to participants. The questionnaires and diagnostic interview ask about personal information, such as symptoms of AD/HD and other personal distress. You and your child will also be asked questions about their friendships. Answering these questions may make you feel uncomfortable. You may skip questions that you do not want to answer. Participation is completely voluntary.

If you have any concerns about your rights, how you are being treated or if you have questions, want more information or have suggestions, please contact Eric Allen in the Office of Research Compliance at UNCG at (336) 256-1482. Questions, concerns or complaints about this project or benefits or risks associated with being in this study can

be answered by Jenna Mendelson who may be contacted at (336)-346-3192 x 703 or by Dr. Arthur Anastopoulos who may be contacted at (336)-346-3196 x 303.

Are there any benefits to my child for taking part in this research study?

You will receive a summary of the measures that you and your child completed. This summary is intended as a summary of research data. It is not a tool for making decisions about your or your child's mental health care. However, this summary information may be of some use to clinicians working with you or your child.

Are there any benefits to society as a result of my child taking part in this research?

Increased knowledge about the relation between number and quality of child friendships and caregiver AD/HD and other symptoms may lead to improved treatments for children with AD/HD and their families.

Will my child get paid for being in the study? Will it cost me anything for my child to be in this study?

If you and your child participate in the study after having received an assessment at the AD/HD Clinic at UNCG, you will receive a \$5 gift card. If you and your child participate in the study without having received an assessment at the AD/HD Clinic at UNCG, you will receive a \$20 gift card. You will receive a gift card even if you or the child discontinue your participation in this study or do not answer certain questions on the questionnaires or interview. There are no costs to you or your child for being in this study.

How will you keep my child's information confidential?

The information that you provide as part of this research study will be kept confidential. Your name will not be written on any of the questionnaires that you and your child complete. You and your child will be assigned a unique number code, and this code will be used to identify you. Only the principal investigator and student investigator will have access to the key that links your name with your unique code. The questionnaires that you and your child complete will be stored in a locked file cabinet. Passwords will protect information that has been entered on the computer. You will not be identified by name when data from this project is published. All information obtained in this study is strictly confidential unless disclosure is required by law. The investigators are legally required to report incidence of child abuse, disabled adult abuse, gunshot/knife wounds, communicable diseases, and if you present an imminent danger to the health or safety of another or yourself.

What if my child wants to leave the study or I want him/her to leave the study?

You have the right to refuse to allow your child to participate or to withdraw him or her at any time, without penalty. If your child does withdraw, it will not affect you or your child in any way. If you or your child chooses to withdraw, you may request that any data that has been collected be destroyed unless it is in a de-identifiable state.

What about new information/changes in the study?

If significant new information relating to the study becomes available which may relate to your willingness to allow your child to participate, this information will be provided to you.

Voluntary Consent by Participant:

By signing this consent form, you are agreeing that you have read it or it has been read to you. You fully understand the contents of this document and consent to your child taking part in this study. All of your questions concerning this study have been answered. By signing this form, you are agreeing that you are the legal parent or guardian of the child who wishes to participate in this study described to you by Jenna Mendelson

Participant's Parent/Legal Guardian's Signature

Date: _____

Participant's Parent/Legal Guardian's Signature

Date: _____

It would be ok to contact me in the future about similar research projects (please check one):

Yes No

APPENDIX C

CHILD ASSENT FORM

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO
CONSENT FOR A MINOR TO ACT AS A HUMAN PARTICIPANT: LONG FORM

Project Title: Parents and their Children's Friends

Project Director: Jenna Mendelson

Participant's Name: _____

My name is Jenna Mendelson.

What is this about?

I would like to talk to you about your friends. I want to learn about how many friends you have and how you feel these friendships are going.

Did my parents say it was ok?

Your parent(s) said it was ok for you to be in this study and have signed a form like this one. Your parent(s) will come with you when you come to the AD/HD Clinic at UNCG to participate in this study.

Why me?

We would like you to take part because you are between the ages of 7 and 11.

