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**Parenting Styles and Cognitions in Women with and Without  
Symptoms of Attention-Deficit Hyperactivity Disorder**

by

**Tracy M. Banks-Villegas**

**A THESIS**

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## ABSTRACT

Although adult Attention-Deficit Hyperactivity Disorder (ADHD) has recently emerged as an important area of research, little attention has been given to the family functioning of adults with ADHD. Previous studies have relied upon samples of adults who were diagnosed with ADHD as children, or on samples of parents of children with ADHD. The present study examined parenting cognitions and disciplinary styles in a community-based sample of women with and without ADHD symptoms. Women with ADHD symptoms reported high levels of hostility, anxiety, and interpersonal problems. Findings suggested that maternal ADHD symptoms were related to ineffective parenting cognitions and disciplinary styles, and that these relationships were moderated by comorbid psychopathology. These findings suggest that women with ADHD face a number of difficulties within the family setting. The findings suggest that women with ADHD may benefit from anger management training, as well as parent training.

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## CHAPTER ONE

### INTRODUCTION AND LITERATURE REVIEW

Attention Deficit Hyperactivity Disorder (ADHD) involves a persistent pattern of inattention, and/or impulsivity-hyperactivity that is more severe and frequent compared to typical behavior for the same age and developmental level (American Psychiatric Association, 1994). Although originally conceptualized as a disorder of childhood, ADHD is now recognized as sometimes persisting into adulthood (Biederman, Faraone, Keenan, et al., 1992; Biederman et al., 1994; Faraone et al., 1992). Prospective studies which have followed hyperactive children into adulthood suggest that 30% to 50% of children identified as having ADHD, still meet diagnostic criteria for this disorder in young adulthood (Barkley, 1996). Adults with the disorder often experience difficulty getting started or completing tasks, poor organizational skills, low frustration tolerance, time management difficulties, and interpersonal problems (Barkley, 1998; Conners, Erhardt, & Sparrow, 1999; Hallowell & Ratey, 1994; Kane, Mikalac, Benjamin, & Barkley, 1990; Ratey, Greenburg, Bemporad, & Lindem, 1992).

The deficits in attention, impulsivity, and hyperactivity, that persist into adulthood for many people with ADHD, could translate into difficulties in running a household, caring for children, and managing multiple roles (such as parent, spouse, wage-earner); issues that are particularly important for women with ADHD. Women with ADHD may also demonstrate low parenting self-esteem, feel they have less control over their children (external parenting locus of control), and use ineffective parental disciplinary styles.

ADHD symptoms in women may be directly related to ineffective parenting cognitions and behaviors, or the relationship may be moderated by comorbid maternal psychiatric symptoms, or by the marital relationship, or by both. If a relationship between maternal ADHD symptoms and parenting cognitions and behaviors exists, it would be necessary to determine whether ADHD symptomatology alone accounts for the relationship, or whether a combination of ADHD symptoms, marital satisfaction, and maternal psychiatric symptoms interact with one another to account for the relationship.

Research has indicated that adults with ADHD are more likely to experience comorbid psychiatric symptoms, such as depression, anxiety, antisocial behaviors, and substance use (Biederman et al., 1993; Downey, Stelson, Pomerleau, & Giordani, 1997; Fischer, Barkley, Fletcher, & Smallish, 1997; Shekim, Asarnow, Hess, Zaucha, & Wheeler, 1990), compared to adults without the disorder. In addition to these findings, adults with ADHD have been shown to have more marital problems, employment difficulties, and cognitive impairments than adults without ADHD (Barkley, 1996; Biederman et al., 1993; Murphy & Barkley, 1996a). To date, however, few studies have examined the relationship between adult ADHD symptomatology and parenting cognitions and behaviors (Arnold, O'Leary, & Edwards, 1997; Daly & Fritsch, 1995; Evans, Vallano, & Pelham, 1994; Johnston, 1999; Kneppers, 1998).

