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Research has shown that child and maternal factors contribute to parenting stress and depression among mothers of children with AD/HD. The purpose of the current study was to identify the extent to which maternal cognitive distortions are associated with parenting stress and depression. Twenty-four mothers of children with AD/HD completed measures of child and maternal psychopathology as well as maternal cognitive distortions. Both maternal depression and parenting stress were predicted by maternal characteristics above child characteristics. Child internalizing behaviors and parenting-specific cognitive distortions predicted whether mothers were classified as stressed or stressed and depressed. The results indicated that cognitive distortions, especially those pertaining to parenting, play a significant role in the distress experienced by mothers of children with AD/HD.

# MATERNAL DEPRESSION AND PARENTING STRESS AMONG FAMILIES OF CHILDREN WITH AD/HD: CHILD AND FAMILY CORRELATES

by

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# CHAPTER I

## INTRODUCTION

Bronfenbrenner (1986) describes the family as a dynamic system in which each member impacts all others. Accordingly, although diagnoses such as Attention-Deficit/Hyperactivity Disorder (AD/HD) are given to individuals, the entire family, especially parents, will be affected in some way. In some cases the strain associated with raising a child with AD/HD can be quite severe. Many parents of children with AD/HD experience significant parenting stress, and research has shown that this stress is, at least in part, attributable to their children's disruptive behavior (Mash & Johnston, 1983). Although not as prevalent as parenting stress in this population, depression is also more common among parents of children with AD/HD than among other parents (Befera & Barkley, 1985). The distress experienced by parents appears to be related to characteristics of the parent as well as to those of the child (Anastopoulos, Guevremont, Shelton, & DuPaul, 1992). Harrison and Sofronoff (2002) indicate that both parenting stress and depression are associated with child externalizing behaviors as well as with the causal attributions parents make about their children's behaviors. The finding that parents thoughts are linked to parental impairment is consistent with the cognitive model which asserts that emotions are closely tied to people's perceptions of the world around them (Beck, 1995). In what other ways might Beck's cognitive model apply to parents of children with AD/HD? Cognitive distortions (i.e., overly negative and erroneous

interpretations of the self and the surrounding environment) are a key component of Beck's model (1995). Could the presence and severity of parental cognitive distortions, in addition to child externalizing behaviors, help explain why some mothers of children with AD/HD experience significant levels of parenting stress and some experience both parenting stress and depression, while others experience little to no impairment at all?

To properly address this question, it will first be necessary to review how the features of child AD/HD contribute to parents' experiences of parenting stress and depression. Following this review, the possibility of a link between cognitive distortions and the severity of parental impairment will be introduced within the framework of a cognitive theory of depression.

*Attention-Deficit/Hyperactivity Disorder*

Approximately 3 – 7% of school-age children carry a diagnosis of AD/HD (APA, 2000). Although typically diagnosed during childhood, symptoms of AD/HD appear to persist into adulthood as recent national survey results estimate the prevalence of adult AD/HD at 4% (Kessler, et al.). By definition, AD/HD involves significant impairment in a combination of home, school, and social settings (APA, 2000). This impairment must be evident before the age of 7. Furthermore, impairment must be accompanied by the presence of a significant number of symptoms associated with AD/HD. These symptoms fall into an inattention category and a hyperactivity/impulsivity category (9 symptoms each). Examples of inattention symptoms include: "often has difficulty sustaining attention in tasks or play activities" and "often has difficulty organizing tasks and

activities." Examples of hyperactivity/impulsivity symptoms include: "often fidgets with hands or feet or squirms in seat" and "often interrupts or intrudes on others" (APA, 2000). These two categories of symptoms allow for the diagnosis of the three subtypes of AD/HD: predominantly inattentive type, predominantly hyperactive/impulsive type, and combined type. The predominantly inattentive subtype is assigned to people who exhibit six or more inattention symptoms but fewer than six hyperactivity/impulsivity symptoms, and vice versa for the predominantly hyperactive/impulsive type. When a person displays six or more symptoms from both categories, the combined type diagnosis is made.

*Impairment and Comorbidity*

Evidence of impairment associated with AD/HD can be seen in school, social, and home settings (APA, 2000). In a meta-analysis addressing the cognitive and academic functioning of children with AD/HD, Frazier, Demaree, and Youngstrom (2004) found the disorder to be associated with poorer performance on academic tests and that the poorer performance may be a result of cognitive deficits as well as behavior problems that disrupt the learning process. The same behaviors that impair academic functioning could also contribute to the social difficulties experienced by children with AD/HD. These children are less well-liked than other children, they have fewer friendships, and those friendships they do have are of low social desirability (Hoza, et al., 2005). At home, children with AD/HD experience more conflict with family members than do other children (for a review, see Johnston & Mash, 2001). Parents of children with AD/HD have been found to use more directives and respond more negatively than parents of children without AD/HD, suggesting that parent-child interactions seem to be less

positive when children have AD/HD (Mash & Johnston, 1982; Tallmadge & Barkley, 1983). Sibling interactions also seem to involve higher rates of conflict when one sibling has AD/HD (Mikami & Pfiffner, 2008). Taken together, the increased rate of family conflict, poor social skills, and impaired academic functioning associated with AD/HD are often sufficient to cause significant disruption to children's day-to-day lives. Unfortunately, this disorder is all too often not the only one with which they struggle.

The comorbidity rates among children with AD/HD are alarmingly high. Both oppositional defiant disorder (ODD) and conduct disorder (CD) have been linked to AD/HD (Jensen, Martin, & Cantwell, 1997). This is troublesome because open acts of defiance, like those associated with ODD and CD, can cause parents and teachers enormous frustration and can lead to the student being suspended or expelled from school. Although to a lesser degree than ODD and CD, internalizing disorders such as depression, dysthymia, and various anxiety disorders are also more common among those with AD/HD (August, et al. 1996). In addition to increased rates of internalizing and externalizing disorders, the prevalence of learning disorders appears to be higher in this population as well (Semrud-Clikeman, et al., 1992). The fact that AD/HD seems to place children at higher risk for a wide array of other psychopathology provides further evidence of the pervasive nature of the impairment associated with this disorder.

In light of the myriad challenges faced by children with AD/HD and in keeping with a family systems approach, it is important to consider the impact that raising a child with AD/HD has on parents.

*Functioning of Mothers of Children with AD/HD*

Consistent with Bronfenbrenner's (1986) theory of the family system, the impairment associated with AD/HD reaches beyond the individual with AD/HD. As previously discussed, interactions in families of children with AD/HD involve more conflict than in other families. In addition to this increased conflict, the impairment experienced by family members can exist outside the confines of their interactions with the AD/HD child. Because parents are typically held accountable for ensuring their children's success in life, they may be particularly vulnerable to the negative effects of raising a child with AD/HD. When a child struggles academically, has problems with peers, and disrupts the home environment, parents cannot help but feel some level of frustration.

Mothers may be especially susceptible to the consequences of raising a child with AD/HD, although not all mothers experience impairment to the same degree. Research suggests that both parenting stress and depression are more prevalent among mothers of children with AD/HD than among other mothers (Anastopoulos, et al., 1992; Breen & Barkley, 1988; Bussing, et al., 2003; Nigg & Hinshaw, 1998; Podolski & Nigg, 2001; Shaffer, 1999). Parenting stress is the frustration and dissatisfaction that occurs when the parenting experience fails to meet parents' expectations in some way. Although stressors outside the parent-child relationship (e.g., work, finances, etc.) likely impact parents' ability to cope with stressors within the parent-child relationship, parenting stress refers only to the strain that originates from the parenting role. Parents experiencing parenting stress may feel that the task of raising children is more difficult than they had expected or

that they do not have as strong parenting skills as they had previously thought. These parents may find that their relationships with their children are not as close or as rewarding as they would have liked, or they may think that their children do not behave as well as other children. In their review, Mash and Johnston (1990) describe parenting stress as a function of many characteristics of the parent, the child, and the surrounding environment. Specifically, they discussed the roles of child behavior problems, parental cognitions, and parental affective states, as all three likely contribute to parenting stress and vice versa. Mash and Johnston's (1990) inclusion of parental characteristics in a model of parenting stress is of particular interest because both parental cognitions and affective states are closely tied to another problem among some mothers of children with AD/HD, major depression.

Major depression is a disorder marked by the presence of depressed mood, loss of interest in pleasurable activities, sleep disturbances as well as other symptoms that lead to a significant disruption of daily functioning (APA, 2000). More prevalent in women than in men, 5% to 9% of women report experiencing major depression at some point in their lives (APA, 2000). Among mothers of children with AD/HD, the prevalence of major depression is considerably higher than among the general population. In a study examining the relationship between parenting a child with AD/HD and parental psychopathology, 18% of mothers of sons with AD/HD reported experiencing major depression in the previous year while no mothers of sons without AD/HD reported experiencing major depression during this time period (Nigg & Hinshaw, 1998). In a separate study, mothers of boys and girls with AD/HD reported more depression than did

mothers of children without AD/HD (Befera & Barkley, 1985). These findings suggest that the task of raising a child with AD/HD may play a significant role in mothers' mental health; however, other factors likely contribute.