What if I want to stop?

You do not have to say "yes", if you do not want to take part. We will not punish you if you say "no". Even if you say "yes" now and change your mind after you start doing this study, you can stop and no one will be mad at you.

What will I have to do?

You will answer a questionnaire about your two best friends with my help.

Will anything bad happen to me?

The questionnaires you fill out will ask questions about your friendships. Some kids feel uncomfortable answering these questions. You may skip any questions that you do not want to answer, and you may stop participating in the study at any time if you feel uncomfortable.

Will anything good happen to me?

By being in this study, you may help other kids by helping us to learn about friendships.

Do I get anything for being in this study?

Your family will receive a gift card for either \$5 or \$20 for being in this study.

What if I have questions?

You are free to ask questions at any time.

If you understand this study and want to be in it, please write your name below.

Signature of child

Date

APPENDIX D

SUMMARY OF PARTICIPANT MEASURES

Summary of Participant Measures

Participant	Measure
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Mother	Behavior Assessment System for Children, 2 nd Edition (BASC-2) Computerized Diagnostic Interview Schedule for Children Version IV (C-DISC-IV) ADHD-RS-Self Report Version ADHD-RS Home Version Symptom Checklist -90-Revised (SCL-90-R)
Child	Friendship Quality Questionnaire (FQQ)

APPENDIX E
SAMPLE FEEDBACK LETTER

<date>

Dear <parent name>,

Thank you very much for your participation in our research project examining friendships among children with AD/HD. Your participation has helped bring us closer to a better understanding of the relationship among symptoms of AD/HD in parents and children and child friendships.

Attached is a summary of the information that we collected about your child, <child name>. Because this information was collected as part of a research study and not a clinical evaluation, we are not able to offer formal clinical diagnoses or treatment recommendations. We can, however, tell you that your child met *research criteria* for AD/HD.

Again, I must emphasize that this is a research diagnosis and should not be used for making decisions about treatment. If you would like to obtain a formal clinical diagnosis for your child, this should be done by an experienced clinician after information from multiple sources has been taken into consideration. For this reason, I would recommend that you share the attached summary with any health care professional who may be evaluating your child in the future.

I very much appreciate your time and participation in this study. If you have any questions, please feel free to contact me at (336) 346-3196 x703.

Sincerely,

Jenna Mendelson, B.A.
Project Director

Arthur D. Anastopoulos, Ph.D.
Faculty Supervisor

APPENDIX F

SUMMARY OF CHILD ASSESSMENT RESULTS

Date of participation:

Child Measures

ADHD Rating Scale (ADHD-RS)

Subscales	Percentile
Inattention	
Hyperactive-Impulsive	

Behavior Assessment Rating System for Children-Second Edition (BASC-2)

Subscales	Percentile
Attention Problems	
Hyperactivity	

Computer-Diagnostic Interview Schedule –Fourth Edition (CDIS-IV)

Subscales	Outcome
Met <u>Research</u> Criteria for AD/HD?	
Number of Attention Symptoms	
Number of Hyperactivity-Impulsivity Symptoms	

Parent Measures

Symptom Checklist 90-Revised (SCL 90-R)

Your General Severity score <does/does not> indicate that you may be experiencing elevated levels of personal distress at this time.

Adult AD/HD Rating Scale (ADHD-RS)

Subscales	Symptom Count
Inattention	
Hyperactive-Impulsive	

Description of Assessment Procedures

ADHD Rating Scale (ADHD RS)

The ADHD Rating Scale is an 18 item checklist that directly assesses AD/HD symptoms as defined by the Diagnostic & Statistical Manual of Mental Disorders - Fourth Edition (DSM-IV). Two versions of this test were used – a parent self-report version to assess the presence or absence of parental AD/HD symptoms and a parent-completed child version to assess the presence/absence of child AD/HD symptoms.

Behavioral Assessment Scale for Children-Second Edition (BASC-2)

The BASC-2 assesses a range of psychological problems and adaptive functioning in children. For the purposes of this study, responses to the Attention Problems and Hyperactivity subscales were evaluated.