The empirical studies which have examined parenting cognitions and behaviors in adults with ADHD, have the same methodological shortcomings as most other research on adult ADHD. These studies have relied on parents of clinically-identified children

with ADHD (Arnold, O'Leary, & Edwards, 1997; Kneppers, 1998) which poses generalizability problems, as well as the problem of determining whether observed differences are due to the stresses of raising a child with ADHD, or to parental ADHD itself. Other sampling problems in the adult ADHD literature include the reliance on samples of individuals who were identified as having ADHD in childhood and followed into adulthood, the use of predominantly male samples, and under-representation of individuals with predominantly inattentive symptoms of ADHD.

The present study examined parenting cognitions (parenting self-esteem and parenting locus of control), disciplinary styles of parenting behavior, marital adjustment, and symptoms of comorbid psychopathology in mothers with and without ADHD symptoms. In contrast to previous work in this area, the present study utilized a community-based sample of women, rather than a clinically-referred sample. In an attempt to predict how these variables may be related to maternal ADHD symptoms, the information known about adult ADHD, parenting, maternal psychopathology, and marital relations will be reviewed, followed by a discussion of important methodological considerations in the study of adults with ADHD.

#### Parenting Cognitions and Behaviors

Parenting cognitions include attitudes, beliefs, values, behavioral intentions, or perceptions that are thought to influence parenting behavior (Bugental & Johnston, 1999; Holden & Edwards, 1989; Mash & Johnston, 1990; Miller, 1988). Research has shown that parenting cognitions and behaviors of parents with other forms of psychopathology

(e.g., depression, anxiety) differ from those of parents without symptoms (Field, Healy, Goldstein, & Guthertz, 1990; Forehand, Lautenschlager, Faust, & Graziano, 1986; Goodman, Adamson, Ritini, & Cole, 1994; Hirshfeld, Biederman, Brody, & Faraone, 1997; Kochanska, Kuczynski, & Maguire, 1989; Stoneman, Brody, & Burke, 1989; Weissman, Paykel, & Klerman, 1972). Parenting self-esteem and parenting locus of control are two aspects of parenting cognition that have received attention in the literature (Bugental & Johnston, 1999; Geller and Johnston, 1995; Goodman et al., 1994; Johnston & Mash, 1989). Parenting self-esteem encompasses both feelings of self-efficacy as a parent (e.g., expectations for positive coping as a parent), and feelings of satisfaction with the parenting role (Johnston & Mash, 1989). Parenting locus of control is related to parents' attributions for their children's behavior, specifically, beliefs about the amount of control they have over their children's behavior. An internal parenting locus of control indicates that a parent views their child's behavior as a direct consequence of their parenting efforts; whereas an external parenting locus of control indicates that a parent views their child's behavior as falling outside the reach of their parenting efforts. Parenting styles describe patterns of behavior or behavioral intentions of parents, and are thought to reflect underlying parenting beliefs and values (Holden & Edwards, 1989). Parental disciplinary styles are parenting styles that are used when faced with child misbehavior. At least two parental disciplinary styles have been described in the literature: permissiveness or laxness, which involve failures to set appropriate limits on



child behavior, and control or overreactivity, which involve excessively restricting child behavior (Arnold, O'Leary, Wolfe, & Acker, 1993; Holden & Edwards, 1989).