Aware of the increased incidence of parenting stress and depression among mothers of children with AD/HD, researchers began to investigate the underlying factors contributing to the high level of distress in this population. Studies have shown that mothers' parenting stress and depression are related not only to the severity of child behavior problems but also to mothers' causal attributions for their children's behavior and mothers' self-report of general cognitive distortions (Harrison & Sofronoff, 2002; Mash & Johnston, 1983). Furthermore, maternal depression appears to be more severe among mothers who engage in more parent-role-specific cognitive distortions (Shaffer, 2003).

It is important to keep in mind that parenting stress and maternal depressive symptoms are not mutually exclusive. One study, examining the relative frequencies of parenting stress and depression among mothers of children with AD/HD, found that the majority experience parenting stress (63.6%), while some experience both parenting stress and depression (15.2%), others report experiencing neither (18.2%), and almost no mothers report experiencing depression without parenting stress (3.0%; Shaffer, 1999). Because major depression is a psychological disorder that typically requires treatment, it would be useful to identify which, if any, child and parent characteristics would allow differentiation between those mothers who are stressed and those who are both stressed and depressed. If identified, such characteristics could be the focus of future research

addressing potential risk factors for developing depression on top of parenting stress or research addressing potential targets for interventions for mothers with both parenting stress and depression. There are many factors within the family system that may play a role in maternal depression. Perhaps the strain of raising a child with AD/HD causes marital problems, which then lead to depression. Maybe husbands also have AD/HD, and the task of coping with a spouse and child with AD/HD is linked to maternal depression. On the other hand, maybe these mothers, like their children, have AD/HD and become depressed because they lack the organizational skills to successfully run their lives and their children's. In addition to these possibilities, cognitive theory of depression would suggest that the presence and severity of mothers' cognitive distortions may also help to explain differences between mothers who are stressed and depressed and those who are only stressed.

*Cognitive Theory and Maternal Depression*

As described by Beck, Rush, Shaw, and Emery (1979), cognitive theory of depression defines the disorder in terms of a diathesis-stress model. According to Beck and colleagues (1979), depression can occur when people with a maladaptive cognitive pattern experience significant life stress. This maladaptive cognitive pattern is thought to consist of a fundamentally flawed concept of the self and the surrounding world that then triggers negative automatic thoughts and depressed affect. For example, people prone to depression may have a core belief that they are worthless which causes them to automatically interpret life events in an overly negative manner. So, when their children misbehave or struggle to do well in school, parents prone to depression may

automatically think their children are having problems because they are bad parents. Thoughts such as these are referred to as cognitive distortions.

According to Beck (1995), cognitive distortions are examples of automatic thoughts that are at least partially untrue and often completely false. Beck (1995) describes a number of common types of cognitive distortions; common threads running throughout all cognitive distortions are unrealistic negative appraisals of the self, the present situation, and the future. Although the distortions themselves are illogical, the affective responses to the distortions are not. For example, if a woman believes that she is a terrible parent, it is perfectly reasonable for her to feel sad about this belief. Beck's model describes depression not as a disorder of unreasonable emotions, but as a disorder of maladaptive cognitions. Furthermore, research indicates that cognitive distortions may mediate the relationship between life stress and major depression (Kwon & Oei, 1992).

In addition to their link with depression, negative cognitive patterns are also associated with parenting children with behavioral problems (Gerdes & Hoza, 2006; Johnston, et al., 2000; Leung & Smith Slep, 2006). Research in this area has focused primarily on parental causal attributions for children's behavior. Unlike other mothers, those of children with AD/HD attributed the cause of their children's inattentive and impulsive behaviors to something within the children; however, this attribution pattern did not hold true for mothers' ratings of their children's compliant and prosocial behaviors (Gerdes & Hoza, 2006). In other words, mothers of children with AD/HD blamed their children for negative behavior but did not credit their children for positive behavior. If mothers believe that their children engage in negative behaviors on purpose

and only accidentally engage in positive behaviors, mothers may feel as though they have failed in their roles as parents. To the extent that thoughts of failure may contribute to a sad affect, attribution patterns such as this could potentially be linked to maternal depression. In fact, there is some evidence to suggest a link between mothers' attributions of their children's behavior and maternal depression. Mothers who reported more depressive symptoms were more likely to attribute the causes of children's problem behaviors to something within themselves or to something within their children than were mothers who reported fewer depressive symptoms (Bolton, et al., 2003). This suggests that depressed mothers of children with behavior problems may underestimate the effect of the situation on their children's behavior. This tendency to ignore situational factors and to blame themselves or their children for their children's negative behavior could be a possible explanation for the higher incidence of depression among mothers of children with behavior problems.

Such negative cognitions may not be limited to attributions of child misbehavior. Geller and Johnston (1995) examined maternal depression and child behavior problems in relation to mothers' causal attributions for hypothetical events in both the mothers' and the children's lives. Consistent with other research, maternal depression was significantly correlated with both child behavior problems and negative causal attributions. In addition, Geller and Johnston (1995) found that mothers made these negative causal attributions for events in their own lives as well as for events in their children's lives. Therefore, negative attributions for child behavior may be representative of a pervasive cognitive pattern in which depressed mothers make similarly negative attributions for

many life events. In fact, this pattern of negative attributions is very similar to the pattern of thought errors referred to as cognitive distortions in Beck (1995). For example, the mothers who blamed their children for misbehavior but did not credit them for positive behavior in Gerdes & Hoza (2006) may have been guilty of the cognitive distortion Beck (1995) refers to as "discounting the positive." Similarly, mothers who make global attributions of their children's misbehavior (e.g., "my child always misbehaves") could be classified as committing what Beck (1995) describes as the "overgeneralization" cognitive distortion. While there are similarities between the constructs of negative maternal attributions of child behavior and cognitive distortions, it is important to note that the construct of cognitive distortions extends beyond a mother's perceptions of her child's behavior. Cognitive distortions can also be present in the way a person thinks about herself and her future.

There is some evidence that depressed mothers engage in cognitive distortions other than those associated with attributions of their children's behavior. Rather than focusing on behavioral attributions, Shaffer (2003) examined the occurrence of cognitive distortions among depressed mothers. While behavior attribution research is limited to mothers' beliefs about the extent to which their children's misbehavior is intentional and controllable, cognitive distortions are broader in scope. As previously discussed, cognitive distortions are overly negative thoughts about the self or any number of life events. Examples of general cognitive distortions include: "I should be a better person," and "People think I'm boring." Shaffer (2003) found that, not only do depressed mothers experience more general cognitive distortions than do non-depressed mothers, but they

also experience more cognitive distortions specific to the parenting role (e.g., “I should never have become a parent,” and “My child hates me”). Taken together, Shaffer’s (2003) research with maternal cognitive distortion and others’ research with maternal behavior attributions suggest that maternal cognitive patterns are associated with both maternal depression and child AD/HD.

There is some question as to whether this maladaptive cognitive pattern is unique to mothers experiencing depression or if it is also representative of mothers experiencing parenting stress. As previously mentioned, some research has found mothers’ cognitive distortions to be related to parenting stress as well as depression (Shaffer, 1999). If there truly is a link between maladaptive thought processes and the presence of parenting stress, cognitive distortions may not be useful in explaining the difference between parents who are stressed and those who are stressed and depressed. However, there are alternative explanations for the reported relationship between cognitive distortions and parenting stress. Considering that approximately 20% of mothers experiencing parenting stress also experience depression (Shaffer, 1999), it is possible that samples of mothers experiencing parenting stress included a number of mothers who were also depressed. If samples included mothers who were both stressed and depressed, any resulting relationship between parenting stress and cognitive distortions may be attributable to the presence of depression in the sample of stressed mothers. Also possible, the relationship between parenting stress and cognitive distortions may be an artifact of the method used to measure parenting stress. The Parenting Stress Inventory (PSI; Abidin, 1986) is a questionnaire commonly used to assess the presence and severity of parenting stress.

Several subscales contribute to the overall parenting stress score yielded by the PSI, and one of these subscales specifically addresses parents' depressive symptoms. Any relationship between parenting stress, as measured by the PSI, and cognitive distortions, could be a result of a relationship between the PSI's depression subscale and cognitive distortions. For these reasons, it seems likely that mothers' cognitive distortions may partially explain the difference between mothers who are stressed and those who are stressed and depressed despite the relationship found between parenting stress and cognitive distortions in previous research.

*Current Study*

In summary, the impairment associated with AD/HD is not limited to the affected child, but extends to other family members as well. Unfortunately, due to the relative paucity of research addressing the impact of parenting a child with AD/HD on fathers, it was outside the scope of this study to examine these constructs in parents of both genders. Therefore, only mothers' distress was addressed. More so than other mothers, mothers of children with AD/HD experience significant impairment in the form of parenting stress and depression. As described above, research has shown that parenting stress and depression are linked to characteristics of the child as well as to characteristics of the mother. Because mothers do not seem to experience depression in the absence of parenting stress (Shaffer, 1999), it is important to determine which child and maternal characteristics contribute to mothers' experiencing parenting stress versus parenting stress and depression.

