AN EXAMINATION OF MATERNAL ACCEPTANCE AMONG MOTHERS AND THEIR CHILDREN WITH ADHD SYMPTOMATOLOGY

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The current study examined the role of self-reported and child-reported maternal lack of acceptance in increasing the likelihood of developing internalizing and externalizing symptoms among children with ADHD symptomatology. The effects of a social desirability bias on mother's self-reports of rejection were controlled for. Mother-child agreement about parenting behaviors like warmth/affection, hostility/aggression and indifference/neglect was also investigated. In addition, variables with the potential to affect agreement (i.e., parents' social desirability bias, child age, child sex) were examined. Participants included 120 boys and 90 girls, 6 to 11 years old (M = 8.25, SD = 1.18) with and without ADHD and their primary parent/guardian (N = 209). Parent and child participants completed self-report instruments separately. Results indicate that the relationship between mother-and-child-reported ADHD symptoms and internalizing symptoms is strongest when mothers exhibit low levels of rejection. Among the ADHD subsample, maternal lack of acceptance acts as a risk factor by strengthening the relationship between hyperactive/impulsive symptoms and externalizing symptoms. In addition, mothers and their children report significantly different levels of parenting behaviors. Child age and child sex were significant predictors of parent-child disagreement.

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CHAPTER 1

INTRODUCTION

Empathy and Child Adjustment

Carl Rogers (1975) said that empathy requires sensitivity towards others at any given moment and an understanding of a person's life, without making any judgments. In order to practice empathic understanding, a person must work to interpret a person's continuously changing awareness and translate it into experienced meaning (Barrett-Lennard, 1962). Empathic understanding may be present in any interpersonal relationship; however; empathy in parent-child relationships has been of particular interest to theorists and researchers. This interest is worthwhile because children are influenced by their parents' empathy, or lack thereof, on a daily basis, and a child's sense of emotional security, comfort and well-being is usually dependent on their relationship with parental figures (Rhoner, 2004). Other important aspects of individuals, such as self-exploration, self-concept, and creativity, are likely shaped, in part, by the experience of empathic acceptance from one's caregivers (Rogers, 1975). Moreover, experiencing empathy from one's caregiver(s) is thought to form the bedrock of healthy self-esteem (Laible, Carlo & Roesch, 2004). Thus, theory and research support the notion that the level of parental empathy plays an important role in child development.

The construct of parental empathy is referred to in the literature in various ways, including parental support, involvement, warmth, synchrony, attunement and responsiveness, and the diversity of ways in which parental empathy is referred to in the literature speaks to the ongoing difficulty of conceptualizing the construct of empathy (Duan & Hill, 1996). Indeed, few research studies have framed their research in terms of empathy, instead utilizing one of the many components of empathy (i.e., warmth, involvement, etc.), due to the lack of agreement in

defining the construct (Britton & Fuendeling, 2005). Moreover, the lack of a clearly defined construct has led to numerous theoretical positions and inconsistent, even confusing results (Duan & Hill, 1996). For instance, a low level of parental empathy has attracted interest as a possible factor in child maltreatment and child abuse (Pithers, 1999); however, in research studies that have attempted to find reliable and valid measures of parental empathy, low scores on parental empathy self-report measures are not predictive of child maltreatment as would be expected (Brems & Sohl, 1995; Feshbach, 1989). Thus, different conceptualizations of empathy contribute to the difficulty in accurately measure empathy.

The current inconsistencies in the literature are most likely a consequence of traditional empathy research, which has distinguished, and debated, between two types of empathy- an affective approach to empathy that involves a "vicarious" sharing of other's emotions (i.e., experiencing the emotions of another as they experience them) (Batson, 1991), and a cognitive-processing approach to empathy that involves perspective-taking (i.e., understanding the emotions and thoughts of another) (Hogan, 1969). More recently, theorists have attempted to merge the two constructs, as both constructs have been significant predictors of socially appropriate decision-making and behavior, like altruism (Duan & Hill, 1996). Other factors like love, compassion, sympathy and nurturance are also components of altruism but are missing from the traditional empathy literature (Gruene & Mendelsohn, 1989), and most researchers agree that love and compassion are a piece of empathy, especially parental empathy (Kilpatrick, 2005). However, a single definition of empathy does not exist currently, so researchers are urged to clearly define empathy in the context of their own research (Duan & Hill, 1996).

As such, empathy is operationalized in terms of how "accepting" or "rejecting" one's parents are in the current study (Rhoner, 1975). Parent acceptance-rejection theory (PARTheory)

is an outcome of research investigating the importance of the expression of empathy in parent-child relationships, and posits that a child's psychological adjustment is affected by parental acceptance-rejection, despite one's culture, ethnicity, race, gender, or socioeconomic status (Khaleque & Rhoner, 2002). According to Rhoner (2004), a parent's acceptance is measured in terms of the warmth, nurturance, support and love that a child experiences in parent-child interactions. When parents are rejecting and lack affection, children are at increased risk for dependence, impaired self-esteem, ineffective coping with stress, and conduct disorders and externalizing behaviors, such as delinquency and aggression (Imam, 2004; Lila, Garcia & Gracia, 2007; Rhoner, 2004). Moreover, when parents have low levels of acceptance of their children, their children have higher levels of internalizing behaviors like anxiety, depression and somatization when compared to the children of more accepting parents (Imam, 2004; Lila, Garcia & Gracia, 2007; Margaro & Weisz, 2006; Steely & Rhoner, 2006).

Additionally, there are three subtheoretical perspectives within PARTheory: personality subtheory, coping subtheory and sociocultural systems subtheory; personality subtheory has the largest body of evidence behind it (Rhoner, 2004). The personality subtheory postulates that children who perceive high levels of rejection by their parents, as opposed to acceptance, will more likely develop 1.) hostility and aggression, 2.) dependence or defensive independence, 3.) impaired self-esteem, 4.) emotional unresponsiveness, 5.) emotional instability, and 6.) a negative worldview (Rhoner & Britner, 2002). Khaleque and Rhoner (2002) reviewed several research studies as well as meta-analyses involving the effects of parental acceptance-rejection cross-culturally on seven personality dispositions among children, ages 6 years through 19 years old. The conclusions of the review lend support to the personality subtheory, indicating that increases in perceived rejection by children affects psychological adjustment (i.e.,"hostility,

aggression, defensive independence, impaired self-esteem, impaired self-adequacy, emotional unresponsiveness, emotional instability and negative worldview") and accounts for roughly 26% of the variance in a child's psychological adjustment (Khaleque & Rhoner, 2002, p. 55).In a sample of high and low achieving female students from Pakistan (*M* = 12.4 and *M* = 12.8 years, respectively), positive personality and behavioral dispositions as measured by the Personality Assessment Questionnaire (PAQ) were correlated with high perception of parental empathy on the Child Parental Acceptance-Rejection Questionnaire (CPARQ) (Imam, 2004).

In a study examining the relationship between parental rejection and a child's adjustment among a sample of 234 Columbian children, ages 7 to 13 years old, and their primary caregivers, there were relationships between low levels of maternal acceptance and higher levels of parent-reported externalizing and internalizing behaviors among children (Lila, Garcia & Gracia, 2007). Only maternal acceptance had a direct effect on a child's behavioral problems, however; paternal acceptance was indirectly related to child behavioral problems, with maternal acceptance mediating the relationship. Parental rejection was also related to depressive symtamotology in a sample of 155 children and adolescents, ages 7 to 17 (*M* = 11.86, *SD* = 2.46), and their families seeking treatment in community outpatient clinics in southern California. Furthermore, high parent control (i.e., strict regulation of a child's activities, encouraging a child's dependence on the parent, and control of a child's social, behavioral and academic outcomes) mediated the relationship between parental rejection and depressive symptomatology among children, indicating that poor parenting choices reflecting high control might be a path by which parental rejection affects children's psychological adjustment (Magaro & Weisz, 2006). On the other hand, research has shown that parents who practice control, but who are still loving, warm and supportive towards their children provide protection from problems in children (Alvord &

Grados, 2005). As such, it seems that a high level of control alone is not responsible for adverse outcomes for children, but control coupled with parental rejection may contribute to harmful psychological outcomes in children.

Indeed, the literature has consistently linked low parental acceptance to poorer parenting choices and maladjustment in children (Brems & Sohl, 1995; Brown, Cohen, Johnson & Salzinger, 1998; Steely & Rhoner, 2006). For example, low levels of parental acceptance significantly predict increased use of physical punishment of children (Brems & Sohl, 1995). Moreover, low levels of paternal and maternal warmth significantly predict child maltreatment, including physical abuse (Brown, Cohen, Johnson & Salzinger, 1998). Harsher punishment from parents in general is a risk factor for maladjustment in children, although the role may not be direct (Steely & Rhoner, 2006). For instance, results of one study found that harshness of paternal punishment influences child perceived parental rejection, which then affects their level of maladjustment. This indirect path is not the case for perceived maternal rejection, which has a positive and direct effect on psychological maladjustment (Steely & Rhoner, 2006). These findings are indicative of the important role acceptance, especially maternal acceptance, plays in parent-child relationships, and the implications it may have in practicing positive parenting techniques to protect against maladaptive adjustment in children.

Meaningful relationships, especially mother-child relationships, that involve acceptance are also likely to promote positive behavior in children, such as enhancing one's understanding of others' suffering (Knafo, Zahn-Waxler, Hulle, Robinson & Rhee, 2008). For instance, there is a positive association between the expression of maternal warmth and the development of child empathy and a negative association between maternal negative control and levels of child empathy (Kiang, Moreno & Robinson, 2004). Enhancing childhood empathy is particularly

important because it fuels the expression of other prosocial behavior in children (i.e., an inclination for helping individuals who are in distress, treating others with respect, and the consideration of others' thoughts and feelings) (Knafo, Zahn-Waxler, Hulle, Robinson & Rhee, 2008; Sprinkle, 2008). The positive relationship between empathy and prosocial behavior also exists in adolescence (Laible, Carlo & Roesch, 2004); as such, parental acceptance is important in setting the stage for prosocial development in children and its continuance into adolescence.

Attention-Deficit/Hyperactivity Disorder

Attention-deficit/hyperactivity disorder (ADHD) is a psychiatric disorder that affects approximately 3-7% of school-aged children (American Psychiatric Association, 2000). Recently there has been evidence to suggest that the prevalence of ADHD in children outside of the United States is similar to that of children in the United States (Faraone, Sergeant, Gillberg & Biederman, 2003), indicating that ADHD may not be a diagnosis unique the United States as previously believed (Taylor & Sandberg, 1984). ADHD is characterized by symptoms of inattention and/or impulsivity and hyperactivity that can significantly impact many aspects of behavior and performance at school, work, in social settings, and at home (American Psychiatric Association, 2000).

Inattention in children can include "[failing] to give close attention to details," making "careless mistakes," having difficulty "organizing tasks and activities," or getting distracted by "irrelevant stimuli" (APA, 2000, p. 85). Hyperactivity and impulsivity in children may involve "fidgetiness," "impatience," "blurting out answers," or "grabbing or [touching] things they are not supposed to" (APA, 2000, p. 86). Overall, children with ADHD may exhibit a relatively low tolerance for frustration, frequent temper outbursts and dysphoria. In addition, they are more

likely to be rejected by their peers and experience family discord and negative parent-child interactions (APA, 2000).

There are three subtypes of attention-deficit/hyperactivity disorder outlined in the *DSM-IV-TR*: attention-deficit/hyperactivity disorder, predominately inattentive type (ADHD-I), attention-deficit/hyperactivity disorder, predominately hyperactive-impulsive type (ADHD-HI) and attention-deficit/hyperactivity disorder, combined type (ADHD-C) (APA, 2000). An individual can be diagnosed with ADHD at any time during the lifespan, as long as there is evidence of ADHD in at least two settings (e.g., school or home) by the time the individual was 7 years old.

Compared to children without ADHD, children with ADHD are more prone to internalizing and externalizing problems (Barkley, 2002; Blackman, Ostrander & Herman, 2005; Mikami & Hinshaw, 2006). In particular, depression is higher in children with ADHD compared to the general population. Other comorbid disorders are related to anxiety, aggression and conduct problems (Blackman, Ostrander & Herman, 2005). Children with ADHD, especially those that exhibit hyperactivity, are more likely to display deceptive behaviors (i.e., lie and steal) and exhibit delinquent behaviors (i.e., destroy property, fighting and setting fires) by the age of fifteen than children without ADHD (Barkley, 2002). Individuals with ADHD are also more likely than their peers to abuse substances like tobacco, alcohol, and some illicit drugs. Moreover, they are more likely to use a greater amount of these drugs (Barkley, 2002; Molina, & Pelham, 2003). Comorbid behavior disorders like conduct disorder (CD) and oppositional defiant disorder (ODD) are also common among children with ADHD (Burt, Kreuger, McGue & Iacono, 2003). By adulthood, people with ADHD begin to meet DSM-IV-TR criteria for substance abuse

disorders and personality disorders at substantially higher rates than their non-ADHD peers (Barkley, 2002).

Data suggest that when compared to White and Black children, there is a lower risk of ADHD for Hispanic children, children of Asian ethnicities and American Indian and Pacific Islander children. When compared to White children, Hispanic children are significantly less likely to be diagnosed with ADHD and Black children are significantly more likely to be diagnosed (Cuffe, Moore & McKeown, 2005). Girls are more likely than boys to exhibit internalizing behaviors and less likely to display externalizing behaviors (Gershon & Gershon, 2002). In a national survey of ADHD prevalence and correlates, 6.8% of boys and 2.5% of girls had parent-reported ADHD symptomatology. When children completed the Strength and Difficulties Questionnaire (SDQ) (Goodman, R., 1997) to assess their levels of ADHD symptomatology in the absence of parent-report, however, only 1.59% boys and .81% girls in the sample qualified for an ADHD diagnosis. Furthermore, teachers generally report boys as more impaired than girls, leading researchers to question the over-diagnosis of ADHD in boys and the under-diagnosis of ADHD in girls (Cuffe, Moore & McKeown, 2005; Gershon & Gershon, 2002). These inconsistencies in reporting highlight the importance of gathering information from multiple sources to determine the prevalence of ADHD.

ADHD can be treated with a variety of psychological and psychiatric interventions. A meta-analysis looking at the effects of certain medications in the treatment of ADHD found a 57% response rate to methylphenidate and 58% to dextroamphetamine, with only a 10% response rate to a placebo (Wilens, Spencer & Biederman, 2001), suggesting that medications can be effective in managing the symptoms of ADHD. A variety of psychological interventions have been shown to be effective in the treatment of ADHD as well. These include, providing

information about the disorder, support groups, “skills training” (i.e., vocational, organizational, time management, financial) and “coaching” (Weiss & Murray, 2003, p. 719).