### Comorbid Psychopathology Symptoms and Adult ADHD

A number of researchers have examined the persistence of ADHD into adulthood, and documented high rates of comorbidity between adult ADHD and other disorders (Biederman, Faraone, Keenan, Knee, & Tsuang, 1990; Biederman, Newcorn, & Sprich, 1991; Biederman et al., 1993, 1994; Mannuzza, Klein, Bessler, Malloy, & LaPedula, 1993; Weiss, Hechtman, Milroy, & Perlman, 1985; Wender, 1987, 1995). In follow-up studies of clinically-referred children with ADHD, antisocial behavior and drug use were more frequent in adults formerly identified as having ADHD in childhood, than in adults without a history of ADHD (Klein & Mannuzza, 1991; Mannuzza et al., 1993; Weiss & Hechtman, 1993). The rates for antisocial behavior and drug use were particularly high in those whose symptoms continued into adulthood. Studies of adults referred to clinics for ADHD symptoms have found high frequencies of substance abuse and antisocial behavior, as well as high frequencies of anxiety and depressive disorders in adults with ADHD (Biederman et al., 1993; Biederman, Wilens, et al., 1995; Shekim et al., 1990; Wender, 1995). In a study of mothers with ADHD with children with ADHD, Rucklidge (1998) found that women with ADHD were more depressed, anxious, and felt more stressed than women without ADHD.

In a sample of clinic-referred males and females (2/3 of the sample was male), Biederman et al. (1993) found that compared to adults without ADHD, adults with the

disorder had higher rates of antisocial personality disorder, conduct disorder, oppositional defiant disorder, substance use disorder, anxiety disorders, and speech and language disorders. In a later study (Biederman et al., 1994), these researchers found that women with ADHD had higher rates of major depressive disorder, anxiety disorders, and conduct disorder, when compared to normal control females. However, when compared to men with ADHD, women with ADHD had significantly lower rates of conduct disorder. This finding is consistent with findings in pediatric samples, which have found girls with ADHD to have lower rates of conduct disorder than boys with ADHD (e.g., Safer & Krager, 1988; Shaywitz & Shaywitz, 1987). Prospective studies which reported higher rates of antisocial behavior and substance use (Klein & Mannuzza, 1991; Mannuzza et al., 1993; Weiss & Hechtman, 1993) may not have found higher rates of depression and anxiety because the samples used were predominantly male or all male.

From these studies, it appears that ADHD in adulthood is related to various other psychiatric symptoms, including antisocial behavior, substance abuse, anxiety, and depression. The few studies that have considered gender differences suggest that antisocial behavior may be less likely in women with ADHD than in men with the disorder (Biederman et al., 1994; Safer & Krager, 1988; Shaywitz & Shaywitz, 1987). Since adults with psychiatric disorders such as depression and anxiety are likely to experience parenting difficulties, mothers with ADHD may also experience similar problems.

### Psychopathology Symptoms and Parenting

Although few empirical studies have examined ADHD and parenting cognitions or behaviors, much research has shown mothers with depression and anxiety to demonstrate difficulties in parenting. For example, depressed mothers have been shown to use more vague and interrupted commands to which a child cannot comply; demonstrate decreased involvement, impaired communication, increased friction, and a lack of affection towards their children; and to be less responsive and stimulating to their infants (Field et al., 1990; Forehand et al., 1986; Kochanska et al., 1987; Weissman et al., 1972). Maternal depression is associated with a lack of parental involvement, responsiveness, spontaneity, and emotional support (Downey & Coyne, 1990; Gelfand & Teti, 1990; Hammen, 1988; Kochanska et al., 1989; Miller, Cowan, Cowan, Hetherington, & Clingempeel, 1993; Zahn-Waxler et al., 1988).

Parental depression is also related to discipline styles involving inconsistent parenting, hostility in child-rearing practices, protectiveness, and the use of anxiety- and guilt-inducing methods rather than rational discipline methods (Stoneman et al., 1989; Susman, Trickett, Iannotti, Hollenbeck, & Zahn-Waxler, 1985). Mothers with anxiety disorders have been found to express more criticism towards their children compared to mothers without anxiety disorders (Hirshfeld et al., 1997). Anxious parents have also been found to communicate less with their children, not allow their children to express their own ideas and feelings, be more likely to have an authoritarian discipline style, and have reduced affectional bonds with their children, compared with normal control parents (Rao & Kodanda, 1984).