As a first step in addressing this matter, the purpose of the current study was to identify factors within families of children with AD/HD that are associated with maternal parenting stress and depressive symptoms. In an effort to expand upon previous research, the present study also attempted to identify those factors that may prove useful in differentiating between those mothers who are experiencing parenting stress alone versus those who are experiencing both parenting stress and depressive symptoms. Hypotheses for the current study were as follows:

1. Consistent with prior research, child characteristics (e.g., severity of AD/HD symptoms, academic functioning, social skills, etc.) and maternal characteristics (e.g., cognitive distortions, mental health, education, etc.) were expected to contribute to mothers' report of parenting stress & depression.
2. Following a cognitive theory of depression, it was further hypothesized that the primary difference between those mothers experiencing stress and those experiencing stress and depression would be related to maternal cognitive distortions and other maternal characteristics but not to child characteristics.

# CHAPTER II

# METHOD

## *Participants*

Eligible mothers had at least one child between the ages of 6 and 12 (18 males, mean age = 105.80 months, *SD* = 18.45) who had been diagnosed with AD/HD per criteria outlined in the DSM-IV-TR (APA, 2000). Forty mothers of children with AD/HD, recruited through the AD/HD Clinic at the University of North Carolina at Greensboro, the Moses Cone Developmental and Psychological Center, and a community support group for parents of children with AD/HD, agreed to participate. Of those 40 mothers, 24 mothers (mean age = 40.00 years, *SD* = 5.76) completed all measures. Nine mothers indicated that they had more than one child with AD/HD living with them. For mothers with more than one child between the ages of 6 and 12 carrying an AD/HD diagnosis, the child who had been in the mother's care the longest was selected as the target child. All mothers had been a primary caregiver of the target child for at least one year prior to participation. The sample was predominantly Caucasian (54.2%); of the remaining participants, 25.0% were African American and 20.8% of participants did not report race. Mothers were not excluded from participation based on socioeconomic status, ethnicity, or gender of the target child.

All child AD/HD diagnoses were determined according to the standardized multi-method assessment battery in place at the AD/HD Clinic. Accordingly, a diagnosis of AD/HD was considered appropriate when a Computerized Diagnostic Interview Schedule

for Children-IV (C-DISC-IV) yielded a positive AD/HD diagnosis, and T-scores for the corresponding subscales of the Conners' Parent Rating Scale (CPRS) and the Conners' Teacher Rating Scale[1] were elevated (CTRS; respectively, T≥ 65 and T≥ 60). An AD/HD diagnosis was not assigned to children who presented with a pervasive developmental disorder or another primary diagnosis that better accounted for the AD/HD symptoms.

*Child Assessment Measures*

*Computerized Diagnostic Interview Schedule for Children – IV Parent Version* (C-DISC-IV, NIMH, 1997). The C-DISC-IV is a computer-based, structured diagnostic interview that assesses the status of the child in terms of DSM-IV criteria for over 30 potential diagnoses. An interviewer reads each item to parents, and parents provide yes or no responses indicating whether or not the item applies to their child. The C-DISC-IV has satisfactory psychometric properties with test-retest reliabilities for individual modules ranging from .43 (conduct disorder)

to .96 (specific phobias). The test-retest reliability for the AD/HD module was found to be .79 (Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000). Mothers' responses to the C-DISC-IV were used as part of the assessment battery to determine the AD/HD status of their children.

*Conners Rating Scales – Long Form* (CRS; Conners, 1997). Available in parent- and teacher-report version, the CRS are behavior rating scales that specifically address the presence and severity of child AD/HD symptoms, and are frequently used in the assessment of child AD/HD (Anastopoulos & Shelton, 2001). Respondents rate the extent to which each item applies to the target child on a scale of 1 to 4. Higher ratings are

representative of a higher level of applicability of the item to the child. Along with a total score, the CRS offer individual scores for the following subscales: oppositional, hyperactivity-impulsivity, inattentive/cognitive problems, social problems, anxious/shy, and perfectionism. Normative data, collected from parents and teachers in the United States and Canada, are available for both versions of the CRS (Conners, Sitarenios, Parker, & Epstein, 1998a; 1998b). Both versions are psychometrically sound with subscale internal reliability coefficients ranging from .75 to .94 for the parent form (CPRS) and from .73 to .94 for the teacher form (CTRS; Conners, et al., 1998a; 1998b). The CRS have also been demonstrated to be accurate tools in the identification of children with AD/HD with an overall correct classification rate of 93.4% for the CPRS and 84.7% for the CTRS (Conners, et al., 1998a, 1998b). The DSM-IV symptom subscales of the CRS were used as part of an assessment battery to determine if the inattentive, hyperactive, and impulsive behaviors of the target child were developmentally deviant to the extent that they warrant an AD/HD diagnosis.

*Predictor Measures*

*Behavior Assessment System for Children, Second Edition* (BASC-2; Reynolds & Kamphaus, 2004). The BASC-2 is a broadband measure of child behavior commonly used in the assessment of child AD/HD. There are three forms, one for each of the following age groups: preschool, child, adolescent. Depending on the specific form, this measure consists of 150-160 multiple choice items. Each item describes a behavior, and mothers rate the frequency at which their children engage in each of the behaviors on a 4-point scale ranging from “never” to “almost always.” The BASC-2 is a psychometrically

sound measure yielding 14 subscale scores and 4 composite scores with alpha coefficients ranging from .80 to .89 (Merenda, 1996). The BASC-2 was included as a measure of child behavior. Specifically, the aggression subscale and the internalizing and adaptability composites were used as measures of child externalizing, internalizing, and adaptive behavior (e.g., social skills, functional communication, etc.) respectively.

*ADHD Rating Scale-IV* (ADHD-RS; DuPaul, Power, Anastopoulos, & Reid, 1998). This scale is an 18-item measure of the 9 inattentive and 9 hyperactive/impulsive symptoms listed in the DSM-IV AD/HD criteria (APA, 2000). On the self-report version of the ADHD-RS respondents rate the occurrence of each symptom on a scale from 0 (not at all) to 3 (very often), and they do so for two time periods: childhood (ages 5-12) and the past 6 months. The ADHD-RS yields symptom counts and severity scores for both symptom categories as well as a total AD/HD severity score. Because the ADHD-RS has been shown to differentiate between those with AD/HD and those without, the Total Severity Score was used as a measure of mothers' AD/HD symptoms.

*Beck Anxiety Inventory* (BAI; Beck, et al. 1988). The BAI is a 21-item self-report measure assessing the presence of anxiety-related symptoms. Each item describes a symptom (e.g., difficulty breathing, sweating, nervousness, etc.), and respondents rate the extent to which they have been bothered by each symptom over the past week on a 0 (not at all) to 3 (severely – I could barely stand it) scale. Responses for each item are summed, yielding a total score of 0 to 63. The BAI is commonly used in clinical assessment of anxiety. Psychometric research has shown this measure to have strong reliability with an

alpha coefficient of .92. The BAI was used in the proposed study as a measure of mothers' anxiety (Beck, et al. 1988).

*Automatic Thoughts Questionnaire* (ATQ; Hollon & Kendall, 1980). See Appendix A. The ATQ is a 30-item self-report measure assessing the extent to which participants experience automatic, negative thoughts believed to be indicative of depression. Examples of items include: "I'm no good," and "My future is bleak." Participants rated the frequency at which they had each thought over the past week on a scale from 1 (not at all) to 5 (all the time). The ATQ has strong psychometric properties with a coefficient alpha reliability of .96 and correlates .50 with the PCS (Shaffer, 2002). In the current study, the ATQ served as a measure of mothers' general cognitive distortions.

*Parenting Cognitions Scale* (PCS; Shaffer, 2003). See Appendix B. The PCS is a 50-item self-report measure of the presence and severity of cognitive distortions related to parenting. On a 5-point Likert Scale, mothers rated the frequency at which they had experienced specific cognitive distortions over the past four weeks. Examples include: "Parenting shouldn't be this hard" and "I should just know how to be a good parent." The reliability of this measure is quite good with an overall test-retest correlation of .85. This measure has been found to correlate well with the BDI ($r = .45$). For the purposes of this study, the PCS was used to assess maternal cognitive distortions as they pertain to parenting the target child.

*Outcome Measures*

*Parenting Stress Inventory* (PSI; Abidin, 1986). The PSI is a self-report measure of parents' experiences of stress as they relate to the parent-child system. As shown in Appendix C, the PSI consists of 13 subscales divided into two domains. The child domain includes the following subscales: adaptability, acceptability, demandingness, mood, distractibility/ hyperactivity, and reinforces parent. The depression, attachment, restrictions of role, sense of competence, social isolation, relationship with spouse, and parent health subscales all fall under the parent domain. The PSI has strong psychometric properties with alpha reliability coefficients ranging from .55 to .80 for the subscales and a total score reliability coefficient of .95 (Abidin, 1986). The PSI has been used often in studies involving parents of children with AD/HD (Anastopoulos, Guevremont, Shelton, & DuPaul, 1992; Podolski & Nigg, 2001). For the purposes of this study, a modified total stress score was created by subtracting the distractibility/hyperactivity and depression subscales from the total stress. This modified total stress score is representative of an overall parenting stress score that does not include measures of maternal depression or child AD/HD symptoms.