ADHD and Children’s Psychosocial and Educational Outcomes

Children with ADHD typically have poorer outcomes than children without ADHD (Barkley, 2002; Blackman, Ostrander & Herman, 2005; Cuffe, Moore & McKeown, 2005; Mikami & Hinshaw, 2006). For example, 94% of children with ADHD report some impairment in the classroom (Cuffe, Moore & McKeown, 2005). Many children with ADHD experience comorbid learning disabilities in areas like math, reading and spelling, and 10-54% develop speech problems (Barkley, 2002). They are also more likely to repeat a grade, to be suspended and to have a lower GPA than children without ADHD (Barkley, 2002). Approximately 32-38% of adolescents with ADHD do not finish high school, compared to the national average of 5% of adolescents who do not finish high school (Barkley, 2002). In addition, of those 22% adolescents with ADHD who go to college, only 5% graduate (Barkley, 2002).

The negative outcomes associated with ADHD go beyond academics and the classroom. For instance, children with ADHD are at an increased risk for less satisfying social relationships (Blackman, Ostrander & Herman, 2005; Cuffe, Moore & McKeown, 2005; Demaray & Elliott, 2001); indeed, 60% of children with ADHD report problems with friends (Cuffe, Moore & McKeown, 2005), and over half of children with ADHD have serious peer relationship problems (Barkley, 2002). In general, children with ADHD perceive less support from classmates and close friends (Demaray & Elliott, 2001).Supportive peer relationships are important for a child’s development (Hoza, 2007), as they promote adaptive behaviors, like cooperative interactions, negotiation and cooperation in solving conflicts (Rubin, Bukowski & Parker, 1998). Healthy

peer relationships are also positively related to child self-reported social skills (Demaray & Elliott, 2001); therefore, lack of positive social relationships can increase the risk for negative outcomes (Hoza, 2007). For instance, children who perceive a lack of social support from their classmates and close friends have lower self-concept than children who perceive adequate social support (Demaray & Elliott, 2001).

Outcomes among children and teens with ADHD vary according to the subtype and severity of ADHD they experience. For example, adolescents who exhibit combined hyperactivity/impulsivity and inattentiveness are more likely to assert themselves in social situations than those with only inattentive symptoms, who are more likely to handle social situations with less comfort and less assertion (Canu & Carlson, 2003). Children with inattentiveness tend to exhibit more severe levels of depression and anxiety (Power, Costigan, Eiraldi & Leff, 2004); whereas, children who are hyperactive tend to demonstrate more externalizing behaviors, like aggression and delinquency (Barkley, 2002). However, children with hyperactivity do experience anxiety and depression to a greater extent than children who are not hyperactive, and sometimes to the same degree as children who are inattentive (Power, Costigan, Eiraldi & Leff, 2004).

Furthermore, severity of inattentive symptoms predicts substance use to a greater degree than does hyperactivity (Molina & Pelham, 2003). At the same time, however, clinicians and researchers recognize that it is not uncommon for internalizing and externalizing behaviors to co-occur among individuals with ADHD (Pesenti-Gritti, Spatola, Fagnani & Ogliari, 2008). For example, if a child exhibits externalizing behaviors, they are also seven times more likely to present with internalizing behaviors compared to children who are not “problematic” (Pesenti-Gritti et al., 2008). Additionally, levels of internalizing behavior among children differ according

to cognitive tempo, which refers to an individual's level of alertness and orientation (Carlson & Mann, 2002). Children with a more sluggish cognitive tempo (SCT) (i.e., lethargic, drowsy, hypoactive, daydreaming) are less happy, show higher rates of social withdrawal, more social problems and increased levels of anxious/depressed behaviors when compared to their peers with hyperactivity.

Although ADHD was once considered solely a disorder of childhood, most individuals with a diagnosis of ADHD in childhood report troubling symptoms into adulthood (Murphy & Barkley, 1996). For instance, adults with ADHD are more likely to experience substance use and abuse disorders than adults without ADHD, and they are more likely to be incarcerated than adults without ADHD (Murphy & Barkley, 1996). Moreover, adults with ADHD report more problems in their marriages; as such, adults with ADHD are less likely to be satisfied in their marriages and are married significantly more times than adults without ADHD (Murphy & Barkley, 1996). Also, the employment histories of individuals with ADHD tend to be unstable; as such, they are three times more likely to get fired from a job and typically have a poorer work presentation scores on Barkley's Work Performance Rating Scale, a measure that assesses the degree to which inattentive, hyperactive and impulsive symptoms are apparent on the job (Shifrin, Proctor & Prevatt, 2009). By 30 years of age, many individuals with ADHD are self-employed and have changed jobs at a rate of 2 to 3 times within a 10 year period of time (Barkley, 2002).

Family Characteristics of Children with ADHD

It has repeatedly been demonstrated that positive family environments promote healthy development in children; unfortunately, problems in the home are reported for approximately

82.23% of boys and 73.43% of girls with ADHD (Cuffe, Moore & McKeown, 2005). Parents of children with ADHD are more likely to go through a divorce and have shorter latency to divorce, and this is especially the case when the severity of externalizing symptoms in children is high (Johnston, 1996; Wymbs, Pelham, Gnagy, Molina, Wilson & Greenhouse, 2008). Children with ADHD also have sibling relationships that are characterized by more conflict and decreased warmth and closeness. Specifically, internalizing behaviors predict decreased warmth and closeness, and externalizing behaviors predict increased conflict between siblings (Mikami & Pfiffner, 2008).

Children with ADHD also experience parent-child interactions that are more negative when compared to parent-child interactions of children without ADHD (Brophy & Dunn, 2002; Heller &Baker, 2000). Heller and Baker (2000) observed behaviors of parents and their children in preschool and later in 3rd grade and concluded that mothers of boys who were categorized as having pervasive externalizing behavior were significantly more negative in terms of the number of commands issued per minute and repeated commands issued by mothers. Also, maternal negativity towards children in preschool later predicted ADHD and ODD symptoms for those children in 3rd grade. Specifically, the children's group status in preschool (i.e., pervasive externalizing behaviors, borderline externalizing behaviors, or comparison group) predicted 21% of the variance in ADHD and ODD symptoms in 3rd grade (Heller & Baker, 2000). Children meeting the criteria for a disruptive behavior disorder in 3rd grade had been rated as significantly more negative and less positive (i.e., more disruptive behavior, less likely to comply with mother's demands) than peers in interactions with their mothers in preschool (Heller & Baker, 2000).In general, children with ADHD perceive less communication and less interest in their

actions from their mothers, in addition to more frequent and negative control, than children without ADHD (Brophy & Dunn, 2002).

Other types of parenting behaviors have also been associated with increased likelihood of ADHD in children. For example, children whose mothers are exceedingly critical of them are ten times more likely to have ADHD than children whose mothers are not overly critical (Peris & Hinshaw, 2003). The less attuned to their children's thoughts, desires, and interests mothers are, the less responsive their children may become, for it is probable that non-responsiveness is modeled to children by their mothers at an early age (Brophy & Dunn, 2002). Responsiveness in children may later influence qualities like self-regulation (Brophy & Dunn, 2002), an important component of a child's capacity to reason according to one's own set of standards (Wadsworth, 1996).

Children with ADHD are more likely to have parents who are less attuned to their needs and less empathic (Johnston, Murray, Hinshaw, Pelham & Hoza, 2002; Lifford, Harold & Thapar, 2008). For children with ADHD, this means home environments that are characterized by parents who are more rejecting towards them (Lifford, Harold & Thapar, 2008), less accepting of them (Gerdes, Hoza & Pelham, 2003) and less responsive towards them in parent-child interactions (Johnston et al., 2002). Mothers of boys with ADHD report less warmth in interactions with their sons than those mothers of boys without ADHD, regardless of their child's perception of maternal warmth (Gerdes et al., 2003). Also, the lower the level of empathy present in interactions between parents and their children with ADHD, the higher the ADHD symptomatology present in children (Pfiffner, McBurnett, Rathouz & Judice, 2005; Psychogiou, Daley, Thompson & Sonuga-Barke, 2008; Woodward, Taylor & Dowdney, 1998).

Parent-child relationships devoid of empathy can increase the risk of child maltreatment. In a 17-year prospective study of officially recorded and self-reported child abuse and neglect (Brown, Cohen, Johnson & Salzinger, 1998), it was concluded that low paternal and maternal warmth and involvement predicted the occurrence of child maltreatment when official records and records of children's self-reported maltreatment were considered. Other factors like maternal alienation of child, parental conflict, maternal dissatisfaction with the child, and maternal external locus of control were significant predictors of child maltreatment as well. The prevalence rate for child maltreatment increases from 3% to 24% when four or more (vs. one) of these factors are present (Brown et al., 1998).

Children with disabilities, including ADHD, are 3.79 times more likely to be physically abused, 3.76 times more likely to be physically and emotionally neglected, and 3.88 times more likely to be emotionally abused than children without a disability (Sullivan& Knutson, 2000). Disabled children are also 3.14 times more likely than their non-disabled peers to experience sexual abuse (Sullivan& Knutson, 2000). In addition, compared to other children, children with disabilities are more likely to experience more severe abuse, recurrent abuse and multiple forms of abuse (Hershkowitz, Lamb & Horowitz, 2007; Sullivan& Knutson, 2000). Moreover, children with disabilities are less likely than children without disabilities to disclose information about their abusive family members, and if they do, it is significantly delayed (Hershkowitz, Lamb & Horowitz, 2007).

Parents of children with ADHD are significantly more likely to resort to physical punishment and more aggressive styles of punishment than parents of children without ADHD (Edwards, Barkley, Laneri, Fletcher & Metevia, 2001; Woodward, Taylor & Dowdney, 1998). Mothers of children with ADHD report "throwing, hitting, smashing, or kicking something"

when upset with their children more often than mothers of children without ADHD do, and the same is true for parent-child interactions involving fathers of children with ADHD (Edwards et al., 2001, p. 12). Parents of children with ADHD lose their temper more frequently, are less likely to use reasoning and positive incentives, and experience more negative feelings in general towards their child than parents of children without ADHD (Woodward, Taylor & Dowdney, 1998). Moreover, children are 2.5 times more likely to be hyperactive if a parent uses an aggressive discipline style (Woodward, Taylor & Dowdney, 1998).

Parents of children with ADHD are also more likely to cope less effectively with their children's disruptive behavior than parents of children without ADHD (Johnston & Ohan, 2005; McKee, Harvey, Danforth, Ulaszek & Friedman, 2004). As such, parents of children with ADHD sometimes process a child's behavior based on experiences in the past instead of trying to understand where the behavior comes from or offering the child the benefit of the doubt (Johnston & Ohan, 2002; Johnston & Ohan, 2005). Less effective coping strategies may increase a parent's negative reaction to disruptive behavior from their children (Johnston & Ohan, 2005). Furthermore, mothers who utilize less effective strategies for coping with stress, such as avoidance display more "coercive, lax, and overreactive" parenting (McKee, Harvey, Danforth, Ulaszek & Friedman, 2004, p. 165). It is also likely that less effective coping by parents influences ADHD symptomotology. For instance, children are 3.3 times more likely to be rated as "hyperactive" when their parents utilize less effective coping styles (Woodward, Taylor & Dowdney, 1998).

Conversely, difficult child behavior can also influence parenting behavior (Barkley & Cunningham, 1979; Burke, Pardini & Loeber, 2008; Pardini, Fite & Burke, 2008). For example, in a study consisting of boys (6-16 years old) and their parents and teachers, researchers found

that boys' parent-reported conduct problems were predictive of low positive parent reinforcement for boys 9 to 13 years of age. Furthermore, boys' teacher-reported conduct problems were predictive of poor parental monitoring for boys 11 years or older, as well as increases in timid parenting (i.e., resistance to enforcing discipline for fear of hostile response from child) for boys ages 9 to 13 (Pardini, Fite & Burke, 2008). Likewise, among a sample of 7-12 year old girls and their caregivers who participated in the Pittsburgh Girls Study, girls' self-reported conduct problems predicted low parental warmth and harsh parental punishment one year later (Hipwell, Keenan & Kasza, 2008). ADHD symptoms also predict poor parent-child communication (i.e., less open and supportive) (Burke, Pardini & Loeber, 2008).

Though more recent studies are correlational in nature, earlier experimental designs helped establish a causal relationship between child behavior and parenting behavior. For instance, in one experimental investigation, two 10-year old child confederates were trained to act conduct-disordered (i.e., aggressive, noncompliant, noncooperative) and anxious-withdrawn (i.e., passive, avoids eye contact, silent) by researchers (Brunk & Henggeler, 1986). Then during a 20-minute semistructured play situation with adult participants, confederates were asked by the researcher to play either role. Results indicate that when confederates were passive and shy during the task, adult participants were more likely to help and reward them; however, when confederates were more aggressive and defiant, adult participants exhibited higher rates of ignoring, commands and discipline (Brunk & Henggeler, 1986). In another experimental study, hyperactive children received methylphenidate (Ritalin), a placebo, or no drug and then engaged in a 30-minute semistructured play task with their mothers (Barkley & Cunningham, 1979). Children, parents and experimenters were blind to which condition the child was in (e.g., drug, placebo, no drug). Researchers observed parent reactions to their children's behavior during the

task and found that mothers used significantly fewer commands and negative comments and offered children significantly more praise and attention when the children were on medication, as opposed to the no drug and placebo conditions (Barkley & Cunningham, 1979). Thus, the relationship between child behaviors and parenting behaviors is likely bidirectional and recursive, with each affecting the other. Nevertheless, it is clear that children with ADHD present parenting challenges *and* parenting behaviors can alter the severity and course of ADHD symptoms in children.

It is important to consider that, while harsh and ineffective parenting predicts more adverse outcomes among children with ADHD, positive parenting behaviors can act as powerful protective factors against the development of problems in these vulnerable children (Alvord & Grados, 2005). For instance, parents of children with ADHD who are more positive (i.e., optimistic and praising) towards their children are less likely to have children who develop conduct problems (Chronis, Lahey, Pelham et al., 2007). Similarly, effective parenting may mediate the relationship between ADHD and depression, suggesting that the better parents are at managing their child's ADHD symptoms, the less likely it is that their child will develop depression (Blackman, Ostrander& Herman, 2006). Other parenting characteristics like high responsiveness towards children's needs, (Johnston, Murry, Hinshaw, Pelham & Hoza, 2002) and parental coping involving less disciplinary aggression (Woodward, Taylor & Dowdney, 1998) can also help to allay some of the negative outcomes associated with attention-deficit/hyperactivity disorder.