Maternal psychiatric symptoms are also related to low parenting self-esteem, external parenting locus of control, and other parenting cognitions. Highly anxious mothers of infants have been found to feel less confident about their parenting abilities than moderately and minimally anxious mothers (Barnett & Gordon, 1986). Another study found mothers with a history of depression expressed more critical attitudes towards their 8 to 10 year old children than mothers without a history of depression (Goodman et al., 1994). In this study, depressed mothers' critical attitudes contributed to their children's lowered self-esteem and psychopathology. Current research also suggests that maternal depression and anxiety are related to negative perceptions of child behavior, and to actual child behavior problems (Brody & Forehand, 1986; Conrad & Hammen, 1989; Cunningham, Benness, & Siegel, 1988; Frick, Silverthorn, & Evans, 1994; Geller & Johnston, 1995; Hatcher, Powers, & Richtsmeier, 1993; Johnston, 1991; Mednick, Hocesvar, Baker, & Schulsinger, 1996; Radke-Yarrow, Belmont, Nottelmann, & Bottomly, 1990; Thompson, Gil, Burbach, & Keith, 1993). Compared to non-depressed mothers, depressed mothers are more likely to attribute negative child behaviors as caused by something internal to and controllable by the child (Geller & Johnston, 1995).

Together, these studies suggest mothers with psychopathology such as depression or anxiety demonstrate various ineffective discipline styles and behaviors, and also show dysfunctional parenting cognitions, or thoughts about parenting, including low parenting self-esteem, and an external parenting locus of control. Since many adults with ADHD also experience anxiety or depression, the findings relating maternal depression and

anxiety to ineffective parenting may also apply to mothers with ADHD. If a relationship is found between maternal ADHD and parenting, it will be important to determine whether the relationship exists only in the presence of comorbid anxious or depressive symptoms, or if the relationship exists regardless of these symptoms. It is also possible that the quality of the marital relationship may moderate the relationship between maternal ADHD symptoms and parenting cognitions and behavior.

#### Marital Relationships and Adult ADHD

In addition to higher rates of depression, anxiety, substance use, and antisocial behaviors, other difficulties have been reported in adults with ADHD. These include marital and other relationship problems, as well as various specific cognitive impairments which have been documented in the research literature, as well as in case studies and clinical reports.

Two empirical studies have suggested that adults with ADHD may suffer social and relationship problems (Biederman et al., 1993; Murphy & Barkley, 1996a). Murphy and Barkley (1996a) noted that adults diagnosed with ADHD experienced greater levels of marital discord than adults without the diagnosis. Adults with ADHD were also more likely to have had multiple marriages, and to have experienced difficulties making friends. Biederman's group (1993) also reported that their sample of adults with ADHD were more likely to be divorced or separated (28%) than those without the disorder (15%).

Marital and other relationship problems have also been described in the clinical literature (e.g., Hallowell & Ratey, 1994). Interpersonal problems were common in many of the 60 cases of adults with ADHD summarized by Ratey and colleagues (1992). Social relationships were frequently marked by confusion, misunderstandings, and failure, and seemed to lead to lowered self-esteem. Sometimes the interpersonal problems stemming from ADHD symptoms also extended to the marital relations of these adults, while in other cases, relationships with significant others were viewed as a source of structure and feedback.

A more recent study, however, suggests that the relationship between adult ADHD and marital relationships may not be as strong as one would expect from the clinical literature (Shulman, 1998). This study found very few differences between individuals with ADHD and without ADHD on a variety of marital relationship measures. Individuals with ADHD were no less likely to be accommodating to their spouses, and showed no differences in attributions of spousal behavior. In fact women with ADHD were more likely to report more marital satisfaction in their marriages than those who did not have ADHD. Women with ADHD did report more disagreement with their spouses than women without ADHD, and men with ADHD reported less marital satisfaction than men without ADHD. These conflicting findings suggest that the relationship between ADHD and marital adjustment may differ for men and women.