*Beck Depression Inventory* (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; Beck, Rush, Shaw, & Emery, 1979). The BDI is a 21-item questionnaire used to assess symptoms of depression in adults. Each item offers four possible responses of increasing severity ranging in value from zero to three. For each item, participants will identify the statement that most closely matches their feelings over the past two weeks. Item responses are summed to achieve an overall score ranging from 0 to 63, with higher

scores representative of more severe depression. A score of 10 or higher is often considered to be indicative of mildly elevated symptoms of depression (Beck et al., 1961). The BDI is widely used in clinical practice and research and has very good reliability and validity (Beck, Steer, & Garbin, 1988). In this study, the BDI was administered as a measure of maternal depression.

*Procedure*

For participants recruited through the AD/HD Clinic, following completion of the AD/HD evaluation, clinicians asked mothers whose children met inclusionary criteria if they would be interested in participating in the research project and if they would be willing to be contacted by the principal investigator. The principal investigator then contacted interested mothers in person or by phone to describe the study and discuss participation requirements. For mothers who agreed to participate, the principal investigator arranged for them to complete the necessary measures. Mothers were given the option of completing measures at home or at the AD/HD Clinic. When mothers arrived at the AD/HD Clinic, the principal investigator or another member of the research team explained the informed consent document and allowed mothers to ask, and have answered, any questions. For mothers who elected to complete measures in their home, the principal investigator or another member of the research team travelled to the mothers' homes to explain the consent document and administer the AD/HD module of the C-DISC-IV. During the home visit, the research team member also gave mothers the study measures to complete and return to the investigator by mail in an addressed, stamped envelope provided by the principal investigator.

Mothers who agreed to participate and signed the informed consent (see Appendix D) document completed the following measures with respect to the behavior of the target child: BASC-2, CPRS, and C-DISC-IV. The PCS and PSI-SF was completed in terms of mothers' experiences with the target children. Mothers responded to the ADHD-RS, ATQ, BDI, and BAI in regard to their own mental health. In addition, mothers completed questionnaires regarding general demographic information and the target child's developmental and health history. If no more than 6 months had passed since their children's evaluations, mothers had the option to complete forms to authorize the disclosure of the measures completed during their assessment at the AD/HD Clinic for use in the current study (see Appendix E). Mothers who chose to do this did not repeat the following assessment measures: BASC-2, C-DISC-IV, CPRS, and PSI-SF.

Other mothers, whose children carried an AD/HD diagnosis established somewhere other than the AD/HD Clinic, also participated. These mothers contacted the principal investigator in response to flyers announcing the study. Before admittance into the study, the AD/HD status of the target child was evaluated. As a preliminary screening measure, mothers were administered the AD/HD-Rating Scale-Home Version over the phone. If their responses suggested the target child would meet research criteria for a diagnosis of AD/HD (e.g., endorsement of more than 6 inattentive or 6 hyperactive-impulsive symptoms), they were invited to schedule a session to complete the AD/HD module of the C-DISC-IV. Before administration of the C-DISC-IV, either the principal investigator or another member of the research team explained the informed consent document and allowed mothers to ask and have answered any questions. Providing

mothers gave consent and signed the document, the C-DISC-IV was administered by the principal investigator or research team member. If the C-DISC-IV yielded a positive AD/HD diagnosis, it was considered evidence of the appropriateness of the target child's AD/HD diagnosis. Once it was determined that their child met criteria for the study, mothers were given the previously described set of measures to complete and return to the principal investigator.

# CHAPTER III

# RESULTS

## *Preliminary Inspection of the Data*

An examination of the variables of interest indicated the data did not violate assumptions of normality. Skewness statistics for all predictor and outcome variables ranged from -1.11 to 1.45. Kurtosis statistics for all predictor and outcome variables ranged from -1.44 to 3.11. Thus, the data fulfilled the assumptions of the planned analyses.

## *Description of the Sample*

A summary of the sample characteristics appears in Table 1. The target children in this study displayed an average of 6.75 symptoms of hyperactivity/impulsivity (*SD* = 2.74) and 7.21 symptoms of inattention (*SD* = 2.04). These symptom counts exceed DSM-IV criteria for AD/HD, which is in line with the manner in which the children were classified as AD/HD according to the C-DISC-IV. Based on C-DISC-IV classification, 66.7% of target children were diagnosed with AD/HD – Combined Type, 25.0% with Predominantly Inattentive Type, and 4.2% with Predominantly Hyperactive/Impulsive Type. Furthermore, BASC-2 Aggression T-scores (*M* = 61.88, *SD* = 10.44) indicated elevated levels of aggression among target children, which is consistent with the high rate of comorbidity between AD/HD and other externalizing disorders such as Oppositional Defiant Disorder and Conduct Disorder. Also consistent with a clinical sample of children with AD/HD, BASC-2 Adaptive Skills T-scores fell below the average range (*M* = 39.67, *SD* = 10.44). In contrast, BASC-2 Internalizing T-scores were within the

average range (*M* = 52.42, *SD* = 11.62), indicating relatively normal levels of internalizing behavior among target children. The vast majority of target children (79%) were taking prescribed medication for AD/HD.

In terms of mothers' symptoms of psychopathology, 33.3% reported mild to moderate symptoms of depression, 8.4% of mothers reported symptoms consistent with criteria for AD/HD Combined Type, 8.4% of mothers reported symptoms consistent with criteria for AD/HD – Predominantly Inattentive Type, and 16.7% of mothers reported moderate symptoms of anxiety. Exactly one half of mothers reported that they had been diagnosed with a psychological disorder. AD/HD and depression were the most commonly reported diagnoses; 17% of mothers reported AD/HD, 20.8% reported depression, and 4.2% reported comorbid AD/HD and depression. At the time of data collection, 29.2% mothers indicated that they were taking prescription medication for a psychological disorder. Based on the unadjusted PSI Total score, on average, mothers in this sample reported elevated parenting stress (*M* = 263.17, *SD* = 59.39). This mean corresponds with the 90$^{th}$ percentile for this measure (Abidin, 1986) and is consistent with the mean PSI Total Score reported by Abidin (1986) for a sample of parents of children with Attention Deficit Disorder. At the same time, mothers reported a wide range of parenting stress, as PSI Total Scores for this sample ranged from approximately the 10$^{th}$ percentile to the 99$^{th}$ percentile. In terms of depression, although 25% of mothers reported having been diagnosed with depression, most mothers did not endorse significant symptoms of depression on the BDI (*M* = 7.83, *SD* = 5.82). Similarly, measures of mothers' anxiety (*M* = 5.81, *SD* = 7.74) and AD/HD (*M* = 14.96, *SD* =

12.83) fell within normal limits. Most mothers had completed some education beyond high school; 37.5% had finished some college coursework, 33.3% had completed an undergraduate degree, and 20.8% had completed a graduate degree. The majority of mothers in this sample (77%) indicated that they were married at the time of data collection. Over one half (63%) of mothers reported that they shared parenting responsibilities with their partner.

*Correlations among Predictor and Outcome Variables*

Correlation analyses yielded significant associations among the outcome variables. Specifically, mothers reporting high levels of parenting stress also reported more severe symptoms of depression ($r = .46$, $p < .05$). Higher levels of general cognitive distortions were associated with higher levels of parent-role specific cognitive distortions ($r = .69$, $p < .05$). Severe parenting stress was also related to mothers' endorsement of more cognitive distortions on both the ATQ ($r = .46$, $p < .05$) and the PCS ($r = .84$, $p < .01$). Similarly, mothers who reported more severe symptoms of depression endorsed experiencing more cognitive distortions on both the ATQ ($r = .65$, $p < .01$) and the PCS ($r = .48$, $p < .05$). Parenting stress was not significantly associated with any other measures of mothers' psychopathology. Symptoms of depression, on the other hand, were more severe among mothers who also reported more severe symptoms of anxiety ($r = .48$, $p < .05$).

Parenting stress and depression were also significantly related to several child variables. For example, mothers reporting more severe parenting stress indicated that their children had more severe hyperactive/impulsive symptoms ($r = .43$, $p < .05$) and

more severe aggressive behaviors ($r = .47$, $p < .05$). Mothers' symptoms of depression were not associated with any measures of child externalizing behavior; however, mothers of children with more severe internalizing problems also reported experiencing more symptoms of depression themselves ($r = .45$, $p < .05$). With only one exception, measures of maternal cognitive distortions were not significantly related to any measures of child functioning. The one exception was that mothers of children with more severe symptoms of hyperactivity and impulsivity reported more parenting-specific cognitive distortions than did other mothers ($r = .44$, $p < .05$). Mothers reporting more symptoms of AD/HD had children with more severe inattention symptoms ($r = .45$, $p < .05$). Similarly, mothers reporting more symptoms of anxiety had children with more severe internalizing problems ($r = .55$, $p < .05$). No other significant relationships existed among parent and child variables. See Table 2 for a summary of correlation analyses.