The literature clearly supports positive parenting as a protective factor against psychological and behavioral maladjustment in children (Johnston, Murray, Hinshaw, Pelham & Hoza, 2002; Woodward, Taylor & Dowdney, 1998). However, most of the research studies that

examine the relationship between parenting and child outcome rely on parent reports of parenting behaviors or observational techniques, without considering the child's perspective (Gaylord, Kitzmann & Coleman, 2003). This oversight is particularly significant given that children's experience of their parents' behavior towards them is likely to play a more important role in protecting them from psychological maladjustment than their parent's actual behavior does (Demo, Small & Savin-Williams, 1987). No matter how parents rate their behavior, if a child perceives their parents(s) to be either effective or lacking in their role, then that is what they are, at least in terms of a child's psychological development (Gonzales, Cauce & Mason, 1996). Therefore, in order to gain the most complete picture of how parenting affects children's adjustment, it is imperative to consider both parent and child reports of parenting behaviors.

Agreement between Parent and Child Reports of Parenting Behaviors

The few studies that have compared parent and child reports of parenting indicate that, on average, there is a low level of agreement (Muris, Bogels, Meesters, van der Kamp & van Oosten, 1996; Tein, Roosa & Michaels, 1994). For instance, among a sample of fourth, fifth, and sixth grade children and their parents, there was only r = .13-.36 agreement for mother and child reports of parent behavior and r = .19-.31 agreement for father and child reports of parent behavior. Moreover, children who had more behavioral problems or who were more depressed agreed less with their parents than children who did not have these difficulties (Tein, Roosa & Michaels, 1994). Among a sample of children from a community mental health center, children with disruptive behavioral disorders reported significantly more negative parenting and significantly less positive parenting behaviors than did their parents (Muris, Bogels, Meesters, van der Kamp & van Oosten, 1996). Finally, in a study exploring the validity and reliability of

multiple informants (i.e., mothers, fathers, siblings and college students) of child-rearing behaviors like acceptance, firm control and psychological control, the average convergent agreement was $r = .30$. On average, adult children in this sample described their parents' current behavior as less accepting, less firm, and more psychologically controlling than their parents described themselves (Schwartz, Barton-Henry & Pruzinsky, 1985). Studies also show that parents tend to rate themselves as more supportive of their children than children do (Gaylord, Kitzmann & Coleman, 2003), less restrictive and controlling, and less likely to participate in adolescent-parent conflict than children perceive to be the case (Gonzales, Cauce & Mason, 1996). Thus, across studies it appears that parents describe their parenting more favorably than their children do.

Parent Social Desirability

In general, factors like child age, child gender and social desirability can play important roles in the level of agreement in parent-child reports of parenting (Johnston, Scoular & Ohan, 2004; Tein, Roosa & Michaels, 1994). Social desirability is when subjects answer test items about themselves in more acceptable ways so that they may gain the approval of others; it can involve purposeful deception (King & Bruner, 2000). A social desirability bias is a common weakness in research designs that include self-report measures, which are popular in the social sciences (King & Bruner, 2000). Similar to social desirability is the concept of impression management; though, people who manage impressions only alter responses to impress others, not necessarily to deceive (Johnston, Scoular & Ohan, 2004). Parents who are held responsible for the care and emotional development of their children are especially prone to impression management (Leary& Kowalski, 1990). In addition, mothers may use impression management to

develop their own identities, self-esteem and self-beliefs (Collett, 2005). When subjects respond in ways that are not accurate, whether to gain the approval of others or because they are trying to mislead researchers, the real relationships among variables in a study are obscured or concealed, affecting the validity of the results (King & Bruner, 2000).

When social desirability or impression management is present in parenting self-reports, it can hinder the interpretation of research examining parenting behaviors and child outcome. In a study comparing mother reports of parenting with their ADHD sons' reports (7-10 years old), impression management appeared to affect the validity of maternal reports of parenting; specifically, mothers of children with ADHD had higher impression management scores when compared to the general population, and those mothers with higher impression management scores reported fewer parenting errors than the general population (Johnston, Scoular & Ohan, 2004). Furthermore, in a longitudinal study of maternal reports of depressive symptomotology and various aspects of parenting and child problems, social desirability was negatively correlated with maternal reports of child externalizing problems and inconsistent parenting (Marachi, McMahon, Spieker & Munson, 1999).

A parent's positive self-presentation is particularly an issue in child custody battles, where parents are at risk of losing custody of their children due to perceived risk of physical, sexual or emotional abuse. For example, when personality tests are administered in the context of assessing parenting competence, roughly 60% of parents present themselves in a more positive light than is accurate, as measured by the L or K scales on the Minnesota Multiphasic Personality Inventory-II (MMPI-II) (Carr, Moretti & Cue, 2005). Furthermore, because of high Faking Good Index scores on the Child Abuse Potential Inventory (CAPI), approximately 50% of parent reports of child abuse in custody cases are invalid, making it difficult to interpret normal Abuse

scale scores. Indeed, mother and father average abuse scores on invalid profiles are significantly lower than average abuse scores on valid profiles (Carr, Moretti & Cue, 2005). Mothers also present their children's functioning more positively in child custody evaluations, such as rating their children's internalizing and externalizing behaviors significantly lower than children's foster mothers and teachers do (Carr, Moretti & Cue, 2005). Granting custody to parents who falsely deny abusive parenting puts children at risk; however, it is not unheard of for abusive parents to be granted custody of their children as a result of deceptive parental positive self-presentation during evaluations (Otto & Collins, 1995).

Child's Developmental Level

Lack of agreement between parent and child reports of parenting behaviors may also be affected by the age of the child who is completing the self-report measure, given that he/she may not be at a developmental level to be an accurate informant. Jean Piaget (1954) believed that children are born completely egocentric, in which they see the world from their own viewpoint, without knowledge of the existence of other's viewpoints or perspectives. Purportedly, this lack of perception causes children to construe reality differently, and sometimes the clash of realities, especially adult reality with a child's "egocentric" constructions might cause conflict in parent-child relationship (Elkind, 1978). By the age of twelve, most children do not possess naive egocentrism anymore, but egocentrism can be observed at some level throughout life (Cox, 1980).

Other reasons child age may affect levels of parent-child agreement about parenting behavior or other issues relate to children's cognitive development. Specifically, young children (i.e., less than 9 years of age) typically lack the level of cognitive processing abilities needed to

interpret two or more dimensions of information simultaneously; therefore, their judgments will be based on one dimension (e.g., social feedback such as praise), without the incorporation of another dimension (e.g., objective feedback such as performance on a task) (Stipek & Iver, 1989). For example, young children will rate their academic ability highly if they receive a lot of praise on a task, even when their performance on that task is poor (Stipek & Iver, 1989). Children's ability to incorporate objective feedback increases with age, and they are better able to rate their own abilities, attractiveness and performance (Marsh, Barnes, Cairnes & Tidman, 1984). Similarly, young children also lack the ability to differentiate (Yussen & Kane, 1985). For instance, 76% of 1st graders, 44% of 3rd graders, and 35% of 6th graders claim that sharing is a quality that distinguishes "average" people from "smart people," demonstrating a lack of differentiation between social and academic competence (Yussen & Kane, 1985). The lack of certain advanced cognitive skills in young children may affect their ability to incorporate multiple domains of their parents' behavior or intentions, in turn causing children and their parents to perceive parenting behaviors differently.

Indeed, the literature supports child age as a significant factor in parent-child agreement about parenting behaviors (Gaylord, Kitzmann & Coleman, 2003; Tein, Roosa & Michaels, 1994). In a sample of134 fourth, fifth and sixth grade children (*M* = 10.4 years old), child age was a significant predictor of parent-child agreement about parenting behaviors like acceptance, rejection, inconsistent discipline and hostile and firm control. Moreover, children between 11 and 14 years old agreed more with their mothers than children 8-10 years old on their mother's level of hostile control (Tein, Roosa & Michaels, 1994).

Child Gender

Child gender may also be an important factor in parent-child agreement of parenting, as girls and boys typically view their parents differently (Droppleman & Schaefer, 1963; Gaylord, Kitzmann & Coleman, 2003; Siegelman, 1965). For instance, among a sample of 165 seventh grade boys and girls attending a suburban Catholic school, boys reported significantly more hostile, negative treatment from both parents than girls did, while girls reported significantly more love, affection and nurturance from both parents than boys did (Droppleman & Schaefer, 1963). In another study consisting of 214 school-aged children (M = 9.34 years, SD = .69 years) and their parents, girls perceived their fathers as much more controlling when compared to boys, and boys reported more parental discipline in general when compared to girls (Gaylord, Kitzmann & Coleman, 2003). Finally, among a sample of 4th, 5th, and 6th grade boys and girls living in New York City, girls perceived their fathers as using more expressive rejection, physical punishment and deprivation of privileges when compared to boys, and boys perceived their mothers as using more physical punishment and expressing less nurturance when compared to girls (Siegelman, 1965).

In another study, the effects of child age and gender on parent-child agreement about parents' level of support, control and discipline were examined (Gaylord, Kitzmann & Coleman, 2003). There was a significant interaction between age and gender of child, which accounted for a significant amount of variance in parent-child agreement about parenting behaviors. For instance, 4th grade boys reported more support from their parents than 3rd grade boys did, 3rd grade girls reported more support from their parents than 3rd grade boys did, and 5th grade girls reported more support from their parents than 5th grade boys did (Gaylord, Kitzmann & Coleman, 2003). There are additional factors that can affect parent-child agreement, such as

child IQ and parent-child attachment; however, these variables were not included in the data archive being used for the current study and, therefore, are beyond the scope of this study.

Statement of Purpose

Children with ADHD are more likely to develop internalizing and externalizing problems when compared to children without ADHD (Barkley, 2002; Mikami & Hinshaw, 2006). Specifically, children with hyperactive or impulsive symptoms display both internalizing (e.g., depression, anxiety) and externalizing behaviors (e.g., aggression, delinquency), and children with inattentive symptoms tend to experience internalizing behaviors (e.g., depression, anxiety) (Barkley, 2002; Power, Costigan, Eiraldi & Leff, 2004; Mikami & Hinshaw, 2006).

The expression of parental acceptance is a protective factor against children developing psychological problems like internalizing and externalizing behaviors (Chronis et al., 2007; Johnston, Murry, Hinshaw, Pelham & Hoza, 2002). Most research studies, however, fail to consider how bias (e.g., social desirability bias) in parent reporting might affect the interpretation or obscure the outcome of parent-child research (Carr, Moretti & Cue, 2005). This lack of attention to social desirability biases among parents continues despite the well-accepted notion that deceptive or even less candid reporting, by definition, will affect the validity of research findings (e.g., King & Bruner, 2000). Also, most of the studies investigating the relationship between parenting and child outcome do not consider the child's perception of parenting, even though it is likely more important in predicting child outcome than is the parent's self-perception (Demo, Small & Savin-Williams, 1987).

The current study examined the level of maternal acceptance that children with more ADHD symptomatology and children with less ADHD symptomatology perceive. In addition,

whether and to what extent maternal acceptance protects against the development of child internalizing and externalizing behaviors were examined under various conditions. First, the protective role of maternal acceptance in developing internalizing and externalizing symptoms was evaluated when the social desirability bias of mother's self-reports of acceptance was statistically controlled. In addition, the protective role of maternal acceptance was explored using children's reports of their mother's levels of acceptance. Levels of parent-child agreement of maternal acceptance were also assessed. The last analyse tested the effects of parent social desirability, child age and child gender on levels of parent-child agreement.

Hypotheses

Hypothesis 1. Increased severity of children's ADHD symptoms predicts lower levels of parent-reported and child-reported maternal acceptance.

Hypothesis 2. When parent social desirability is statistically controlled, self-reports of maternal acceptance moderate the relationship between inattentive symptoms and internalizing symptoms, such that children with inattentive symptoms who have less accepting mothers experience relatively more internalizing symptoms when compared to their equally inattentive peers who have more accepting mothers.

Hypothesis 3. When parent social desirability is statistically controlled, self-reports of maternal acceptance moderate the relationship between hyperactive/impulsive symptoms and externalizing symptoms, such that children with hyperactive/impulsive symptoms and less accepting mothers experience relatively more externalizing symptoms when compared to their equally hyperactive/impulsive peers who have more accepting mothers.

Hypothesis 4. When parent social desirability is statistically controlled, self-reports of maternal acceptance moderate the relationship between hyperactive/impulsive symptoms and internalizing behaviors, such that children with hyperactive/impulsive symptoms and less accepting mothers experience relatively more internalizing symptoms when compared to their equally hyperactive/impulsive peers who have more accepting mothers.

Hypothesis 5. Children's reports of maternal acceptance moderate the relationship between inattentive symptoms and internalizing symptoms, such that children with inattentive symptoms and less accepting mothers experience relatively more internalizing symptoms when compared to their equally inattentive peers who have more accepting mothers.

Hypothesis 6. Children's reports of maternal acceptance moderate the relationship between hyperactive/impulsive symptoms and externalizing symptoms, such that children with hyperactive/impulsive symptoms and less accepting mothers experience relatively more externalizing symptoms when compared to their equally hyperactive/impulsive peers who have more accepting mothers.

Hypothesis 7. Children's reports of maternal acceptance moderate the relationship between hyperactive/impulsive symptoms and internalizing symptoms, such that children with hyperactive/impulsive symptoms and less accepting mothers experience relatively more internalizing symptoms when compared to their equally hyperactive/impulsive peers who have more accepting mothers.

Hypothesis 8. Child and mother reports of maternal acceptance will be significantly different. If significant differences are found between mother and child reports of maternal acceptance, then the following hypotheses will be tested:

a.) Child age will significantly predict the difference between child and mother reports of maternal acceptance, such that as child age increases the difference between mother and child reports of maternal acceptance decreases.

b.) Parent social desirability will significantly predict the difference between child and mother reports of maternal acceptance, such that as parent social desirability bias increases the difference between mother and child reports of maternal acceptance increases.

c.) The difference between child and mother reports of maternal acceptance will vary by gender, such that boys will have significantly larger difference scores than girls.

CHAPTER 2

METHOD

Participants

Participants included children with and without attention-deficit/hyperactivity disorder and their primary parent/guardian (*N* = 209), who were recruited from the community through advertisements as part of a larger research study (Durrant, 2003; Smith, 2004). Participants included 120 boys and 90 girls, 6 to 11 years old (*M* = 8.25, *SD* = 1.18). The overall sample was primarily Caucasian (85.2%), and the median family income was $60-$70,000. In the current sample, children with ADHD were significantly older than children without ADHD, but parent participants did not significantly differ by child ADHD status (i.e., ADHD or No ADHD). Furthermore, parent participants' ethnicity and education level did not differ by child ADHD status, nor did child participants' ethnicity and gender differ by child ADHD status. Furthermore, although recruitment targeted whichever parent was the "primary" caregiver, only mother-child dyads were included in the current study.