Computer Diagnostic Interview Schedule-Fourth Edition (CDIS-IV)

The CDIS-IV is a broad structured interview used to assess DSM-IV diagnostic conditions in children. For the purpose of this study, responses to the AD/HD module were evaluated.

Symptom Checklist 90-Revised (SCL-90-R)

The SCL-90-R is a broadband measure commonly used to detect psychological distress in adults. The General Severity Index was used in this study to measure overall parental psychological distress.

Table 1. Sample Characteristics

<i>Characteristic (N=28)</i>	<i>M (SD)</i>	<i>% (n)</i>
Age		
Child	9.75 (1.28)	
Mother	41.52 (7.69)	
Sex		
Male		82.1% (23)
Female		17.9% (5)
Race/Ethnicity		
Caucasian		35.7% (10)
African American		50.0% (14)
Other		14.3% (4)
Child Resides With		
Both Parents		67.9% (19)
Mother Only		32.14% (9)
Father Only		0.00
Medication Status		
On AD/HD Medication		96.4% (27)
Off AD/HD Medication		3.6% (7)

Table 2. Descriptive Statistics

	<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>	<i>Skew</i>	<i>Kurtosis</i>
AD/HD Measures						
BASC-2 Attention Problems	66.54	5.69	54.00	81.00	.09	.55
BASC-2 Hyperactivity	67.00	11.72	38.00	94.00	-.40	1.06
C-DISC-IV Subtype	2.68	.67	0.00	3.00	-2.71	8.83
Predictors						
Child HI	14.04	6.71	2.00	26.00	-.25	-.82
Child IA	16.25	5.44	5.00	26.00	-.35	-.45
Child Total	30.32	9.90	12.00	52.00	.05	-.49
Moderator Variables						
Maternal HI	5.21	4.43	0.00	15.00	.77	-.28
Maternal IA	7.25	5.15	1.00	18.00	.43	-.94
Maternal Total	12.43	8.86	2.00	30.00	.53	-.99
Maternal GSI	56.59	11.05	37.00	81.00	-.05	-.39
Outcome Variables						
# Friends, Maternal Report	6.54	7.69	1.00	40.00	3.39	13.67
#Friends,Child Report	16.29	16.65	1.00	74.00	2.12	4.87
FQQ Total Score	208.19	47.53	103.00	308.00	-.15	-.29

Note. BASC-2= Behavior Assessment System for Children, Second Edition; C-DISC-IV=Computerized Diagnostic Interview Schedule for Children-Fourth Edition; HI=ADHD-RS Hyperactivity/Impulsivity Severity Score; IA=ADHD-RS Inattention Severity Score; GSI= Symptom Checklist 90-Revised; General Severity Index, FQQ= Friendship Quality Questionnaire

Table 3. Correlations Among Predictor and Outcome Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1 IA	1.00												
2 HI	.31	1.00											
3 Tot	.76**	.85	1.00										
4 Mat IA	.22	.18	.24	1.00									
5 Mat HI	.24	.22	.28	.87**	1.00								
6 Mat Tot	.24	.21	.27	.97**	.97**	1.00							
7 IA 6mo	.26	.18	.26	.62**	.52**	.58**	1.00						
8 HI 6mo	.21	.39*	.38*	.68**	.75**	.74**	.69**	1.00					
9 Tot 6mo	.25	.29	.33	.70**	.68**	.72**	.93**	.91**	1.00				
10 GSI	.08	.27	.23	.18	.29	.25	.36	.44*	.42*	1.00			
11 FQQ	-.21	-.02	-.13	.23	.25	.25	-.22	-.12	.18	-.14	1.00		
12 # Fr P	.19	-.12	.02	-.13	.09	-.02	-.12	.04	-.05	.02	-.19	1.00	
13 # Fr C	.05	-.10	-.05	.15	.19	.17	-.12	.09	-.02	-.08	.19	.44*	1.00