*Predicting Maternal Parenting Stress*

To address the hypothesis that maternal parenting stress is a function of both child and maternal characteristics, the adjusted PSI Total Score was regressed onto a two-step model introducing child variables in the first step and mother variables in the second step. The child variables included BASC-2 Aggression, BASC-2 Internalizing, BASC-2 Adaptive Skills, ADHD-RS HI Severity, and ADHD-RS IA Severity. The maternal variables consisted of ADHD-RS Total Severity, BAI Total Score, PCS Total Score, and ATQ Total Score. Only those variables explaining a significant amount of variance in parenting stress were retained in the model. As shown in Table 3, this stepwise regression yielded a final model comprised of two maternal variables accounting for a total of 76%

of the variance in parenting stress. No child variables emerged as significant predictors of parenting stress. Among parent variables, PCS Total Score entered the model first (Cumulative Adjusted $R^2$ = .69, $F$ = 43.83, $p$ < .001). Next, BAI Total Score entered the model explaining an additional 7% of variance in parenting stress (Cumulative Adjusted $R^2$ = .76, $F_{change}$ = 6.00, $p$ < .05). Overall, this analysis indicates that higher levels of maternal cognitive distortions and anxiety scores were associated with more severe parenting stress scores.

*Predicting Maternal Depression*

To test the hypothesis that maternal depression is a function of child and maternal factors, maternal depression was regressed onto the child and maternal variables listed above. As shown in Table 4, this stepwise hierarchical regression produced a final model composed of one child and one maternal variable accounting for 40% of the variance in maternal depression. Child internalizing symptoms were the only significant predictor of maternal depression (Cumulative Adjusted $R^2$ = .22, $p$ < .05). Mothers' general cognitive distortions entered the model next, explaining an additional 18% of variance in maternal depression (Cumulative Adjusted $R^2$ = .40, $p$ < .05). Overall, this analysis indicates that mothers reporting more symptoms of depression also reported experiencing more general cognitive distortions and had children with more severe internalizing symptoms. This analysis provides further support for the first hypothesis as characteristics of both mothers and children predicted maternal depression. In addition, characteristics of mothers explained variance in maternal depression over and above child characteristics.

*Predicting Depression Classification among Stressed Mothers*

To examine factors that differentiate between those mothers reporting elevated levels of parenting stress and those reporting elevated levels of parenting stress and depression, participants were first divided into groups based on severity of PSI Total Score (unadjusted) and BDI Total Score. The unadjusted PSI Total Score was used to define groups because the PSI manual (Abidin, 1986) provides percentile ranks for raw scores based on a normative sample of parents; no such data exists for the adjusted PSI Total Score. A PSI Total Score greater than 227 ($60^{th}$ percentile) was chosen as the cut point indicative of elevated parenting stress. In selecting this cut point, two factors were taken into consideration. First, the cut point needed to be high enough so that the sample of stressed mothers would be significantly more stressed than the general population. At the same time, due to small sample size, the cut point needed to be low enough to have adequate participants in the stressed group. Similar factors were taken into consideration when selecting a cut point for the depressed group. To ensure adequate sample size while still maintaining a sample with elevated depression, a BDI Total Score greater than 10 was used as the criterion for membership in the depressed group. This resulted in the formation of a Stressed Only group ($n$ = 9) and a Stressed and Depressed group ($n$ = 7). A forward stepwise logistic regression was then performed. Child variables were introduced first (BASC-2 Aggression, BASC-2 Internalizing, BASC-2 Adaptability, ADHD-RS Inattention Severity and ADHD-RS Hyperactivity/Impulsivity Severity). Only BASC-2 Internalizing entered into the model as a predictor ($B$ = .13, $p$ = .062). Due to the significance in the change if removed from the model ($\Delta$ $-2LL$ = 5.46, $p < .05$),

BASC-2 Internalizing was retained as a final predictor variable. Although introduced next into the analysis, neither mothers' AD/HD severity nor mothers' symptoms of anxiety emerged as significant predictors of group membership. As a third step, measures of maternal cognitive distortions were introduced into the analysis. PCS Total Score entered into the model ($B = .10$, $p > .10$). Although PCS Total Score was a nonsignificant predictor, there was significant change if removed ($\Delta$ $-2LL = 15.86$, $p < .001$). As illustrated in Table 5, classification of mothers as stressed versus stressed and depressed was best predicted by a logistic model consisting of child internalizing behavior and mothers' parenting-specific cognitive distortions.

# CHAPTER IV

# DISCUSSION

Mothers of children with AD/HD experience higher levels of parenting stress and depression than do other mothers, and prior research indicates a relationship between mothers' increased distress and both child and maternal factors (Anastopoulos, et al, 1992). While numerous studies have addressed parenting stress and depression in this population, the specific mechanisms driving this distress remain unclear. It is apparent that both maternal and child characteristics play a role, but based on previous work it is unclear to what extent. Furthermore, existing literature leaves some question as to which specific maternal characteristics are associated with parenting stress and depression. The purpose of the current study was to investigate the parent and child correlates of parenting stress and depression, as well as to identify which correlates are useful in differentiating between those mothers who are stressed and those who are both stressed and depressed. Consistent with prior research, it was hypothesized that both child impairment and maternal characteristics would contribute to maternal depression and parenting stress. Following Beck's cognitive theory of depression, it was also hypothesized that the primary difference between mothers who are stressed and those who are both stressed and depressed is the presence and severity of maternal cognitive distortions.

*Correlates and Predictors of Parenting Stress*

In terms of the first hypothesis, there was some support for the relationship between parenting stress and child behavior. As predicted, mothers who reported more parenting stress had children who engaged in more externalizing behaviors. That is, mothers who rate their children high on measures of aggressive behavior and hyperactivity/ impulsivity endorsed more symptoms of parenting stress than mothers who rate their children lower on these measures. This finding is consistent with prior research that indicates links between severity of child AD/HD and aggression and parenting stress (Anastopoulos et al., 1992). Children exhibiting externalizing behavior problems are stress-inducing for a number of reasons. As previously stated, parent-child interactions are more negative when the child has an externalizing behavior problem (Johnston & Mash, 2001). Also, children who are more hyperactive or aggressive likely require more supervision and get into more trouble at school causing mothers further stress.

Although a common assumption may be that parenting stress among mothers of children with AD/HD is primarily attributable to child externalizing behaviors, in this study maternal factors also played a role. For example, mothers reporting more severe parenting stress also reported more severe symptoms of depression. In addition, mothers endorsing more cognitive distortions reported higher levels of parenting stress; this was true for both general cognitive distortions as well as parenting-specific cognitive distortions. In fact, the correlation between parenting stress and parenting-specific cognitive distortions was very strong. One interpretation of this high correlation is that the measures of parenting stress and parenting-specific cognitive distortions are tapping

into the same construct. Alternatively, this strong correlation may be the result of two closely related constructs. Further research is needed to address the unique characteristics of parenting stress and parenting-specific cognitions. Because this high correlation raises questions about extent to which parenting cognitions as a construct overlap with parenting stress, relationships between these to variables in this data should be interpreted with caution. However, the relationship between parenting stress and cognitive distortions in the current study is consistent with the findings of Shaffer (1999). In support of the first hypothesis, this indicates that parenting stress is associated not only with child behavior, but also with the ways in which mothers think about their children, their roles as parents, and the world around them.

Although parenting stress was significantly correlated with a number of mother and child variables, only maternal factors emerged as significant predictors in a stepwise regression analysis. In particular, these regression analyses indicated that parenting-specific cognitive distortions and mothers' symptoms of anxiety were significant predictors of parenting stress in this sample. It is noteworthy that parenting-specific cognitive distortions and not general cognitive distortions predicted parenting stress. This suggests that, although mothers may have overly negative thoughts about a variety of factors in their lives, it is only the unrealistically negative thoughts about themselves as parents that are related to parenting stress. Overall, these results partially support the first hypothesis, as parent but not child characteristics predicted severity of parenting stress. Contrary to hypotheses and previous research, although child externalizing behaviors

were correlated with parenting stress, they did not appear to play a significant role in predicting parenting stress in this sample.