Among the 115 children in the sample who had been previously diagnosed with ADHD, 98 of them were confirmed to have ADHD by teacher and/or parent ratings on the ADHD Rating Scale (DuPaul, Power, Anastopoulos, & Reid, 1998). The majority met criteria for ADHD combined type (*N* = 92), but six children met criteria for ADHD, primarily inattentive type. Seventeen children who had ADHD diagnoses did not have elevated scores on their teacher and/or parent rating scales and, therefore, were screened out of the study. Although 95 children were recruited into the study as control group participants, eleven were removed from the sample because their parent and/or teacher ratings suggested that they might actually have ADHD.

Upon arrival at one of four data collection sites, general study procedures were explained

to potential participants and consent/assent forms were reviewed in detail. First, as part of the larger study, parent-child dyads completed the Parent-Child Interaction Assessment (PCIA; Holigrocki, Frieswyk, Kaminski &Hough, 1999), an analogue observation technique meant to evaluate aspects of parent-child relational functioning. After the PCIA, participants completed self-report instruments. Parents worked independently and completed 10 to 12 instruments, taking breaks as needed. They also completed a form letter that was sent to their child's teacher, requesting that s/he complete one rating scale and return it to the researchers by using an enclosed self-addressed, stamped envelope. Graduate research assistants aided children item-by-item on each of their three measures, though children marked their own forms.

A subset of five parent measures and one child measure were used in the current study. Parents completed a demographic questionnaire and the ADHD Rating Scale-IV: Home Version, a measure of hyperactive, impulsive, and inattentive symptoms in children in non-academic settings. Parents also completed the parent form of the Parental Acceptance-Rejection/Control Questionnaire (Parent PARQ/Control; Rhoner, 1999), as well as the Millon Clinical Multiaxial Inventory-III (MCMI-III; Millon, Millon & Davis, 1994) and the Child Behavior Checklist (CBCL; Achenbach, 1991). Children completed the child form of the Parental Acceptance-Rejection/Control Questionnaire (Child PARQ/Control; Rhoner, 1999). Teachers were asked to complete the ADHD Rating Scale-IV: School Version [ADHD-RS-IV: SV], a measure of hyperactive, impulsive, and inattentive symptoms in children at school.

Since problems with attendance have traditionally been a problem in family research, support was provided to dyads in the current study to increase their likelihood of participation. As such, transportation, snacks and childcare were provided for dyads. Dyads also received $10 per hour for their time (usually about 3 hours). Following completion of the study, parents

received a debriefing form that listed agencies, books, support groups and websites for counseling, parent education, and help in coping with ADHD. Every teacher who returned a completed ADHD-RS-IV: SV and provided an address was sent $5 compensation.

Measurement Approaches

Demographics Questionnaire

The "demographic information and history form" includes basic demographic information, like parent and child gender, ethnicity, annual income, and parental education levels. Medical information, including current medications, and information pertaining to diagnostic criteria (i.e., ADHD), is also included in this questionnaire (Holigrocki, Kaminski & Frieswyk, 1999).

ADHD Rating Scale-IV: Home Version and ADHD Rating Scale IV: School Version

Both the ADHD Rating Scale-IV: Home Version (ADHD-RS-IV: HV) and the ADHD Rating Scale-IV: School Version (ADHD-RS-IV: SV) are made up of 18 items that are based on the criteria for ADHD in the DSM-IV (DuPaul, Power, Anastopoulos, & Reid, 1998). The 18 items on the ADHD-RS-IV: HV and ADHD-RS-IV: SV are divided equally into two subscales: the Inattention subscale and the Hyperactivity-Impulsivity subscale (with scores ranging from 0 to 27). For each item, the frequency of the child's behavior at home (ADHD-RS-IV: HV) or at school (ADHD-RS-IV: SV) within the last 6 months is rated on a 4-point Likert scale (0 = *never or rarely*, 1 = *sometimes*, 2 = *often*, 3 = *very often*). Scale scores are converted to percentiles based on child age and gender.

The overall reliability and validity of the ADHD-RS-IV: HV is adequate, with internal consistency coefficients for the two subscales and the overall scale ranging from $\alpha = .86$ to $\alpha = .92$. Four-week test-retest reliability statistics range from $r = .78$ to $r = .86$ (DuPaul, 1998). A ten-year review of ADHD rating scales found the ADHD-RS-IV: HV to have very good to excellent internal consistency and good test-retest reliability (Collett, Ohan, & Myers, 2005). For the current sample, the internal consistency of the ADHD-RS-IV: HV Inattention subscale is $\alpha = .96$ and the internal consistency of the Hyperactivity-Impulsivity subscale is $\alpha = .96$. The ADHD-RS-IV: SV has internal consistency coefficients ranging from $\alpha = .88$ to $\alpha = .96$ for the overall scale and both subscales. Four-week-test-retest reliability statistics range from $r = .88$ to $r = .90$ (DuPaul, 1998). For the current sample, reliability estimates for the ADHD-RS-IV: SV Inattention subscale and the Hyperactivity-Impulsivity subscale are $\alpha = .96$ and $\alpha = .94$, respectively.

Child Behavior Checklist

The Child Behavior Checklist is a 118-item questionnaire completed by parents (CBCL; Achenbach, 1991). Each item is rated on a 3-point Likert scale (0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very true or often true*). The checklist is comprised of nine Problems Behavior Scales and three Competence Scales, which are a consequence of multivariate statistical procedures conducted and reported separately for boys and girls in different age groups (Achenbach, 1991). The Problems Behavior Scales are of particular interest to the current study. The Problems Behavior Scales include: Attention Problems, Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Delinquent Behavior, Aggressive Behavior, and Sex Problems subscales (Achenbach, 1991). Achenbach (1991) found the average

test-retest reliability on the Problem subscales of the CBCL to be good (r = .89) over a seven-day increment. Inter-parent reliabilities for the Problem scales were also found to be adequate (r = .65 to r = .75).

A broad Internalizing Behaviors Composite Scale was created using the Somatic Complaints Scale and the Anxious/Depressed subscales, and a broad Externalizing Behaviors Composite Scale was created using the Delinquent Behavior and the Aggressive Behavior subscales (Achenbach, 1991). Cronbach's alpha for the Internalizing and Externalizing scales range from α = .82 to α = .86 (Marchand, Hock & Widaman, 2002; Pesenti-Gritti, Spatola, Pagani, Ogliari, Patriarca, Stazi, & Battaglia, 2008). Among mothers in the current sample, the internal consistency was α = .90 for the Internalizing Composite Scale and α = .93 for the Externalizing Composite Scale.

Parental Acceptance Rejection Questionnaire/Control: Parent and Child-Report Versions

The Child- Parental Acceptance Rejection Questionnaire/Control (Child PARQ/Control) and the Parent-Parental Acceptance Questionnaire/Control (Parent PARQ/Control) are 73-item measures designed to assess the child's and parent's perception of the parent's behavior toward the child in terms of the constructs acceptance and rejection, as well as parental control (Rhoner, 1999). Parental "acceptance" can be expressed physically by hugging, caressing, or smiling, as well as verbally through praise and compliments. Parental "rejection" can take three forms: aggression/hostility, neglect, and indifference. The parental "control" construct refers to the degree to which parents limit or restricts a child's behavior (Rhoner, 1999). For the present study, an adapted version of the Child-PARQ/Control, which consists of standard rewording of difficult items, was created in order to make it easier for younger children to understand

(Durrant, 2003). In addition to a Total Rejection score, five subscale scores can be derived from the Child-PARQ/Control and the Parent-PARQ/Control: Warmth/Affection, Aggression/Hostility, Neglect/Indifference, Rejection (Undifferentiated), and Control (Rhoner, 1999). The Parental Acceptance-Rejection Questionnaire (PARQ) is coded in such a way that high scores on any of the five subscales, and on the total acceptance scale, is negative (i.e., high scores on the Indifference/Neglect subscale means more indifference and neglect, higher scores on the Warmth/Affection subscale means *less* maternal warmth and affection, etc.); as such, high scores on the PARQ indicate a *lack of acceptance*. Therefore, in order to simplify numeric interpretation for the current study, hypotheses and their subsequent analyses will be described in terms of mothers' lack of acceptance, so that a higher score on the PARQ is always a less desirable outcome.

Overall internal consistency is adequate (α= .85) for the Child-PARQ/Control, and there are acceptable internal consistency estimates for the subscales as well, ranging from α = .79 to α = .88 (Rhoner, 1999). The only exception is the Indifference/Neglect Scale, which has been reported to be less than reliable for both the Child-PARQ/Control and the Parent-PARQ/Control (.16 and .13, respectively) (Schenberg, 1998). Lila, Garcia and Gracia (2007) found internal consistency estimates of α = .96 for the Child PARQ father version, and α = .95 for the Child PARQ mother version. Internal consistency scores are good for the Parent-PARQ/Control subscales as well, ranging from α = .69 to α = .87 (Rhoner, 1999).

The total rejection score for the Parent-PARQ/Control and the Adapted Child-PARQ/Control will be used for some of the statistical analyses in the current study. Internal consistency estimates for the overall Adapted Child-PARQ/Control and Parent-PARQ/Control were α = .79 and α = .78, respectively for the current sample. Individual subscales of both the

Parent-PARQ/Control and the Adapted Child-PARQ/Control will also be evaluated. Internal consistency estimates for the Control and Rejection-Undifferentiated subscales of the Parent-PARQ/Control were not adequate (α = .66 and α = .68, respectively); therefore, they will not be included in the current study. The three remaining subscales on the Parent-PARQ/Control (Warmth, Hostility/Aggression and Indifference/Neglect) had internal consistencies ranging from α = .76 to α = .85 for the current sample. The Child-PARQ/Control had adequate internal consistency estimates for all five subscales; however, to keep analyses consistent, the same subscales that received adequate reliability on the Parent-PARQ/Control will be utilized on the Child-PARQ/Control (α = .74 to α = .84).

Millon Clinical Multiaxial Inventory- III

Millon's Clinical Multiaxial Inventory- III (MCMI-III; Millon, Millon & Davis, 1994) is a 175-item test that provides information to clinicians, who must make assessment and treatment decisions about adults with emotional and interpersonal difficulties. Clinicians can compute scores on 14 personality disorder scales (e.g., Schizoid, Avoidant, Depressive, Dependent, Borderline, etc.) and 10 clinical syndrome scales (Anxiety, Somatoform, Dysthymia, Alcohol Dependence, Thought Disorder, etc.), as well as scores on three "modifier scales"(e.g., the Disclosure Index (Scale X), the Desirability Index (Scale Y) and the Debasement Index (Scale X) (Millon, Millon & Davis, 1994). Millon, Millon & Davis (1994) reported internal consistencies for the MCMI-III that range from α = .67 to .89 and test-retest values (5-14 days) that range from r = .88 to r = .93. Strack and Millon (2007) found similar internal consistencies (α = .66 to .89) for scales on the MCMI-III, and a test-retest reliability ranging from r = .58 to r

= .93 over a period of 5 days to 4 months. In the current sample, overall internal consistency of the MCMI-III was very good (α = .93).

Of particular interest to the current study is the Desirability Index (Scale Y). The Desirability Index assesses the degree to which an individual's scores on the MCMI-III have been affected by his or her tendency to appear socially attractive, morally virtuous, or emotionally well composed. The higher the score on Scale Y, the more likely an individual is attempting to conceal some aspect of their psychological or interpersonal difficulties (Millon, Millon & Davis, 1994). The internal consistency for Scale Y is good (α = .86), as is the test-retest reliability after 5 to 14 days (r= .92). In the current sample, the internal consistency for the Desirability Index was not adequate (α = .65); however, after removing an item from the scale, the reliability was α = .76.

CHAPTER 3

RESULTS

Data Preparation

Before conducting statistical analysis, basic screening procedures were used to check for missing values and outliers, and test the assumptions of multiple regression and paired sample t-tests. Frequency tables were examined to identify missing values and data entry errors. Cases for which more than 5% of the items for a given subscale were missing were deleted for the analysis in which that specific subscale was used (Field, 2009). Next, data were screened for univariate and multivariate outliers by examining box-plots and Mahalanobis distances (Tabachnik & Fidell, 2007). One multivariate outlier was detected for an analysis that included the child total acceptance scale and the hyperactive/impulsive symptoms subscale, and this case was deleted. Multivariate outliers were not detected for any other analyses. Although univariate outliers were identified in each of the analyses, these were not deleted because they were expected for most of the variables measured, and multiple regression is generally robust to such violations (Tabachnik & Fidell, 2007).

The assumption of normality is central to both multiple regression and t-tests. To test the assumption of normality, Kolmogorov-Smirnov tests of normality were conducted. As indicated by results of the tests, only two dependent variables met the assumption (i.e., warmth/affection difference score and parent PARQ hostility/aggression). Probability plots and histograms, as well as skew and kurtosis for each variable were then examined. Several dependent variables (i.e., internalizing behaviors, externalizing behaviors, parent PARQ total, parent PARQ indifference/neglect, child PARQ indifference/neglect and hostility/aggression difference and

indifference/neglect difference scores) were near-normal after examining their probability plots, so they were not transformed (Field, 2009).

Four variables, however, were transformed in an attempt to make their distributions normal, as they were significantly skewed. The parent PARQ warmth/affection variable was negatively skewed, which means that a large number of parents reported high levels of warmth/affection towards their children. The negative skew makes sense, as it is likely that parents are reporting their parenting behaviors in a more socially desirable way. After a reflection and log transformation, the distribution was near normal, though the assumption of normality was still not met. The child PARQ hostility/aggression variable was positively skewed, meaning that a large number of children are reporting low levels of parental hostility/aggression. Similarly, the child PARQ warmth/affection variable was negatively skewed, meaning that children are reporting high levels of maternal lack of warmth/affection. After transforming both variables with a log transformation, their distributions were near normal; however, they still did not meet the assumption of normality. Finally, the total child PARQ variable was positively skewed, which seems reasonable as many of the variables that compose this scale were positively skewed. After a log transformation, the variable was more normal, but it still did not meet the assumption of normality. Although all variables did not meet the assumption of normality, the analyses were conducted because multiple regressions and t-tests are known to be robust to violations of the assumption of normality (Weinfurt, 1995). Therefore, the data for each of the dependent variables presented is considered valid for the purposes of the analyses in the present study.