These studies and case reports indicate that the relationship between ADHD and marital adjustment has yet to be determined, and may differ for men and women. Since

marital satisfaction and harmony is related to parenting (Cox, Owen, Lewis, & Henderson, 1989; Forehand & Brody, 1985; Lewis, Tresch-Owen, & Cox, 1988; Miller, Cowan, Cowan, Hetherington, & Clingempeel, 1993; Simons, Lorenz, Wu, & Conger, 1993; Stoneman et al., 1989), it is possible that marital satisfaction may moderate the relationship between maternal ADHD and parenting cognitions and behaviors.

#### Marital Relationships and Parenting

In addition to the literature that suggests a relationship between maternal psychiatric symptoms and parenting cognitions and behaviors, there are also studies that support a relationship between marital satisfaction and parenting behavior styles (Cox et al., 1989; Forehand & Brody, 1985; Lewis et al., 1988; Miller et al., 1993; Simons et al., 1993; Stoneman et al., 1989). For example, parents with low marital satisfaction have been shown to use less rewards in their parenting behavior (Forehand & Brody, 1985), and marital conflict has been associated with parental inconsistency (Stoneman et al., 1989). Negative couple relationships have also been associated with less parental warmth and responsiveness to three and a half-year old children, and to nine to thirteen year-old children (Miller et al., 1993).

It appears that negative marital relationships are related to ineffective parenting cognitions and behaviors, while positive marital relations are associated with more effective parenting behaviors and cognitions. Marital conflict and dissatisfaction have been found to predict negative attitudes towards child-rearing, and insensitive, unresponsive parenting behavior (Jouriles, Barling, & O'Leary, 1987; Jouriles et al.,

1991). Marital satisfaction and harmony, on the other hand, are associated with tolerant and supportive parental attitudes, less strict parental beliefs, and fewer feelings of annoyance among parents of 20-month-old children (Goldberg & Easterbrooks, 1984). Based on these and similar findings, some researchers have proposed that the relationship between quality of the marital relationship and parenting cognitions and behaviors exists because the marital relationship provides support for parents (Belsky, 1984; Belsky, Youngblade, Rovine, & Volling, 1991; Cowan & Cowan, 1988; Dickie, 1987; Fincham & Bradbury, 1990; Simons et al., 1993). These models suggest that a positive marital relationship acts as a buffer against the impact of stress and parental psychopathology on quality of parenting.

If adults with ADHD symptoms experience difficulties in their marital relationships, they may also be more likely to experience difficulties in the parenting role. If it is found that parenting cognitions and behaviors are related to maternal ADHD symptoms, it will be necessary to examine whether the relationship is moderated by marital satisfaction, in addition to comorbid maternal psychopathology symptoms. That is, does the relationship exist only in the presence of low marital adjustment, or does the relationship exist regardless of the level of marital adjustment?

#### Cognition and Adult ADHD

The psychiatric, marital, and other difficulties noted in adults with ADHD may exist in addition to, or as a result of specific cognitive impairments related to ADHD. Adults with the disorder may have impairments in the executive functions of non-verbal



working memory; internalization of speech (verbal working memory); self-regulation of affect, motivation and arousal; and reconstitution (Barkley, 1996, 1997a, 1997b).

Barkley has proposed a theoretical model which argues that behavioral disinhibition is the primary deficit in ADHD, while deficiencies in these four executive functions are secondary deficits which affect motor control/fluency/syntax. Indirect and direct support of deficits in each of these functions in children and adults has been documented and continues to be gathered (see Barkley, 1997a).