*Correlates and Predictors of Maternal Depression*

Support for the first hypothesis was also found in the correlates and predictors of maternal depression. Similar to parenting stress, maternal depression was associated with child characteristics. Specifically, mothers reporting more severe symptoms of depression had children with more severe internalizing symptoms. This result is not surprising considering that maternal affective disorders are a risk factor for child affective disorders (for a review, see Beardslee, Versage, and Gladstone, 1998). Unlike parenting stress and inconsistent with existing research (Harrison & Sofronoff, 2002), maternal depression was not related to any measures of child externalizing behavior. In addition to the relationship with child internalizing symptoms, significant relationships were also found between maternal depression and maternal characteristics. Specifically, mothers with more severe symptoms of depression also reported more severe cognitive distortions and anxiety. Similar to parenting stress, maternal depression was more severe among mothers who have more frequent parenting-specific cognitive distortions. Furthermore, although general cognitive distortions did not appear to play a role in parenting stress, they did appear to be linked to severity of depression. These findings suggest that mothers who more frequently engage in distorted thinking experience more symptoms of depression, and this is true whether or not the distorted thinking is in relation to their role as parents.

Results of the stepwise hierarchical regression analysis predicting maternal depression provided further support for the first hypothesis. Specifically, both child and

maternal characteristics were found to be significant predictors of maternal depression. Furthermore, mothers' general cognitive distortions were found to predict maternal depression over and above any child variables. Of note, although maternal depression was related to both types of cognitive distortions, only general cognitive distortions were identified as significant predictors of maternal depression. Taken into consideration with the finding that only parenting-specific cognitive distortions predicted parenting stress, these results suggest that quality and type of maternal cognitive distortions may factor into the type of distress that mothers experience.

*Predictors of Stressed versus Stressed and Depressed*

The difference between stressed mothers and stressed and depressed mothers was predicted by a combination of child and maternal variables. Specifically, the final model consisted of both child internalizing symptoms and parenting-specific cognitive distortions. Consistent with the second hypothesis, maternal cognitive distortions predicted whether mothers were classified as stressed or stressed and depressed above and beyond child characteristics. This suggests that, among mothers of children with AD/HD, the extent to which mothers engage in parenting-specific cognitive distortions may play a larger role in depression than the severity of child behavior. It is interesting that parenting-specific cognitive distortions and not general cognitive distortions predicted depressed status among stressed mothers, considering general cognitive distortions and not parenting-specific cognitive distortions predicted severity of depression in the whole sample. This suggests that the correlates of depression may be different for mothers who are also experiencing parenting stress. In other words, for

mothers who are both stressed and depressed, cognitive distortions may tend to be related to the parenting role whereas for mothers who do not have elevated parenting stress, cognitive distortions may be more general in nature.

Although the results of this study provided support for both hypotheses, some findings were inconsistent with hypotheses and discrepant with existing literature. Most notably, neither child externalizing behavior nor any other child variable emerged as a significant predictor of parenting stress. This finding is in opposition to the relationship between parenting stress and child externalizing behavior reported in previous research (Anastopoulos, et al., 1992; Harrison & Sofronoff, 2002; Podolski & Nigg, 2001). Considering correlational analyses indicated that more severe parenting stress was linked to more severe child externalizing behaviors, it is possible that the small sample size made it difficult to detect a relationship in the regression analysis.

Another inconsistency is that there was no indication of a relationship between maternal depression and child externalizing behavior in this sample. It is possible that this inconsistency is attributable to lack of power associated with the small sample size; however, the absence of any significant correlations among these variables makes it seem unlikely that strong relationships existed between maternal depression and child externalizing behaviors. An alternative explanation could be that depression among mothers of children with AD/HD stems more from maternal characteristics than child characteristics.

*Limitations*

The most significant limitation of this study was the small sample size. As previously mentioned, the sample size limited power and likely restricted the ability to detect associations among study variables. Small sample size also limits the extent to which the findings can be generalized to other mothers of children with AD/HD. It is important to note that, despite restrictions imposed by the small sample size, significant relationships were consistently detected between maternal cognitive distortions and measures of parenting stress and depression.

Another limitation is the correlational design of this study. Because of this it is not possible to make inferences of causation based on these data. Also, the data provide no indication of the temporal sequence of child and maternal impairment. In other words, it is unclear whether child behavior problems began prior to the onset of maternal depression and parenting stress or vice versa. Similarly it is unclear if cognitive distortions are an antecedent, cause, correlate, or symptom of parenting stress and depression. Even though the current study does not allow for such inferences, it still provides important information about the relationship between maternal distress and cognitive distortions.

It is also problematic that all data was provided by a single informant. This is most problematic in terms of the validity of relationships between maternal depression and parenting stress and child behaviors. Research has shown that agreement between parent and teacher ratings of child behavior is poorer when the parent reports more severe life stress (Kolko & Kazdin, 1993). This finding suggests that stressed mothers may be

poorer reporters of child behavior. There is also some evidence to suggest that depressed mothers tend to exaggerate their children's externalizing behaviors when completing rating scales (Fergusson, Lynskey, & Horwood, 1993). At the same time, Fergusson, Lynskey, and Horwood (1993) noted that, although depressed mothers tend to overestimate their children's externalizing behaviors, depression is more common among mothers of children with more severe externalizing problems.

Another limitation of the current study, albeit a common one in the field, is the lack of data regarding fathers' parenting stress and depression. It was outside the scope of this study to include both fathers and mothers. This is unfortunate as fathers are underrepresented in research samples investigating parents of children with psychopathlogy (Cassano, Adrian, Veits, & Zeman, 2006). It will be important for future research to investigate the impact of raising a child with AD/HD on fathers.

*Summary and Future Directions*

While much previous research has focused on child factors associated with maternal depression and parenting stress, this study shed light on the important association between the way mothers think and the amount and type of distress they experience. Mothers who experience more cognitive distortions also experience more severe parenting stress and depression. These findings have bearing on interventions employed with mothers of children with AD/HD. While a common assumption may be that interventions targeting child externalizing behaviors would lead to reductions in parenting stress, the results of this study indicate that merely changing child behavior

may not lead to reduction of maternal distress; interventions should also target maternal cognitions.

Future research should address causal relationships among maternal cognitions and maternal depression and parenting stress. It will also be interesting to see if cognitive interventions aimed at reducing cognitive distortions also lead to a reduction in parenting stress. Furthermore, efforts should be made to ascertain if these findings extend to fathers of children with AD/HD. Prior research has indicated that a number of child variables (e.g., age, gender, severity of AD/HD, aggressive behavior, etc.) contribute to both parenting stress and depression (Anastopoulos, et al., 1992; Harrison & Sofronoff, 2002). At the same time, not every mother of a child with AD/HD experiences significant parenting stress, and not every mother of a child with AD/HD is depressed.

Overall, this study yielded several important findings. As demonstrated in prior work, associations were found between measures of maternal distress (parenting stress and depression) and both child and maternal characteristics. In particular, this study provides preliminary support for the hypothesis that maternal cognitive distortions play a major role in the extent to which mothers experience parenting stress and depression. Maternal cognitive distortions explained both parenting stress and maternal depression above and beyond any child predictors. Most notably, the primary difference between mothers who are stressed and those who are both stressed and depressed appears to be linked to the presence and severity of parenting-specific cognitive distortions but not general cognitive distortions. Thus, the current study is a first step in understanding why some mothers become stressed and/or depressed and why some mothers, when faced with

the same stressors, do not. Clearly, more attention should be given to mothers' maladaptive cognitive patterns in both clinical practice and research.

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Appendix A.

## Automatic Thoughts Questionnaire

Listed below are a variety of thoughts that pop into people's heads. Please read each thought and indicate how frequently, if at all, the thought occurred to you over the last week. Please read each item carefully and fill in the appropriate circle on the answer sheet in the following fashion (1 = "not at all" 2 - "sometimes" 3 = "moderately often" 4 = "often" and 5 = "all the time").

| | | not at all | sometimes | moderately often | often | all the time |
|---|---|---|---|---|---|---|
| 1. | I feel like I'm up against the world. | 1 | 2 | 3 | 4 | 5 |
| 2. | I'm no good. | 1 | 2 | 3 | 4 | 5 |
| 3. | Why can't I ever succeed? | 1 | 2 | 3 | 4 | 5 |
| 4. | No one understands me. | 1 | 2 | 3 | 4 | 5 |
| 5. | I've let people down. | 1 | 2 | 3 | 4 | 5 |
| 6. | I don't think I can go on. | 1 | 2 | 3 | 4 | 5 |
| 7. | I wish I were a better person. | 1 | 2 | 3 | 4 | 5 |
| 8. | I'm so weak. | 1 | 2 | 3 | 4 | 5 |
| 9. | My life's not going the way I want it to. | 1 | 2 | 3 | 4 | 5 |
| 10. | I'm so disappointed in myself. | 1 | 2 | 3 | 4 | 5 |
| 11. | Nothing feels good anymore. | 1 | 2 | 3 | 4 | 5 |
| 12. | I can't stand this anymore. | 1 | 2 | 3 | 4 | 5 |
| 13. | I can't get started. | 1 | 2 | 3 | 4 | 5 |
| 14. | What's wrong with me? | 1 | 2 | 3 | 4 | 5 |
| 15. | I wish I were somewhere else. | 1 | 2 | 3 | 4 | 5 |
| 16. | I can't get things together. | 1 | 2 | 3 | 4 | 5 |
| 17. | I hate myself. | 1 | 2 | 3 | 4 | 5 |
| 18. | I'm worthless. | 1 | 2 | 3 | 4 | 5 |
| 19. | Wish I could just disappear. | 1 | 2 | 3 | 4 | 5 |
| 20. | What's the matter with me? | 1 | 2 | 3 | 4 | 5 |
| 21. | I'm a loser. | 1 | 2 | 3 | 4 | 5 |
| 22. | My life is a mess. | 1 | 2 | 3 | 4 | 5 |
| 23. | I'm a failure. | 1 | 2 | 3 | 4 | 5 |
| 24. | I'll never make it. | 1 | 2 | 3 | 4 | 5 |
| 25. | I feel so helpless. | 1 | 2 | 3 | 4 | 5 |
| 26. | Something has to change. | 1 | 2 | 3 | 4 | 5 |
| 27. | There must be something wrong with me. | 1 | 2 | 3 | 4 | 5 |
| 28. | My future is bleak. | 1 | 2 | 3 | 4 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 29. | It's just not worth it. | 1 | 2 | 3 | 4 | 5 |
| 30. | I can't finish anything. | 1 | 2 | 3 | 4 | 5 |