The other assumptions of multiple regression (i.e., non-collinearity between predictors and homoscedasticity, linearity, and independence of residuals) were tested by examining both

independent and dependent variables. The assumption of non-collinearity was tested by inspecting the variance inflation factor (VIF) and tolerance values between predictor variables. This assumption was violated for each of the moderator analyses due to high multicollinearity between the main effects and the interaction terms in these analyses. To account for this violation, the data were centered by subtracting the mean of each variable from each observation (Tabachnik & Fidell, 2007). Multicollinearity was also found between the inattention and hyperactive/impulsive subscales of the ADHD Home Rating Scale; as such, analyses that included these variables together were run separately instead. Finally, the assumptions of normality, homoscedasticity and linearity of residuals were tested by examination of scatterplots in which predicted values for variables were plotted on the *Y*-axis and standardized residuals for variables were plotted on the *X*-axis. Assessments of these scatterplots indicated that these assumptions were not violated for any variables. Means, standard deviations, and intercorrelations for the variables presented in Tables A.1, A.2, A.3 and A.4.

Maternal Acceptance and Levels of ADHD Symptomatology

The first hypothesis stated that children with more symptoms of attention-deficit/hyperactivity disorder experience less child-reported and parent-reported maternal acceptance than children with fewer symptoms of ADHD. The proposed analyses related to this hypothesis were three multiple regressions. In the first and second analyses, mother-reported inattentive and hyperactive/impulsive symptoms would act as predictors of mother-and child-reported reported lack of maternal acceptance. In the third analysis, teacher-reported inattentive and hyperactive/impulsive symptoms would as predictors of child-reported lack of maternal acceptance. However, there was high collinearity between mother-reported inattentive and

hyperactive/impulsive symptoms; therefore, the first two multiple regression analyses were run as four separate simple regressions.

Results of the first hypothesis indicate that children's inattentive symptoms, as reported by their mothers, significantly predict mother-reported lack of acceptance, accounting for 17.2% of the variance (Adj. R^2) in lack of acceptance ($\beta = .42$), $F(1, 207) = 42.99$, $p = .000$. Mother-reported hyperactive/impulsive symptoms also acted as a significant predictor of mother-reported lack of acceptance, accounting for approximately 13.8% of the variance (Adj. R^2) in lack of acceptance, $F(1, 207) = 34.21$, $p = .000$ ($\beta = .38$).

Mother-reported inattentive symptoms also significantly predicted child-reported lack of maternal acceptance, although the variance accounted for was modest (Adj. $R^2 = .028$), $F(1, 207) = 6.89$, $p = .009$ ($\beta = .18$). Moreover, mother-reported hyperactive/impulsive symptoms did not significantly predict child-reported lack of maternal acceptance, $F(1, 207) = 3.52$, $p = .062$ ($\beta = .11$). The small effect size between mother-reported inattentive symptoms and child-reported lack of maternal acceptance and the lack of significance between mother-reported hyperactive/impulsive symptoms and child-reported lack of acceptance suggests that neither type of mother-reported ADHD symptomatology explains child-reported lack of maternal acceptance well.

When teacher-reported inattentive and hyperactive/impulsive symptoms were entered as predictors of child-reported lack of maternal acceptance, the overall model was significant, accounting for 10% of the variance (Adj. R^2) in maternal acceptance $F(2, 131) = 8.29$, $p = .000$. Upon examination of the individual predictors, only inattentive symptoms were a significant predictor of child-reported lack of acceptance, accounting for 6% unique variance in the overall model, $t(135) = 3.01$, $p = .003$ ($\beta = .30$).

Results of Individual Moderator Analyses

Mother-Reported Lack of Acceptance

The second hypothesis stated that mother-reported lack of acceptance moderates the relationship between children's inattentive symptoms and internalizing symptoms by strengthening it, when parent social desirability bias is statistically controlled. As recommended by Tabachnick and Fidell (2007), a hierarchical multiple regression (HMR) was conducted to test the main effects of mother-reported child inattentive symptoms and mother-reported acceptance, as well as the effect of the interaction between lack of maternal acceptance and inattentive symptoms on mother-reported child internalizing symptoms, while controlling for parent social desirability bias. In Step 1, social desirability bias was entered into the model in order to control for its influence in further steps, and despite a small effect size, it explained a statistically significant amount of variance in child internalizing symptoms (Adj. $R^2 = .051$), $F(1, 196) = 11.63$, $p = .001$. In Step 2, self-reported lack of maternal acceptance and mother-reported child inattentive symptoms were entered into the model as predictors, and these variables accounted for a significant amount of variance in the model beyond that of Step 1 ($\Delta R^2 = .31$), $F\Delta(2, 194) = 47.18$, $p = .000$. The interaction between lack of maternal acceptance and inattentive symptoms was entered into the model at Step 3, and results revealed that it was significantly related to internalizing symptoms, $F\Delta(1, 193) = 4.72$, $p = .031$. In the final model, parent social desirability, $t(202) = -2.25$, $p = .025$ ($\beta = -.13$), lack of maternal acceptance, $t(208) = 3.94$, $p = .000$ ($\beta = .27$), mother-reported child inattentive symptoms, $t(208) = 4.91$, $p = .000$ ($\beta = .36$), and the interaction between the two, $t(208) = -2.17$, $p = .031$ ($\beta = -.15$) were statistically significant predictors of internalizing symptoms.

To better understand the effect of the self-reported lack of maternal acceptance and mother-reported child inattentive symptoms interaction on mother-reported child internalizing symptoms, a simple slopes analysis was conducted (Aiken & West, 1991). First, the predicted values of the relationship between mother-reported lack of acceptance and child internalizing symptoms were calculated for representative groups at the mean of mother-reported lack of acceptance (M = .22), one standard deviation above the mean for mother-reported lack of acceptance (1 *SD* above = 15.42), and one standard deviation below the mean for mother-reported lack of acceptance (1 *SD* below = -15.22).

Results indicate that when mother-reported lack of acceptance was one standard deviation below the mean, the slope of the inattentive symptoms-internalizing symptoms regression line was significantly different than zero (B = .196), $t(197) = 6.95$, p = .000. When mother-reported lack of acceptance was one standard deviation above the mean, the slope of the inattentive symptoms-internalizing symptoms regression line was not significantly different than zero (B = .070), $t(197) = 1.39$, p = .165. Next, a t-test was conducted to determine if groups at high and low levels of mother-reported lack of acceptance significantly differed from one another, and results indicate that they did (B = -.26), $t(197) = -2.15$, p = .033. It would appear that the relationship between inattentive symptoms and internalizing symptoms is strongest when mother-reported lack of acceptance is low rather than high.

The third hypothesis stated that mother-reported lack of acceptance moderates the relationship between mother-reported child hyperactive/impulsive symptoms and mother-reported child externalizing symptoms by strengthening it, when parent social desirability bias is statistically controlled. As in the previous analysis, a hierarchical multiple regression (HMR) was conducted to test this hypothesis. In Step 1, parent social desirability bias was entered in order to

control for its influence in the analysis. Results reveal that social desirability accounted for a significant amount of variance in child externalizing symptoms (Adj. R^2 = .018), F (1, 199) = 4.61, p = .033. Mother-reported lack of acceptance and children's hyperactive/impulsive symptoms, as reported by mothers, were entered at Step 2, explaining 54.6% (ΔR^2) additional variance in mother-reported child externalizing symptoms, $F\Delta$(2, 197) = 124.46, p = .000. The interaction term between maternal lack of acceptance and hyperactive/impulsive symptoms was entered at Step 3 and did not account for a significant amount of variance in the model (ΔR^2 =.001), $F\Delta$(1, 196) = .34, p = .564. In the final model, lack of maternal acceptance, t(208) = 3.83, p = .000 (β = .20) and hyperactive/impulsive symptoms, t(208) = 11.90, p = .000 (β = .66) were significant predictors of externalizing symptoms. Parent social desirability did not significantly predict child externalizing symptoms. Since mother-reported lack of acceptance did not moderate the relationship between mother-reported child hyperactive/impulsive symptoms and mother-reported child externalizing symptoms, no further analyses were conducted.

The fourth hypothesis stated that mother-reported lack of acceptance moderates the relationship between mother-reported child hyperactive/impulsive symptoms and mother-reported child internalizing symptoms by strengthening it, when parent social desirability bias is statistically controlled. Another hierarchical multiple regression (HMR) was conducted to test hypothesis 4, and in Step 1 parent social desirability bias was entered into the model to control for its influence on the analysis. Social desirability bias explained a significant amount of variance in child internalizing symptoms (Adj. R^2 = .056), F (1, 196) = 11.63, p = .001. Hyperactive/impulsive symptoms and maternal lack of acceptance were entered at Step 2 and explained 28% of the variance in internalizing symptoms beyond the variance accounted for in Step 1, $F\Delta$ (2, 194) = 40.83, p = .000. The interaction term between hyperactive/impulsive

symptoms and maternal lack of acceptance was entered at Step 3 and accounted for a significant amount of additional variance in internalizing symptoms (ΔR^2 = .032), $F\Delta(1, 193) = 9.79$, p = .002. Mother-reported lack of acceptance, $t(208) = 4.72$, $p = .000$ ($\beta = .31$) and mother-reported child hyperactive/impulsive symptoms, $t(208) = 4.58$, $p = .000$ ($\beta = .31$), as well as the interaction term, $t(208) = -3.13$, $p = .002$ ($\beta = -.20$), were significant predictors of mother-reported child internalizing symptoms in the final model.

Another slope analysis was conducted to better understand the effect of the mother-reported lack of acceptance and hyperactive/impulsive symptoms interaction on internalizing symptoms (Aiken & West, 1991). When mother-reported lack of acceptance was one standard deviation below the mean, the slope of the hyperactive/impulsive symptoms-internalizing symptoms regression line was significantly different than zero ($B = .220$), $t(197) = 6.74$, p = .000. However, when mother-reported lack of acceptance was one standard deviation above the mean, the slope of the hyperactive/impulsive symptoms-internalizing symptoms regression line was not significantly different than zero ($B = .038$), $t(197) = .74$, $p = .461$. After a t-test was conducted between high and low values of mother-reported lack of acceptance, it was determined that there was a significant difference between the slopes at high and low groups (B = -.006), $t(197) = -2.49$, $p = .003$. Results indicate that the relationship between mother-reported child hyperactive/impulsive symptoms and mother-reported child internalizing symptoms is strongest when mother-reported lack of acceptance is low rather than high.

Exploratory Analyses for Hypotheses 2-4

In an effort to enhance interpretation of unexpected findings, Analyses 1-3 were repeated with mothers of children who had been diagnosed with ADHD only. Results revealed that

maternal rejection did not moderate the relationship between child inattention and internalizing symptoms, $t(91) = -.12$, $p = .907$ ($\beta = -.03$). However, maternal rejection did moderate the relationship between child hyperactive/impulsive symptoms and externalizing symptoms, $t(93) = 3.00$, $p = .003$ ($\beta = -.03$) (see Table A.6). Finally, maternal rejection did not moderate the relationship between child hyperactive/impulsive symptoms and internalizing symptoms, $t(91) = -.66$, $p = .511$ ($\beta = -.15$).

Child-Reported Lack of Maternal Acceptance

The fifth hypothesis stated that child-reported lack of maternal acceptance moderates the relationship between mother-reported child inattentive symptoms and mother-reported child internalizing symptoms by strengthening it. A hierarchical multiple regression (HMR) was used to test the main effects of mother-reported child inattentive symptoms and child-reported lack of maternal acceptance, as well as the effect of the interaction between child-reported maternal acceptance and inattentive symptoms on internalizing symptoms. In Step 1, both inattentive symptoms and child-reported lack of maternal acceptance were entered into the model. Results indicate that inattentive symptoms ($\beta = .62$), and child-reported maternal acceptance ($\beta = -.05$) accounted for 29.8% of the variance in internalizing symptoms (Adj. R^2), $F(2, 201) = 44.11$, $p = .000$. In Step 2, the interaction of inattentive symptoms and child-reported lack of maternal acceptance was entered into the model and did not account for a significant amount of additional variance in internalizing symptoms on top of what was explained by inattentive symptoms ($\Delta R^2 = .002$), $F\Delta(1, 200) = .05$, $p = .480$. In the final model, only inattentive symptoms significantly predicted internalizing symptoms, $t(208) = 9.12$, $p = .000$ ($\beta = .56$). Because child-reported maternal lack of acceptance did not moderate the relationship between child inattentive

symptoms and internalizing symptoms, no further analyses were conducted.

The sixth hypothesis stated that child-reported lack of maternal acceptance moderates the relationship between mother-reported child hyperactive/impulsive symptoms and mother-reported child externalizing symptoms by strengthening it. A hierarchical multiple regression (HMR) was used to test this hypothesis. In Step 1, both child hyperactive/impulsive symptoms ($\beta = .722$) and child-reported lack of maternal acceptance ($\beta = .048$) were entered into the model. These variables accounted for 52.8% of the variance in child externalizing symptoms (Adj. R^2), $F(2, 204) = 116.10$, $p = .000$. The interaction term between hyperactive/impulsive symptoms and child-reported lack of acceptance was entered in Step 2 and did not account for a significant amount of variance in externalizing symptoms ($\Delta R^2 = .001$), $F\Delta\ (1, 203) = .33$, $p = .564$. In the final model, only mother-reported child hyperactive/impulsive symptoms were a significant predictor of mother-reported child externalizing symptoms, $t(208) = 14.91$, $p = .000$ ($\beta = .73$). Because child-reported maternal lack of acceptance did not moderate the relationship between child hyperactive/impulsive symptoms and externalizing symptoms, no further analyses were conducted.

The seventh hypothesis stated that child-reported lack of maternal acceptance moderates the relationship between mother-reported child hyperactive/impulsive symptoms and mother-reported child internalizing symptoms by strengthening it. As in the previous analysis, a hierarchical multiple regression (HMR) was used to test this hypothesis. In Step 1, both hyperactive/impulsive symptoms and child-reported lack of maternal acceptance were entered into the model. These variables accounted for 25.6% of the variance in internalizing symptoms (Adj. R^2), $F(2, 201) = 35.84$, $p = .000$. The interaction term between hyperactive/impulsive symptoms and child-reported lack of acceptance was entered at Step 2 and did not account for a

significant amount of variance in internalizing symptoms (ΔR^2 = .005), $F\Delta$ (1, 200) = 1.42, p = .235. In the final model, only mother-reported child hyperactive/impulsive symptoms were a significant predictor of mother-reported child internalizing symptoms, t(208) = 8.17, p = .000 (β = .50). Because child-reported maternal lack of acceptance did not moderate the relationship between child hyperactive/impulsive symptoms and internalizing symptoms, no further analyses were conducted.