Note. IA=Child Inattention Severity score on ADHD-RS; HI=Child Hyperactivity/Impulsivity Severity Score on ADHD-RS; Tot=Child Total Severity Score on ADHD-RS; Mat. IA= Maternal childhood Inattention Severity Score on ADHD-RS; Mat. HI=Maternal childhood Hyperactivity/Impulsivity Severity Score on ADHD-RS; Mat. Tot= Maternal Total childhood Severity Score on ADHD-RS; IA 6mo= Maternal Inattention Scores for last 6 months on ADHD-RS; HI-6mo= Maternal Hyperactivity/Impulsivity Severity Score for last 6 months on ADHD-RS; GSI= General Severity Index of SCL-90-R; FQQ= Total Friendship Quality Questionnaire Score; #FR-P= Parent-Reported Number of Friends, transformed; #F-CH= Child-Reported Number of friends, transformed

* $p < .05$ (2-tailed)

** $p < .01$ level (2-tailed)

Table 4. Multiple Regression Examining Role of Parental Psychopathology in Number of Parent-Reported Child Friendships.

Step	Variables Entered	SE	β	p
1	ADHD-RS Total Severity	.27	.02	.92
2	ADHD-RS Total Severity	.29	.04	.85
	ADHD-RS Total Severity : Caregiver	.32	-.06	.78
3	ADHD-RS Total Severity	.29	.04	.87
	ADHD-RS Total Severity: Caregiver	.36	-.08	.75
	SCL-90-R General Severity Index	.28	.04	.86
4	ADHD-RS Total Severity	.57	-.24	.57
	ADHD-RS Total Severity : Caregiver	1.3	-.71	.42
	SCL-90-R General Severity Index	.29	.09	.72
	Interaction: Child Severity X Caregiver Severity	.04	.77	.45
5	ADHD-RS Total Severity	1.49	-.07	.95
	ADHD-RS Total Severity : Caregiver	1.62	-.82	.46
	SCL-90-R General Severity Index	1.07	.23	.79
	Interaction: Child Severity X Caregiver Severity	.05	.89	.49
	Interaction: Child Severity X Caregiver GSI	.03	-.29	.87

Note. ADHD-RS= AD/HD Rating Scale; SCL-90-R GSI= General Severity Index of Symptom Checklist 90-Revised; FQQ= Total Friendship Quality Questionnaire Score; Child Severity= ADHD-RS Total Severity Score; Total Severity: Caregiver= Caregiver ADHD-RS Total Severity Score

Table 5. Multiple Regression Examining Role of Parental Psychopathology in Quality of Parent-Reported Child Friendships.

Step	Variables Entered	SE	β	p
1	ADHD-RS Total Severity	.91	-.13	.52
2	ADHD-RS Total Severity	.98	-.07	.76
	ADHD-RS Total Severity : Caregiver	1.09	-.19	.39
3	ADHD-RS Total Severity	1.00	-.06	.78
	ADHD-RS Total Severity: Caregiver	1.20	-.16	.49
	SCL-90 General Severity Index	.95	-.06	.80
4	ADHD-RS Total Severity	1.95	.09	.84
	ADHD-RS Total Severity : Caregiver	4.33	.17	.84
	SCL-90 General Severity Index	.99	-.08	.73
	Interaction: Child Severity X Caregiver Severity	.13	.41	.68
5	ADHD-RS Total Severity	4.98	-.98	.37
	ADHD-RS Total Severity : Caregiver	5.39	.84	.43
	SCL-90 General Severity Index	3.56	-.96	.27
	Interaction: Child Severity X Caregiver Severity	.16	-1.18	.34
	Interaction: Child Severity X Caregiver GSI	.10	1.74	.29

Note. ADHD-RS= AD/HD Rating Scale; SCL-90-R GSI= General Severity Index of Symptom Checklist 90-Revised; FQQ= Total Friendship Quality Questionnaire Score; Child Severity= ADHD-RS Total Severity Score; Total Severity: Caregiver= Caregiver ADHD-RS Total Severity Score