Appendix B. Parenting Cognitions Scale

**DIRECTIONS**: Listed below are *thoughts* that parents sometimes have when dealing with their child. Please read each item carefully and indicate how often YOU have had each of these thoughts OVER THE PAST FOUR WEEKS, by circling the appropriate number.

| **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|
| **Not at All** | **Rarely** | **Sometimes** | **Often** | **All of the Time** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. | Other parents would probably say I am a poor disciplinarian. | 1 | 2 | 3 | 4 | 5 |
| 2. | I feel like I always have to defend my child. | 1 | 2 | 3 | 4 | 5 |
| 3. | I should be able to handle my child better than I do. | 1 | 2 | 3 | 4 | 5 |
| 4. | My child never does what I ask. | 1 | 2 | 3 | 4 | 5 |
| 5. | When I don't follow through with my threats to discipline, my child probably thinks I'm a pushover. | 1 | 2 | 3 | 4 | 5 |
| 6. | I always have trouble parenting my child. | 1 | 2 | 3 | 4 | 5 |
| 7. | I should never have become a parent. | 1 | 2 | 3 | 4 | 5 |
| 8. | I've let my child down. | 1 | 2 | 3 | 4 | 5 |
| 9. | My child should do what I ask more often. | 1 | 2 | 3 | 4 | 5 |
| 10. | My child is always in trouble at school. | 1 | 2 | 3 | 4 | 5 |
| 11. | When my child disobeys me in front of relatives, they probably think I'm not a very good parent. | 1 | 2 | 3 | 4 | 5 |
| 12. | I'm so disappointed in myself as a parent. | 1 | 2 | 3 | 4 | 5 |
| 13. | My child hates me. | 1 | 2 | 3 | 4 | 5 |
| 14. | I should be more consistent in parenting than I am. | 1 | 2 | 3 | 4 | 5 |
| 15. | When my child repeatedly disobeys me in a restaurant, I think to myself –I've tried everything and nothing works. | 1 | 2 | 3 | 4 | 5 |
| 16. | My child doesn't do what I ask when we're visiting with friends of the family and I think – my child should know better. | 1 | 2 | 3 | 4 | 5 |
| 17. | My child always misbehaves in public. | 1 | 2 | 3 | 4 | 5 |
| 18. | My child's teacher probably thinks that I don't manage my child's behavior well. | 1 | 2 | 3 | 4 | 5 |
| 19. | I feel like I'm up against the world when I try to advocate for my child. | 1 | 2 | 3 | 4 | 5 |
| 20. | I should be less negative with my child. | 1 | 2 | 3 | 4 | 5 |
| 21. | When my child misbehaves in front of company/extended family at home, my guests probably think that I don't know what's best for my child. | 1 | 2 | 3 | 4 | 5 |
| 22. | No one ever invites my child over to play. | 1 | 2 | 3 | 4 | 5 |
| 23. | I wish I were a better parent. | 1 | 2 | 3 | 4 | 5 |
| 24. | There must be something wrong with me as a parent. | 1 | 2 | 3 | 4 | 5 |
| 25. | I should compliment my child more than I do. | 1 | 2 | 3 | 4 | 5 |
| 26. | Parenting is not going the way I want it to. | 1 | 2 | 3 | 4 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 27. | When my child disobeys me in front of guests, they probably think I need to discipline my child more. | 1 | 2 | 3 | 4 | 5 |
| 28. | I should be a better parent. | 1 | 2 | 3 | 4 | 5 |
| 29. | When my child acts up in public, other people probably think I'm a bad parent. | 1 | 2 | 3 | 4 | 5 |
| 30. | My friends are much better parents than I am. | 1 | 2 | 3 | 4 | 5 |
| 31. | I feel so helpless when my child does not listen to me. | 1 | 2 | 3 | 4 | 5 |
| 32. | When my child misbehaves at a family gathering, other family members probably think I'm a bad parent. | 1 | 2 | 3 | 4 | 5 |
| 33. | I shouldn't have yelled at my child. | 1 | 2 | 3 | 4 | 5 |
| 34. | When my child doesn't listen to me in front of relatives at home, they probably think I'm a failure as a parent. | 1 | 2 | 3 | 4 | 5 |
| 35. | My friends/relatives think I'm a lousy parent. | 1 | 2 | 3 | 4 | 5 |
| 36. | When my child misbehaves when playing at a friend's house, the other parent probably thinks I'm a lousy parent. | 1 | 2 | 3 | 4 | 5 |
| 37. | I can't get it together when caring for my children. | 1 | 2 | 3 | 4 | 5 |
| 38. | When my child is rude to his/her teacher, I think – I must be an awful parent. | 1 | 2 | 3 | 4 | 5 |
| 39. | I should just know how to be a good parent. | 1 | 2 | 3 | 4 | 5 |
| 40. | When my child throws a temper tantrum at the grocery store, I think to myself – Everyone is staring at me. | 1 | 2 | 3 | 4 | 5 |
| 41. | My child doesn't listen to me. | 1 | 2 | 3 | 4 | 5 |
| 42. | When my child misbehaves in a fancy restaurant, I think to myself – I'm so embarrassed. | 1 | 2 | 3 | 4 | 5 |
| 43. | I should never lose my temper when parenting my child. | 1 | 2 | 3 | 4 | 5 |
| 44. | Parenting shouldn't be this hard. | 1 | 2 | 3 | 4 | 5 |
| 45. | When my child acts up at the grocery store, other people probably think my child is very poorly behaved. | 1 | 2 | 3 | 4 | 5 |
| 46. | My child thinks I'm mad at him/her. | 1 | 2 | 3 | 4 | 5 |
| 47. | When we have company for dinner and my child throws a temper tantrum, I think – I'm so embarrassed. | 1 | 2 | 3 | 4 | 5 |
| 48. | I shouldn't have yelled at my child in public. | 1 | 2 | 3 | 4 | 5 |
| 49. | No one ever invites my child to stay overnight. | 1 | 2 | 3 | 4 | 5 |
| 50. | When my child is disrespectful toward the teacher, I think to myself – I'm a terrible parent. | 1 | 2 | 3 | 4 | 5 |

Appendix C. Subscales of the Parenting Stress Index

- PSI Total Score
  - Child Domain
    - Adaptability
    - Acceptability
    - Demandingness
    - Mood
    - Distractability/Hyperactivity
    - Reinforces Parent
  - Parent Domain
    - Depression
    - Attachment
    - Restriction of Role
    - Sense of Competence
    - Social Isolation
    - Relationship with Spouse
    - Parent Health
- Life Stress

Appendix D. Consent Form

**THE UNIVERSITY OF NORTH CAROLINA**

# GREENSBORO

CONSENT TO ACT AS A HUMAN PARTICIPANT:

Project Title: Parenting a Child with AD/HD

Project Director: Nicole K. Schatz, B.A. Faculty Supervisor: Arthur D. Anastopoulos, Ph.D.

Parent's Name: _____

Participant's Name: _____ Date of Birth: _____

Date of Consent: _____

**Purpose**
The purpose of this study is to gain a better understanding of what parents think and feel about raising a child with AD/HD.

**Description and Explanation of Procedures**:
You will complete questionnaires that ask about your child's feelings and behaviors. In addition, some questionnaires ask about how your child is doing in school, at home, and with peers. Some questionnaires also ask about your own thoughts and feelings. Also, a member of the research team will interview you about your child's AD/HD symptoms. This interview and the questionnaires should take about 60 minutes to complete.

**Potential Risks and Discomforts**:
There is minimal risk associated with participating in this study. Some questionnaires ask about personal information such as your home and family life. You may ask questions at any time, and you may skip any questions that make you uncomfortable. You may also withdraw from the project at any time without consequences.

**Benefits**:
The results of this study will benefit society by increasing knowledge of how parents think and feel about raising a child with AD/HD. You will receive a written summary of yours and your child's screening results.