Exploratory Analyses for Hypotheses 5-7

In order to further explore the relationships between variables used to test Hypotheses 5-7, analyses were rerun with teacher's (vs. parents) reports of ADHD symptoms. When child-reported lack of maternal acceptance was used as a moderator in the relationship between teacher-reported inattentive symptoms and mother-reported child internalizing symptoms, however, there was a significant moderation, t(132) = -3.26, p =.001 (ß = -1.20), and the interaction term accounted for 7.3% of the variance in children's internalizing symptoms (ΔR^2). Child-reported lack of maternal acceptance, t(132) = 3.52, p = .000 (ß = 1.33), and the interaction between the two variables were significant in the final model.

In order to better understand the effects of the teacher-reported child inattentive symptoms and child-reported lack of maternal acceptance on mother-reported child internalizing symptoms, another simple slope analysis was conducted (Aiken & West, 1991). The results of the simple slopes analysis indicated that when child-reported lack of maternal acceptance was one standard deviation below the mean, the slope of the inattentive symptoms-internalizing symptoms regression line was significantly different than zero (B = .16), t(132) = 3.18, p = .002. When child-reported lack of maternal acceptance was one standard deviation above the mean,

the slope of the inattentive symptoms-internalizing symptoms regression line was not significantly different than zero (B = -.09), $t(132) = -1.58$, $p = .117$. Next, based on a t-test analysis of the slopes of the lines for the high and low child-reported lack of maternal acceptance groups, it was determined that these lines were significantly different from one another (B = -1.54), $t(132) = -3.26$, $p = .001$. These results suggest that the relationship between teacher-reported child inattentive symptoms and mother-reported child internalizing symptoms is stronger when child-reported lack of maternal acceptance is low rather than high.

The interaction between child-reported lack of maternal acceptance and children's teacher-reported hyperactive/impulsive symptoms did not account for a significant amount of variance in children's externalizing symptoms $\Delta F(1,128) = .72$, $p = .398$ ($\Delta R^2 = .004$). Therefore, child-reported lack of maternal acceptance did not act as a moderator between hyperactive/impulsive symptoms and externalizing symptoms. No further analyses were conducted to explore hypothesis 6.

Finally, child-reported lack of maternal acceptance was examined as a moderator in the relationship between teacher-reported hyperactive/impulsive symptoms and mother-reported internalizing symptoms. As such, child-reported lack of maternal acceptance acted as a moderator in the relationship between teacher-reported hyperactive/impulsive symptoms and mother-reported internalizing symptoms, $t(132) = -2.34$, $p = .021$ (ß = -.19), and the interaction term accounted for 3.8% of the variance in children's internalizing symptoms (ΔR^2). In the final model, children's hyperactive/impulsive symptoms were a significant predictor of children's internalizing symptoms, $t(132) = 2.90$, $p = .004$ (ß = .25), as well as the interaction term.

Another simple slope analysis was conducted to further examine the interaction between child-reported lack of maternal acceptance and teacher-reported hyperactive/impulsive

symptoms on mother-reported child internalizing symptoms. As such, when child-reported lack of maternal acceptance was one standard deviation below the mean, the hyperactive/impulsive symptoms-internalizing symptoms regression line was significantly different than zero (B = .207), $t(130) = 3.53$, $p = .001$. When child-reported lack of maternal acceptance was one standard deviation above the mean, the hyperactive/impulsive symptoms-internalizing symptoms regression line was not significantly different than zero (B = .018), $t(130) = .34$, $p = .735$. Next, a t-test was run to determine if the slopes at high and low groups of child-reported lack of maternal acceptance were significantly different from one another, and results indicated that they were (B = -1.18), $t(130) = -2.34$, $p = .021$. Therefore, it would appear that the relationship between hyperactive/impulsive symptoms and internalizing symptoms is strongest when child-reported lack of maternal acceptance is low rather than high.

In an effort to enhance interpretation of unexpected findings, exploratory analyses for hypotheses 5-7 were repeated twice, first with mothers of children who had been diagnosed with ADHD and then with mothers of comparison children (i.e., no ADHD).When mothers of children who were diagnosed with ADHD were utilized in analyses, child-reported lack of maternal acceptance moderated the relationship between teacher-reported child inattention and mother-reported child internalizing symptoms, $F\Delta(1, 56) = 6.38$, $p = .014$ (Adj. $R^2 = .138$). However, child-reported lack of maternal acceptance did not moderate the relationship between teacher-reported child hyperactive/impulsive symptoms and externalizing symptoms, $F\Delta(1, 56) = 3.26$, $p = .076$ (Adj. $R^2 = .085$). Finally, child-reported lack of maternal acceptance did not moderate the relationship between teacher-reported child hyperactive/impulsive symptoms and mother-reported child internalizing symptoms, $F\Delta(1, 56) = 1.67$, $p = .201$(Adj. $R^2 = -.005$). When comparison mothers were utilized in analyses, child-reported lack of maternal acceptance

did not moderate the relationship between teacher-reported inattention and mother-reported internalizing symptoms, $F\Delta(1, 52) = 3.30$, $p = .075$ (Adj. $R^2 = .211$). Child-reported lack of maternal acceptance did not moderate the relationship between teacher-reported hyperactive/impulsive symptoms and mother-reported externalizing symptoms, $F\Delta(1, 51) = .027$, $p = .871$ (Adj. $R^2 = .042$). Lastly, child-reported lack of maternal acceptance did not moderate the relationship between teacher-reported hyperactive/impulsive symptoms and mother-reported internalizing symptoms, $F\Delta(1, 50) = 2.89$, $p = .095$ (Adj. $R^2 = .047$).

Differences in Mother and Child Reports of Parenting

The eighth hypothesis stated that there are significant differences in parent and child-reported maternal warmth/affection, hostility/aggression and indifference/neglect. In order to test this hypothesis, three paired *t*-tests were conducted (Tabachnick & Fidell, 2007). The first paired *t*-test indicated that mothers and their children do report significantly different levels of maternal warmth/affection, $t(208) = -30.81$, $p = .001$, with mothers reporting the expression of more warmth/affection ($M = .64$, $SD = .37$) than their children perceive ($M = 1.46$, $SD = .08$) (higher scores indicate less warmth/affection). Eta squared (.25) indicates a small effect size (Cohen, 1988). The second paired *t*-test revealed significantly different reports of maternal hostility/aggression as well, $t(208) = 63.09$, $p = .000$, in which mothers reported significantly higher levels of hostility/aggression ($M = 27.96$, $SD = 6.11$) than children ($M = 25.02$, $SD = 6.77$), and eta squared (.45) indicates a medium effect size (Cohen, 1988). Finally, the third paired *t*-test indicated that parents and their children also report significantly different levels of maternal indifference/neglect, $t(208) = -8.69$, $p = .000$, with children reporting higher levels (M

= 26.29 , SD = 5.31) than their mothers (M = 22.18, SD = 4.56). The eta squared effect size was .03, indicating a small effect size (Cohen, 1988).

Three multiple regression analyses were then run to evaluate child age, child gender and parent social desirability bias in predicting the difference between mother and child reports of maternal warmth/affection, hostility/aggression and indifference/neglect. Child age, child gender and parent social desirability bias were included together as predictor variables in each analysis. The overall model for the difference in warmth/affection was significant, $F(3, 199) = 7.46$, p = .000. Upon closer examination of all the predictor variables individually, child age was a significant predictor of the difference between mother and child reports of maternal warmth/affection, $t(208) = 4.59$, p = .000, accounting for approximately 31% of the variance in the difference (β = .309). The positive beta weight indicates that as child age increases, so does the difference between parent and child reports of maternal warmth/affection. Parent social desirability and child gender did not significantly predict the difference in parent and child reports of maternal warmth/affection.

The overall model for the difference between mother and child reports of maternal hostility/aggression was also significant, $F(3,199) = 6.03$, p = .001. Evaluation of individual predictor variables revealed that child age, $t(208) = 2.46$, p = .015 (ß = .167) significantly predicted the difference, and the positive beta weight indicates that as child age increases, so does the difference in mother and child reports of maternal hostility/aggression. Child age also significantly predicted the difference, $t(208) = 3.18$, p = .002 (ß = .216), and the beta weight indicates that girls report a greater difference in hostility/aggression from their mothers than boys do. The overall model of the difference between mother and child reports of maternal indifference/neglect was also significant, $F(3, 199) = 4.70$, p = .003; however, only child age was

a significant predictor, uniquely accounting for 25% of the variance in the difference of mother-child reports of indifference/neglect, $t(208) = 3.65$, $p = .000$ (ß = .25). Once again, differences with dyads were more likely as child age increased. Child gender and parent social desirability bias did not act as significant predictors of the difference.

CHAPTER 4

DISCUSSION

In the current study, initial results indicated that the relationship between attention-deficit/hyperactivity disorder (ADHD) symptomatology and children's internalizing symptoms is strongest when maternal lack of acceptance is *low* rather than high and that maternal lack of acceptance did not moderate the relationship ADHD symptomatology and externalizing symptoms. In order to explain contrary findings, these regressions were explored further, with reports from mothers with an ADHD child only included in the analyses. Although limiting the analyses to an all ADHD sample eliminated the "backward" moderations seen among the whole sample, no moderation effect was found when internalizing symptoms was the dependent variable. For externalizing symptoms, however, the expect relationship emerged. That is, the relationship between hyperactive/impulsive symptoms and externalizing symptoms was strongest when mothers exhibit *high* rather than low levels of maternal lack of acceptance.

Given the results of the exploratory analyses, the significant moderations in the initial analyses appear to be driven by reports from mothers of comparison children only (i.e., no ADHD). Children with ADHD still struggle with internalizing symptoms, but ADHD is primarily an externalizing disorder. Mothers of children with ADHD would not report many internalizing symptoms. As such, when ADHD children's internalizing symptoms were included in the model with comparison children's symptoms, there was less variance and a smaller effect than when comparison children were included by themselves.

Parent social desirability bias was controlled for in these analyses because it was hypothesized to affect parent reporting. Parent social desirability accounted for a significant amount of variance in Step 1 of each initial moderation analysis, but did not account for a

significant amount of variance in any of the moderation models when analyses were repeated with ADHD children only. It is possible that when the sample was limited to reports from mothers with an ADHD child only that a significant amount of variance was lost, making it difficult to find an effect. An examination of correlations between parent social desirability and self-reports of maternal behaviors revealed significant, albeit small, correlations for subscales (i.e., Lack of Warmth and Indifference/Neglect) on the Parent PARQ. Therefore, there does appear to be some socially desirable responding among mothers in the current sample.

It is interesting that the relationship between inattention and internalizing symptoms and between hyperactivity/impulsivity and internalizing symptoms are strongest when maternal lack of acceptance is *low* rather than high. In hindsight, these findings are reasonable given that parents who are less rejecting of their children are also more likely to be attuned to the subtle symptoms typically associated with depression and anxiety (e.g., fatigue, insomnia, feelings of worthlessness, difficulty concentrating, excessive worrying). Parents who are more rejecting of their children, however, may not notice their children's subtle symptoms and, therefore, may be under reporting their children's levels of distress. That is, parents who are less rejecting of their children may be reporting higher levels of internalizing symptoms when compared to parents who are more rejecting of their children because they are more comfortable with a more complete and accurate picture of their children's feeling states.

Another possible explanation for more rejecting mothers reporting lower levels of child internalizing symptoms than less rejecting mothers could be related shame that these parents may feel about their children's internalizing symptoms. That is, these negative feelings of shame may contribute to more rejecting parents being less likely to report internalizing symptoms. For instance, parents might feel that their child's anxious behavior, social withdrawal and/or

dysphoria reflect poorly on them as parents, as if "good" parents always have "happy" children. Parents might also feel guilty or responsible, as if they are supposed to be 'able' to control their child's emotions and are not succeeding.

Children who are experiencing internalizing symptoms may also be more likely to disclose them to an accepting mother rather than a rejecting parent. That is, children who perceive their mothers to be accepting most likely feel confident that their mothers are going to help them when they are distressed. These children also know that their mothers will be warm and sensitive to their situation and make time for them when needed. On the other hand, children who perceive their mothers to be rejecting most likely feel like their mothers do not care about their feelings, do not understand their situation, and will not help them when they are struggling. As a result, these children may feel like disclosing information to their mothers would be futile.

It is also possible that more rejecting mothers are more inclined to blame their child for their internalizing symptoms, believing that he or she could regulate their emotional affect more effectively if they worked harder at it. Alternatively, more rejecting mothers may misperceive their child's internalizing symptoms as undesirable aspects of their temperament or personality, leading them to feel disappointed in rather than empathic toward their child. There are several items on the parent version of the PARQ that suggest that more rejecting parents are distancing themselves from their children, possibly as a result of shame, guilt, or embarrassment. Examples of those items include: "sees me as a big problem," "seems to dislike me," and "is too busy to answer my question." Each of these items was significantly and *negatively* correlated with parent-report of children's internalizing symptoms.

Initially, no interaction effect was found when externalizing symptoms were being predicted by hyperactive/impulsive symptoms and maternal lack of acceptance for the whole

sample. The hypothesized interaction effect did emerge, however, when the analysis was re-run for the ADHD subsample only. This finding is consistent with the literature that suggests that less effective parenting, like high levels of maternal lack of acceptance, may act as a risk factor in the development of adjustment problems in children (Gerdes, Hoza & Pelham, 2003; Rhoner, 2004; Woodward, Taylor & Dowdney, 1998). Specifically, maternal lack of acceptance may be an especially important risk factor in the development of externalizing symptoms for children who display hyperactive and impulsive symptomatology.

High levels of maternal lack of acceptance are realistic in families with a child who displays hyperactive and/or impulsive symptoms (Lifford, Harold & Thapar, 2008). Indeed, parenting children with these symptoms is stressful. As a result, mothers may act negatively towards their child and may complain about their child's symptoms rather than try to understand them. When a child is struggling academically or with peers as a result of their hyperactive and/or impulsive symptoms (Barkley, 2002), he or she probably wants to be understood instead of complained about; therefore, it is reasonable that when hyperactive and/or impulsive children feel like their parents are not accepting of them that they would channel their anger or hurt feelings into more aggressive or delinquent activities.

Alternatively, this finding could also signify that more rejecting mothers may be overreporting their children's externalizing symptoms. That is, externalizing symptoms like delinquency, aggression and hyperactivity often pose more problems for parents compared to internalizing symptoms, which are more problematic for the children who experiences them. For example, a parent is responsible for their minor child in instances where he or she gets into a fight with a peer or is disobedient towards their teachers. These mothers may be frustrated, so they report more externalizing symptoms than what is realistic. More rejecting mothers may

especially be frustrated if they feel like their children's problematic behaviors are a result of internal and stable causes within their child (Johnson, Hommersen & Seipp, 2008). These parents overlook situational factors (i.e., chaotic home environment, rejection) that may also be contributing to their children's externalizing behaviors. Previous research has found mothers' tendency to attribute problems to their child in this way to be a predictor of higher levels of externalizing symptoms (Johnson, Hommersen & Seipp, 2008). Thus, it is clear that children with ADHD present parenting challenges *and* parenting behaviors can alter the severity and course of ADHD symptoms in children.