**Confidentiality:**
The answers you and your child's teacher provide will be kept confidential. Similarly, all of the Protected Health Information that you gave us permission to access from the AD/HD Clinic will be kept confidential. Questionnaires and interview information will be identified only by a number. The only people who will see information about you and your child are the researchers involved in this project. Your name will not be used in any reports from this study. The forms that you complete will be stored in locked cabinets. Passwords will protect information that has been entered on a computer. Data will be kept until five years after the end of the project.

**Consent:**

By signing this consent form, you agree that you understand the procedures involved in this research. You also agree that you are aware of potential risks and benefits. You are free to refuse to participate or to withdraw from this research at any time without penalty or prejudice. Your participation is entirely voluntary. In addition, your refusal to participate will not affect your relationship with UNCG or the AD/HD Clinic in any way. Your privacy will be protected because you will not be identified by name as a participant in this project.

The research and this consent form have been approved by the University of North Carolina at Greensboro Institutional Review Board, which ensures that research involving people follows federal regulations. Questions regarding your rights as a participant in this project can be answered by calling Mr. Eric Allen, who is the UNCG Compliance Officer (336) 256-1482. Questions regarding the research itself will be answered by Nicole Schatz by calling (336) 346-3192 or Dr. Arthur Anastopoulos at (336) 346-3192, ext. 303. Any new information that develops during the project will be provided to you if the information might affect your willingness to continue participation in the project.

By signing this form, you are affirming that you are 18 years of age or older and are agreeing to participate in the project described to you by Nicole Schatz.

_____ _____

Parent/Guardian Signature Date

Appendix E.

## AUTHORIZATION TO DISCLOSE PHI

Dr. Arthur Anastopoulos and Nicole Schatz B.A. at the University of North Carolina at Greensboro are conducting a study investigating parents' thoughts and feelings about raising a child with AD/HD. Because this project requires forwarding protected health information (PHI) to the research team, Dr. Arthur Anastopoulos and Nicole Schatz are asking for your permission to send such information.

By signing below, you are authorizing the AD/HD Clinic at UNCG to release your child's diagnosis (i.e., pertaining to AD/HD) and a summary of questionnaire results from your child's recently completed AD/HD evaluation to Dr. Arthur Anastopoulos and Nicole Schatz. This authorization will expire in 1 year, unless you revoke it in writing before that time. (A revocation will not apply to any personal health information that was released under this authorization before the date of revocation.)

If you choose NOT to authorize release of this information, it will not affect your health care at the AD/HD Clinic. The AD/HD Clinic will not receive any money or benefit from releasing this information. You have a right to inspect or copy the information to be disclosed. You also have a right to receive a copy of this authorization.

Once this information is released to Dr. Arthur Anastopoulos and Nicole Schatz, it is no longer covered by the Health Insurance Portability and Accountability Act (HIPAA) and may be re-released without your consent.
I authorize the AD/HD Clinic at UNCG to release the following information to Dr. Arthur Anastopoulos and Nicole Schatz:
My child's diagnosis pertaining to AD/HD
Summary of questionnaire and diagnostic interview results from my child's recently completed AD/HD evaluation

Signed: _____ Date: _____

Patient is unable to sign because s/he is ____ years old or _____ (other reason)

Parent/Guardian (circle) signature: _____

Appendix F. Tables

Table 1

*Descriptive Statistics*

| | M | Median | SD | Minimum | Maximum | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|
| *Child Variables* | | | | | | | |
| ADHD-RS HI Symptom Count | 6.75 | 8 | 2.74 | 0 | 9 | -1.11 | 0.2 |
| ADHD-RS IA Symptom Count | 7.21 | 8 | 2.04 | 4 | 9 | -0.57 | -1.44 |
| ADHD-RS HI Severity | 18.67 | 21 | 6.82 | 1 | 27 | -0.98 | 0.5 |
| ADHD-RS IA Severity | 20.17 | 22 | 4.91 | 11 | 27 | -0.23 | -1.05 |
| BASC Aggression | 61.88 | 62.5 | 12.7 | 41 | 87 | 0.36 | -0.79 |
| BASC Internalizing | 52.42 | 52 | 11.62 | 36 | 80 | 0.63 | -0.19 |
| BASC Adaptive Skills | 39.67 | 41.5 | 10.44 | 16 | 64 | 0.1 | 0.549 |
| *Mother Variables* | | | | | | | |
| PSI Total Score (adjusted) | 209.67 | 194 | 50.4 | 131 | 309 | 0.31 | -0.97 |
| BDI Total Score | 7.83 | 7 | 5.82 | 0 | 19 | 0.21 | -1.07 |
| PCS Total Score | 116.7 | 122 | 37.7 | 55 | 184 | -0.182 | -0.9 |
| ATQ Total Score | 41.52 | 39 | 14.03 | 3 | 78 | 0 | 3.12 |
| BAI Total Score | 5.81 | 2 | 7.74 | 0 | 24 | 1.45 | 0.64 |
| ADHD-RS Total Severity | 14.96 | 14 | 12.83 | 0 | 50 | 1.45 | 2.24 |

*Note*. N = 24. PSI = Parenting Stress Index; BDI = Beck Depression Inventory; PCS = Parenting Cognitions Scale; ATQ = Automatic Thoughts Questionnaire; ADHD-RS = ADHD Rating Scale; BAI = Beck Anxiety Inventory; IA = Inattention; HI = Hyperactivity/Impulsivity; BASC = Behavioral Assessment System for Children

Table 2

*Correlations among Variables*

| | Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | PSI Total Score (adjusted) | - | | | | | | | | | | |
| 2 | BDI Total Score | .46* | - | | | | | | | | | |
| 3 | PCS Total Score | .84** | .48* | - | | | | | | | | |
| 4 | ATQ Total Score | .46* | .65** | .69* | - | | | | | | | |
| 5 | ADHD-RS Total Score | - .13 | -.16 | -.23 | -.13 | - | | | | | | |
| 6 | BAI Total Score | .25 | .48* | .16 | .26 | -.16 | - | | | | | |
| 7 | ADHD-RS IA Severity | .13 | .15 | .15 | -.02 | .45* | .09 | - | | | | |
| 8 | ADHD-RS HI Severity | .43* | .27 | .44* | .28 | .25 | .10 | .50* | - | | | |
| 9 | BASC Aggression | .47* | - .04 | .28 | -.07 | .08 | .23 | .26 | .61** | - | | |
| 10 | BASC Internalizing | .40 | .45* | .32 | .24 | .04 | .55* | .51* | .52** | .43* | - | |
| 11 | BASC Adaptability | - .16 | .17 | .03 | .18 | -.24 | -.10 | -.33 | -.13 | -.33 | -.25 | - |

*Note*. N = 24. PSI = Parenting Stress Index; BDI = Beck Depression Inventory; PCS = Parenting Cognitions Scale; ATQ = Automatic Thoughts Questionnaire; ADHD-RS = ADHD Rating Scale; BAI = Beck Anxiety Inventory; IA = Inattention; HI = Hyperactivity/Impulsivity; BASC = Behavioral Assessment System for Children

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

Table 3

*Hierarchical Regression Examining Contribution of Child and Maternal Variables to Parenting Stress*

| Predictor | β | $R^2$ |
|---|---|---|
| Step 1 | | |
| (no significant predictors) | | |
| Step 2a | | .69*** |
| PCS Total Score | .84*** | |
| Step 2b | | .76*** |
| PCS Total Score | .80*** | |
| BAI Total Score | .28* | |

*Note*. N = 24. $R^2$ = Cumulative Adjusted $R^2$. PCS = Parenting Cognitions Scale; BAI = Beck Anxiety Inventory.

*$p < .05$. ***$p < .001$.

Table 4

*Hierarchical Regression Examining Contribution of Child and Mother Variables to Maternal Depression*

| Predictor | β | $R^2$ |
|---|---|---|
| Step 1 | | .22* |
| BASC Internalizing | .51* | |
| Step 2 | | .40** |
| BASC Internalizing | .31 | |
| ATQ Total Score | .49* | |

*Note*. N = 24. $R^2$ = Cumulative Adjusted $R^2$. PCS = Parenting Cognitions Scale; BAI = Beck Anxiety Inventory.

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

Table 5.

*Summary of Logistic Regression Predicting Stressed versus Stressed and Depressed Classifications.*

| Step | Variable | *b* | *SE* | *p* | $B_e$ | % Correct Classification |
|---|---|---|---|---|---|---|
| 1 | BASC Internalizing | 0.13 | 0.07 | 0.06 | 1.14 | 78.6 |
| 2 | PCS Total Score | 0.10 | 0.07 | .145 | 1.10 | 92.9 |

*Note*. N = 24. PCS = Parenting Cognitions Scale; BASC = Behavioral Assessment System for Children

FOOTNOTE

[1]Conners' Teacher Rating Scale data were not available for 6 participants. T-test analyses indicated that this subset of participants did not significantly differ from the entire sample on other diagnostic measures nor did they significantly differ on any of the variables used in analyses.