Child-reported maternal lack of acceptance did not act as a moderator in any of the hypothesized relationships between ADHD symptomatology and children's internalizing and externalizing symptoms. Importantly, these analyses involved mother-reported child behaviors (i.e., internalizing and externalizing symptoms). As such, one possible explanation for the lack of significant moderations in these instances is that children maybe better reporters of their internalizing symptoms than their parents. Internalizing disorders imply a subjective internal evaluation of one's distress; therefore, external observers like parents, may be less reliable reporters of their children's levels of depression and anxiety than their children because they are not experiencing the symptoms (Flanery, 1990). In addition, more rejecting parents of children with ADHD may fail to notice internalizing symptoms, perhaps focusing on their children's externalizing symptoms. Indeed, externalizing symptoms are prevalent in children with ADHD, more obvious than internalizing symptoms and may create more problems for parents than internalizing symptoms. Until more recently, clinicians and researchers also overlooked internalizing symptoms in children with ADHD, suggesting that children with internalizing disorders and those with externalizing disorders were very distinct groups (Lilienfeld, 2003).

Even with the field's increasing awareness of what constitutes ADHD, however, there is still much debate about what defines a subtype of ADHD, and whether and to what extent subtypes should be defined as separate and distinct disorders (Power, Costigan, Eiraldi & Leff, 2004). This debate signifies that ADHD is a complex disorder that professionals are only beginning to understand.

Another possibility is that child reports of maternal lack of acceptance were not significant predictors in any analyses because mothers reported everything else in those analyses (i.e., children's ADHD symptomatology, internalizing and externalizing symptoms). Thus, it is not surprising that a parent-report variable (i.e., ADHD symptoms) accounted for significantly more variance in another parent-reported variable (i.e., internalizing and externalizing symptoms) when compared to child-reported predictor (i.e., Child PARQ). In addition to common method variance, common reporter and common construct variance may have exaggerated the relationship between parent variables and effectively lessened the contributions of child-report variables. Further evaluation is needed to determine whether and to what extent children's reports of their mother's lack of acceptance serve as a risk factor for adjustment problems.

Importantly, the children who were recruited for the current study were already diagnosed with ADHD. Children's parents and teachers then completed the ADHD Rating Scale, a measure often used to diagnose childhood ADHD, to confirm children's diagnoses. Researchers did not administer a clinical interview to the children in the study. Without a clinical interview it would be inappropriate to diagnose ADHD. Future studies need to include a clinical interview, in addition to parent and teacher reports on the ADHD Rating Scale to diagnose ADHD.

Mother-Child Agreement about Parenting Behaviors

In addition, mothers reported significantly less Lack of Warmth/Affection toward their children than children reported. Child age also predicted parent-child disagreement in reports of Lack of Warmth/Affection, but differences were driven by variability among mothers rather than children. Specifically, mean group comparisons revealed that older and younger children perceive similar levels of maternal warmth and affection, but mothers of younger children rate themselves as significantly warmer when compared to mothers of older children. The findings for mother-child differences in maternal Indifference/Neglect paralleled those of Lack of Warmth/Affection, in which younger and older children consistently rated their mothers as relatively more indifferent and neglectful and mothers' reports varied across child age.

Although child age was expected to predict parent-child disagreement, that hypothesis was based on previous literature that suggested younger children were less capable of valid reporting. The expectation of less valid reports from younger children may not have materialized due to administration procedures that aided children's comprehension and increased their candor. Specifically, graduate students in clinical and counseling psychology training programs read questions aloud while children followed along on their own copies of the questionnaires. In addition, the Child PARQ/Control was adapted so that children made two separate forced choices in response to each item rather than discriminating across a four-point scale.

There are several possible explanations for why mothers of older and younger children differed in their reports of maternal warmth, affection, indifference and neglect. The most parsimonious explanation is that mothers' behaviors actually change as children age. For example, as children get older, parents may be less likely to express their affection (i.e., cuddling, praising their children), perhaps assuming that their more mature child does not need

as much physical affection and verbal encouragement as he or she did in the past. Likewise, mothers may become less attentive to their older child (i.e., not responding to their needs as consistently or quickly, decreased participation in child's activities) in an effort to help their child develop independence. To a certain extent, perhaps it is considered more socially acceptable to have more direct involvement with younger children compared to older children, so mothers were likely confident in honestly reporting their decreased warmth and attention towards their older child. Alternatively, mothers might not be defensive about their relatively lower levels of warmth and attention toward older children because they are confident that their love for their child has not waned, even if outward manifestations have lessened over time. It is unclear, however, why younger children perceive their mothers to be less warm and affectionate than their mothers are reporting. No matter what factors contribute to the discrepancy between the perceptions of maternal warmth of mothers and their younger children, this issue merits further research investigation as well as consideration during parent training, parent education classes, and family therapy.

If mothers really are treating older and younger children significantly differently, it is curious that children are not perceiving/reporting that. One possible explanation of this finding may relate to competition and jealousy among siblings. That is, older siblings who are no longer being held, rocked, or physically carried as they were earlier in childhood might compare that experience to their mothers' levels of physical involvement with their younger sibling(s) and perceive this as maternal indifference and a lack of maternal warmth. Alternatively, perhaps older children under-report the warmth and affection they receive out of concern that such direct manifestations of love are 'babyish'.

At the same time, however, a similar phenomenon may be happening among the younger children in the sample in that these 6 to 8 year-olds are comparing their experiences of maternal affection and attention to the levels that their middle school-aged siblings are receiving. For instance, younger children may be jealous of their older siblings who receive certain privileges as a result of being older (i.e., staying up later, more independence); younger children might interpret those privileges to mean that their mothers ”like” their older siblings more and are relatively “nicer” to them.

Finally, there was a significant difference between parent and children’s reports of maternal Hostility/Aggression, with mothers reporting significantly more hostility and aggression than their children. Child age and child gender significantly predicted this difference. Specifically, when children are younger, the differences in mother and child reports are small and similar for boys and girls. Among older children, however, mothers and daughters are in even closer agreement about low levels of maternal hostility and aggression. Mothers of older boys and these older sons, on the other hand, have very discrepant reports of maternal hostility and aggression. Specifically, on average, mothers of older boys report the highest levels of maternal aggression and hostility while the boys who would be the recipients of this type of parenting actually give their mothers the lowest average aggression scores of any group in the sample.

Public records indicate that mothers mistreat sons more often than daughters (Thompson, Kingree & Desai, 2004), which is consistent with the current finding of significantly more maternal hostility toward boys than girls. Importantly, however, mothers’ relatively higher scores on this subscale were only indicative of occasional aggression and hostility (e.g., “I yell at my child ‘some of the time’”), which may further explain their willingness to acknowledge it. In

addition, some forms of aggression towards one's children (e.g., corporal punishment) remain socially acceptable, especially in southern United States (Flynn, 1996). Thus, mothers in this southern-based study may have felt comfortable being candid, especially when completing questionnaires anonymously and in private.

The children in this study, however, were not likely to feel anonymous, as they completed questionnaires with the assistance of a research assistant. Older boys may have under-reported maternal Hostility/Aggression for fear of repercussions from agencies like child protective services. Another possible explanation is that boys may be less likely to acknowledge harsh behaviors from their mothers because they want to seem unaffected by it, perhaps in an effort to preserve a sense of masculine 'toughness'. Alternatively, boys may not perceive their mother's self-reported levels of hostility and aggression as particularly hostile or aggressive. That is, because boys often engage in physically rough interactions with their peers (e.g., 'play-fighting,' hitting, wrestling and pushing) (Humphreys & Smith, 1987), their mothers' yelling or spanking may not seem particularly aggressive to them in comparison.

Finally, the hostility/aggression subscale includes several items about indirect maternal aggression/hostility that children may not be aware of and, thus, unable to accurately report. For example, an item on this subscale is "I complain about my child to others when (s)he does not listen to me." It is likely that children will not be privy to all of their mother's conversations and, thus, not know the extent to which their mothers are speaking about them to other people; mothers, on the other hand, may be more accurate reporters on these types of items.

In hindsight, it is not surprising that mothers' social desirability scores did not predict differences in parent-child reports of maternal behaviors because difference scores depend on child as well as mother reports. An examination of correlations between parent social desirability

and self-reports of maternal behaviors, however, revealed significant, albeit small, correlations for the Lack of Warmth and Indifference/Neglect scales. Consistent with the aforementioned interpretation of mothers' reports of Aggression/Hostility as candid, social desirability was not significantly correlated with that scale.

Clinical Implications

Results of the current study indicate that more rejecting mothers may be less attuned to their children's subtle symptoms of distress associated with depression and anxiety. As such, it will be important for professionals working with these families in therapy to first evaluate mothers' level of attunement to these symptoms and then work to increase awareness of children's symptoms when needed. In addition, less accepting mothers might blame their children for their depression, anxiety and somatization, possibly lacking the sensitivity to understand that these children cannot make themselves feel better without help. Another goal for professionals, therefore, will be to educate family members about possible etiologies of depression and anxiety to help these mothers understand that neither they nor their children are to blame, or at fault for their internalizing symptoms.

In addition, maternal lack of acceptance may act as a risk factor for increased chances of externalizing symptoms for children who exhibit hyperactivity and impulsivity. Therefore, professionals working with families with an ADHD child will want to assess for maternal lack of acceptance. More rejecting mothers may attribute their child's externalizing symptoms to internal causes, believing that their child could 'stop misbehaving if they wanted to.' These mothers may be unaware that their lack of acceptance may also be largely contributing to their children's problems. Professionals can help mothers recognize that their behaviors are a risk

factor for increased externalizing symptoms. As such, parent-training classes focused on teaching these mothers how to respond to their children's problematic behaviors with less lack of acceptance and anger (i.e., yelling, hitting) will hopefully provide a first Step at allaying some of these children's externalizing behaviors. At the same time, these children are hard to parent and likely add a significant amount of stress to the home environment, so processing parents' feelings of frustration and anger will be helpful for them and may also help in decreasing negative parenting over time.

Additionally, this study indicates that mothers and their children have different perceptions of parenting behaviors, and that across age, children perceive their parents to be less warm and attentive than parents perceive. Previous research findings have suggested that larger discrepancies in parent-child reports, in which children experience less support, are predictive of negative outcomes for children (i.e., increased internalizing and externalizing symptoms) (Gaylord, Kitzmann & Coleman, 2003). Therefore, it will be important for professionals to help families address reasons behind these discrepancies in family therapy and work with parents and their children to understand both perspectives and decrease the chance of misunderstandings and possible negative outcomes for children.

Even though mothers' feelings of love do not change toward their children over time, children may perceive that they do. As such, parent training and parent education classes might focus on working with parents to provide more concrete examples of their warmth, affection and attention. Helping parents increase ways to show their children that they are as invested as ever might help lessen children's negative perceptions of their mothers' parenting behaviors and possible negative outcomes for children.

Limitations and Future Research Directions

The primary limitation of the current research is the demographic homogeneity of the sample. Specifically, results cannot be generalized beyond White, middle class, southern mother-child dyads. While the study actively recruited families from all ethnic backgrounds, the sample was predominately Caucasian. Therefore, the results of the current study are somewhat limited to a White population, and no definite conclusions can be made based on mother-child agreement that may be present in different ethnic and cultural groups. In addition, the current sample lacked diversity in socioeconomic status, as most families' income in the current study fell in the $60-70,000 range. Finally, a majority of primary guardians in the current study were mothers; as such, only mother-child dyads were included in analyses. Future studies might recruit more father-child dyads because fathers and their children likely have different interactions and patterns of agreement than mothers and their children.

With regards to the Child PARQ/Control, children were read the questions aloud by a graduate student in clinical and counseling psychology and asked to circle or check off their own answers. Even though this approach likely improved clarity of questions and made it easier for children to answer accurately, it may have also increased social desirability in children's responses. Future research studies that employ this technique may consider adding a measure of child social desirability to control for its effect on children's responding on self-report measures. Positive illusory bias may have also played a role in children's responses. Positive illusory bias is when individuals overestimate their competence relative to their actual competence (Owens, Goldfine, Evangelista, Hoza & Kaiser, 2007). Typically, a positive illusory bias is said to be adaptive in that it enhances motivation, performance and task persistence. Children with ADHD, however, have a positive illusory bias but give up more frequently on

tasks and perform poorer on tasks than their peers (Owens, Goldfine, Evangelista, Hoza & Kaiser, 2007). Research examining the extent to which children with ADHD apply a positive illusory bias to others' skills and behaviors is limited and contradictory (Cadesky, Meta & Schachar, 2000; Whalen, Henker & Granger, 1990). However, some findings would support the notion that children with ADHD may overestimate others' competence (Sprouse, Hall, Webster & Bolen, 1998; Whalen, Henker & Granger, 1990), possibly including their mothers' levels of acceptance This overestimation would likely contribute to a lack of significance in analyses involving child-reported maternal lack of acceptance. Future studies should consider the role that positive illusory bias may play when ADHD children are reporting on others' behaviors.

It is curious that younger and older children consistently rate their mothers as less warm and attentive. One explanation for this finding is that older and younger siblings both feel like they are being somewhat neglected, perhaps as a consequence of differential treatment by parents and resulting sibling jealousy. While previous research findings support the notion that parents do treat their children differently, and that children interpret the differential treatment as a measure of the love, lack of acceptance, and inclusion they are receiving from their parents (Brody, 2004), researchers have focused on birth order and parent and child sex rather than child age. Future research might benefit from examining the relationship between younger pre-school aged and older middle school aged siblings' views of their parents' treatment of them and to evaluate the possibility that sibling jealously might contribute to this consistent under-reporting of mother's positive behaviors across child age.

APPENDIX

SUPPLEMENTAL TABLES

Table A.1

Demographic Characteristics of Overall Sample (n = 209)

				ADHD		No ADHD			
	Characteristic	*n*	%	*n*	%	*n*	%	t/χ2	*p*
Age of Child (years)	6	5	2.4						
	7	61	29.2						
	8	58	27.8						
	9	53	27.8						
	10	24	11.5						
	11	8	3.8						
	Mean Child Age			8.44		8.08		2.06	.041
	Mean Parent Age			36.93		37.61		-.77	.442
Ethnicity of Child Participants	European American	179	85.6	98	98.0	2	2		
	Minority	16	7.7	81	97.6	2	2.4		
	All							.036	.850
Ethnicity of Parent Participants	European American	179	85.6	88	88.0	75	88.2		
	Minority	30	14.4	12	12	10	11.8		
	All							.002	.961
Sex of Child	Boy	119	56.9	62	61.4	45	52.9		
	Girl	90	43.1	39	38.6	40	47.1		
	All							1.35	.246
Education Level	H.S. Diploma	59	28.2	33	36.7	22	26.5		
	Secondary Education	134	64.1	57	63.3	61	73.5		
	All							2.06	.152
Classification of Child	Yes ADHD	101	48.3						
	Control	85	40.7						
	Unclear	23	11.0						

Table A.2

Internal Consistencies for ADHD Rating Scale-IV (School & Home Versions), CBCL, Child and Parent PARQ, and MCMI Social Desirability Scale

Subscale	*α*	*n*
ADHD Rating Scale-IV: Home Version	.88	208
Inattentive Symptoms	.96	208
Hyperactive/Impulsive Symptoms	.94	208
ADHD Rating Scale-IV: School Version	.88	134
Inattentive Symptoms	.94	136
Hyperactive/Impulsive Symptoms	.96	134
Child Behavior Checklist		
Internalizing Composite	.90	208
Externalizing Composite	.93	208
Child PARQ	.79	208
Lack of Warmth/Affection	.84	208
Indifference/Neglect	.74	208

Rejection "Undifferentiated"	.72	208
Hostility/Aggression	.79	208
Control	.89	208
Parent PARQ	.85	206
Lack of Warmth/Affection	.76	206
Indifference/Neglect	.66	206
Rejection "Undifferentiated"	.68	206
Hostility/Aggression	.76	206
Control	.82	206
MCMI-III	.93	204
Social Desirability Scale (Y Scale)	.76	204

Table A.3

Descriptive Statistics for Variables

Subscale	Range	*M*	*SD*	*Skew*	*Kurtosis*	*n*
ADHD Rating Scale-IV: Home Version						
Inattentive Symptoms	0-27	13.81	9.07	-.052	-1.44	209
Hyperactive/Impulsive Symptoms	0-27	12.63	9.06	.082	-1.51	209
ADHD Rating Scale-IV: School Version						
Inattentive Symptoms	0-27	11.65	8.67	.201	-1.29	136
Hyperactive/Impulsive Symptoms	0-27	9.87	8.05	.410	-1.04	134
Child Behavior Checklist						
Internalizing Composite	33-82	55.76	12.39	.735	-.89	204
Externalizing Composite	30-82	56.34	12.12	.068	-.81	207
Child PARQ	65-158	97.40	18.51	.822	1.04	209
Lack of Warmth/Affection	49-80	70.62	5.84	-.95	1.21	169
Indifference/Neglect	16-43	26.29	5.31	.76	.97	209

Hostility/Aggression	15-54	25.02	6.77	1.08	2.40	209
Parent PARQ	61-134	90.54	15.24	.52	-.095	209
Lack of Warmth/Affection	59-80	74.87	4.97	-1.35	1.52	159
Indifference/Neglect	15-34	22.18	4.56	.413	-.75	209
Hostility/Aggression	15-43	27.96	6.10	.112	-.504	209
MCMI-III						
Social Desirability Scale (Y Scale)	10-100	65.28	1.29	-.719	.527	203

Note: The means and standard deviations presented were derived from the non-centered, non-standardized, and non-transformed variables.

Table A.4

Intercorrelations among Variables

	1	2	3	4	5	6	7	8	9	10	11
1. Parent Social Desirability											
2. Child Age	-.007										
3. Child-PARQ Hostility/ Aggression	----	-.143*									
4. Child-PARQ Indifference/Neglect	----	-.128	.649**								
5. Child-PARQ Lack of Warmth/Affection	----	.050	-.386**	-.537**							
6. Parent-PARQ Hostility/Aggression	-.105	.146*	.131	----	----						
7. Parent-PARQ Indifference/Neglect	-.263**	.214**	----	.046	----	----					
8. Parent-PARQ Lack of Warmth/Affection	.147*	-.337**	----	----	.200**	----	----				
9. Lack of Warmth/ Affection Difference	-.052	.248**	----	----	.354**	----	----				
10. Hostility/ Aggression Difference	-.103	.159*	.113	----	----	1.00**	----	----	----		
11. Indifference/ Neglect Difference	-.409	.309**	----	-.153*	----	----	.562**	----	.494**	----	

Note: ** Coefficients are significant at $p < .01$.

* Coefficients are significant at $p < .05$.

Table A.5

Test of Moderation: Hierarchical Multiple Regression Analysis Predicting Internalizing Symptoms from Inattentive Symptoms, Mother-Reported Lack of Acceptance and their Interaction (n = 209)

Variable	*B*	*SE B*	*β*	*t*	*p*
Dependent Variable: Internalizing Symptoms					
Step 1					
Constant	66.17	3.17		20.85	.000
Parent Social Desirability	-.16	.05	-.24	-3.41	.001
Step 2					
Constant	61.26	2.64		22.91	.000
Parent Social Desirability	-.09	.04	-.13	-2.15	.033
Mother-Reported Lack of Acceptance	.17	.05	.21	3.35	.001
Mother-Reported Child Inattention	.18	.03	.44	7.04	.000
Step 3					
Constant	62.30	2.69		23.15	.000
Parent Social Desirability	-.09	.04	-.13	-2.25	.025
Mother-Reported Lack of Acceptance	.22	.06	.27	3.94	.000
Mother-Reported Child Inattention	.14	.03	.36	4.91	.000
Inattention X Maternal Lack of Acceptance	-.00	.00	-.15	-2.17	.031
Overall $F(4, 196) = 29.58$, $p = .000$					

Note: Adj $R^2 = .051$ for Step 1; $\Delta R^2 = .309$ for Step 2; $\Delta R^2 = .015$ for Step 3.

Table A.6

Test of Moderation: Hierarchical Multiple Regression Analysis Predicting Internalizing Symptoms from Mother-Reported Lack of Acceptance, Mother-Reported Child Hyperactive/Impulsive Symptoms, and their Interaction (n = 209)

Variable	*B*	*SE B*	*β*	*t*	*p*
		Dependent Variable: Internalizing Symptoms			
Step 1					
Constant	66.17	3.17		20.85	.000
Parent Social Desirability	-.16	.05	-.24	-3.41	.001
Step 2					
Constant	60.79	2.74		22.15	.000
Parent Social Desirability	-.08	.04	-.12	-1.92	.057
Mother-Reported Lack of Acceptance	.20	.05	.25	3.92	.000
Mother-Reported Child H/I	.18	.03	.40	6.23	.000
Step 3					
Constant	61.51	2.70		22.83	.000
Parent Social Desirability	-.07	.04	-.11	-1.85	.065
Mother-Reported Lack of Acceptance	.25	.05	.31	4.72	.000
Mother-Reported Child H/I	.14	.03	.31	4.58	.000
H/I X Maternal Lack of Acceptance	-.01	.00	-.20	-3.13	.002
		Overall $F(4, 193) = 28.06$, $p = .000$			

Note: Adj $R^2 = .051$ for Step 1; $\Delta R^2 = .280$ for Step 2; $\Delta R^2 = .032$ for Step 3.

Table A.7

Test of Moderation: Hierarchical Multiple Regression Analysis Predicting Externalizing Symptoms from Mother-Reported Lack of Acceptance, Mother-Reported Child Hyperactive/Impulsive Symptoms, and their Interaction (n = 209)

Variable	*B*	*SE B*	*β*	*t*	*p*
		Dependent Variable: Externalizing Symptoms			
Step 1					
Constant	62.84	3.13		20.06	.000
Parent Social Desirability	-.10	.05	-.15	-2.15	.033
Step 2					
Constant	55.88	2.15		26.03	.000
Parent Social Desirability	.01	.03	.01	.22	.033
Mother-Reported Lack of Acceptance	.17	.04	.21	4.16	.830
Mother-Reported Child H/I	.28	.02	.65	12.77	.000
Step 3					
Constant	55.78	2.16		25.84	.000
Parent Social Desirability	.01	.03	.01	.20	.845
Mother-Reported Lack of Acceptance	.16	.04	.20	3.83	.000
Mother-Reported Child H/I	.29	.02	.66	11.90	.000
H/I X Maternal Lack of Acceptance	.00	.00	.03	.58	.564
		Overall $F(4, 196) = 64.68$, $p = .000$			

Note: Adj $R^2 = .018$ for Step 1; $\Delta R^2 = .546$ for Step 2; $\Delta R^2 = .001$ for Step 3.

Table A.8

Test of Moderation: Hierarchical Multiple Regression Analysis Predicting Internalizing Symptoms from Child-Reported Maternal Lack of Acceptance, Mother-Reported Child Inattentive Symptoms, and their Interaction (n = 209)

Variable	*B*	*SE B*	*β*	*t*	*p*
Dependent Variable: Internalizing Symptoms					
Step 1					
Constant	55.76	.73		76.70	.000
Mother-Reported Child Inattention	.22	.02	.55	9.26	.000
Child-Reported Maternal Lack of Acceptance	-.82	9.26	-.01	-.09	.930
Step 2					
Constant	55.65	.74		74.98	.000
Mother-Reported Child Inattention	.23	.03	.56	9.12	.000
Child-Reported Maternal Lack of Acceptance	-2.13	9.45	-.01	-.23	.822
Inattention X Maternal Lack of Acceptance	.24	.33	.04	.71	.480
Overall $F(3, 200) = 29.50$, $p = .000$					

Note: Adj $R^2 = .298$ for Step 1; $\Delta R^2 = .002$ for Step 2

Table A.9

Test of Moderation: Hierarchical Multiple Regression Analysis Predicting Internalizing Symptoms from Child-Reported Maternal Lack of Acceptance, Mother-Reported Child Hyperactive/Impulsive Symptoms, and their Interaction (n = 209)

Variable	*B*	*SE B*	*β*	*t*	*p*
		Dependent Variable: Internalizing Symptoms			
Step 1					
Constant	55.75	.75		74.47	.000
Child-Reported Maternal Rejection	4.31	9.46	.03	.46	.644
Mother-Reported Child H/I	.23	.03	.51	8.32	.000
Step 2					
Constant	55.87	.76		74.00	.000
Child-Reported Maternal Rejection	5.82	9.53	.04	.61	.542
Mother-Reported Child H/I	.22	.03	.50	8.17	.000
H/I X Maternal Rejection	-.44	.37	-.07	-1.19	.235
		Overall $F(4, 193) = 25.58$, $p = .000$			

Note: Adj $R^2 = .256$ for Step 1; $\Delta R^2 = .005$ for Step 2

Table A.10

Test of Moderation: Hierarchical Multiple Regression Analysis Predicting Externalizing Symptoms from Child-Reported Lack of Acceptance, Mother-Reported Child Hyperactive/Impulsive Symptoms, and their Interaction (n = 209)

Variable	*B*	*SE B*	*β*	*t*	*p*
Dependent Variable: Externalizing Symptoms					
Step 1					
Constant	56.36	.58		97.38	.000
Child-Reported Maternal Lack of Acceptance	7.23	7.31	.05	.99	.324
Mother-Reported Child H/I	.31	.02	.72	14.95	.000
Step 2					
Constant	56.31	.59		96.21	.000
Child-Reported Maternal Lack of Acceptance	6.69	7.38	.04	.91	.366
Mother-Reported Child H/I	.31	.02	.73	14.91	.000
Maternal Lack of Acceptance X Child H/I	.16	.28	.03	.58	.564
Overall $F(3, 203) = 77.26$, $p = .000$					

Note: Adj $R^2 = .528$ for Step 1; $\Delta R^2 = .001$ for Step 2

Table A.11

Test of Moderation: Hierarchical Multiple Regression Analysis Predicting Externalizing Symptoms from Child-Reported Lack of Maternal Acceptance, Mother-Reported Child Hyperactive/Impulsive Symptoms, and their Interaction (Mothers with an ADHD child only)(n = 60)

Variable	*B*	*SE B*	*β*	*t*	*p*
Dependent Variable: Externalizing Symptoms					
Step 1					
Constant	56.36	.58		97.38	.000
Child-Reported Lack of Maternal Acceptance	7.23	7.31	.05	.99	.324
Mother-Reported Child H/I	.31	.02	.72	14.95	.000
Step 2					
Constant	56.31	.59		96.21	.000
Child-Reported Lack of Maternal Acceptance	6.69	7.38	.04	.91	.366
Mother-Reported Child H/I	.31	.02	.73	14.91	.000
Lack of Maternal Acceptance X Child H/I	.16	.28	.03	.58	.564
Overall $F(3, 203) = 77.26$, $p = .000$					

Note: Adj $R^2 = .057$ for Step 1; $\Delta R^2 = .093$ for Step 2.

Table A.12

Paired Sample t Tests: Difference between Child and Mother Reports of Maternal Lack of Warmth/Affection, Hostility/Aggression and Indifference/Neglect (N = 209)

Variable	Parent Report		Child Report			
	M	*SD*	*M*	*SD*	*t*	*p*
Lack of Warmth/Affection	.64	.37	1.46	.08	-30.81	.000
Hostility/Aggression	27.96	6.12	25.02	6.77	5.00	.000
Indifference/Neglect	22.18	4.56	26.29	5.31	-8.69	.000

Table A.13

Multiple Regression: Predictors of the Difference between Child and Mother Reports of Maternal Lack of Warmth/Affection

Variable	*B*	*SE B*	β	*t*	*p*
Child Age	.008	.002	.309	4.59	.000
Parent Social Desirability	-.001	.001	-.057	-.85	.398
Child Gender	-.040	.052	-.052	-.77	.444
	Overall $F(3, 199) = 7.46$, $p = .000$ (Adj. $R^2 = .088$, $p = .000$)				

Note: Gender was coded with 'girl' as 1 and 'boy' as 2

Table A.14

Multiple Regression: Predictors of the Difference between Child and Mother Reports of Maternal Aggression/Hostility

Variable	*B*	*SE B*	β	*t*	*p*
Child Age	.072	.029	.167	2.46	.015
Parent Social Desirability	-.035	.023	-.105	-1.55	.123
Child Gender	2.65	.833	.216	3.18	.002
Overall $F(3, 199) = 6.03$, $p = .001$ (Adj. $R^2 = .069$, $p = .001$)					

Note: Gender was coded with 'girl' as 1 and 'boy' as 2

Table A.15

Multiple Regression: Predictors of the Difference between Child and Mother Reports of Maternal Indifference/Neglect

Variable	*B*	*SE B*	β	*t*	*p*
Child Age	.121	.033	.250	3.65	.000
Parent Social Desirability	-.022	.026	-.058	-.84	.400
Child Gender	.487	.944	.035	.52	.607
Overall $F(3, 199) = 4.70$, $p = .003$ (Adj. $R^2 = .052$, $p = .003$)					

Note: Gender was coded with 'girl' as 1 and 'boy' as 2

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