In the model of executive functions, Barkley proposes that impairments in the four executive functions lead to impairments in specific subfunctions. For example, non-verbal working memory is implicated in the ability to hold events in one's mind, manipulation and acting on events, hindsight, foresight, sense of time, cross-temporal organization, and non-verbal rule-governed behavior. Internalization of speech (verbal working memory) is implicated in description and reflection, problem solving, moral reasoning, and reading comprehension. Self-regulation of affect/motivation/arousal is proposed to play a role in regulation of emotions, social perspective taking, and arousal for goal-directed behavior; and reconstitution is implicated in analysis and synthesis of behavior, verbal and behavioral fluency, and creativity. Deficits in these functions result in reduced motor control/fluency/syntax, which consists of disinhibited task-irrelevant responses, impaired goal-directed behavior, insensitivity to response feedback, and poor self-control of behavior.

According to Barkley's model, impairments in these covert forms of self-regulation (i.e., the four executive functions) influence the overt performance of goal-directed behaviors. Thus, from this perspective, inattention, hyperactivity/impulsivity, and other associated features of ADHD would be the behavioral manifestations of deficits in executive functions, which stem from behavioral disinhibition.

### Cognition and Parenting

Although Barkley (1997a) has attempted to describe the cognitive underpinnings of ADHD, it is still unclear how deficits in executive functioning might relate to parenting cognitions or behavior. A number of secondary symptoms associated with ADHD and described by clinicians (e.g., Hallowell & Ratey, 1994; Kane et al., 1990; Ratey et al., 1992; Weiss & Hetchman, 1993) appear to be in line with the model. For example, poor organizational skills, difficulty completing tasks, low frustration tolerance, interpersonal difficulties, language deficits, chronic procrastination, time management difficulties, and difficulty establishing a routine, can all be described in terms of deficits in the various executive functions. Deficits in executive functioning could also play a role in how parents think about their parenting, and in how they behave towards their children. For example, an adult with ADHD may not pick up on social cues being sent by their child, or may misinterpret cues being sent. On another level, an adult suffering from ADHD may have difficulty formulating parenting goals or in choosing or developing an appropriate course of action with their child. Another possibility is that an adult with ADHD may have difficulty carrying out a chosen course of action. These stages of

processing have been described by Crick and Dodge (1994) in a model of social-information processing.

For mothers with ADHD, the executive functions described by Barkley may play a role in attending to cues from children and internal cues, as well as in the interpretation of those cues which are encoded. According to Crick and Dodge (1994), interpretation may involve holding cues in memory, ability to see the perspective of others (including attributions of intent), causal analysis of events, the ability to relate to previous experiences, and the ability to formulate expectations for the future (including beliefs of self-efficacy). All these functions are also implicated in Barkley's model of disinhibition. The other phases of social information processing may be affected by executive functions involved in working memory, goal-directed behavior, analysis and synthesis of behavior.

The formulation of internal or external attributions of control of child behavior, feelings of self-efficacy and satisfaction in the parenting role, and the use of lax or overreactive disciplinary styles of parenting behavior may also be considered in relation to executive functioning and social information processing. For example, perspective taking, causal analysis of events, formulation of expectations, self-regulation of affect, and cross-temporal organization, can all be described in terms of executive functions or social information processing, and may play a role in these parenting cognitions and behavior styles. Deficits in self-regulation of affect, motivation, and arousal may result in the use of both lax and overreactive disciplinary styles; difficulties in perspective-taking and causal analysis may lead to an external parenting locus of control; and deficits

in cross-temporal organization, formulation of expectancies, hindsight, and foresight may influence parenting self-esteem.

Based on the social-information processing model, Barkley's model of disinhibition, and previous research on parental depression, anxiety, and marital relationships, it was predicted that mothers with ADHD symptoms will be more likely to report certain parenting cognitions and behaviors compared with mothers without symptoms. Specifically, mothers with ADHD may be more likely to attribute negative child experiences as being external and uncontrollable by parenting efforts, view themselves as less effective in their parenting role and gain less satisfaction from that role, and to use ineffective disciplinary styles, such as laxness in enforcing rules, and emotional overreactivity to the child. Although the executive functions have not been shown to be related to parenting cognitions or disciplinary styles in empirical studies, it is possible to speculate how the executive functions in the model of disinhibition may play a role in parenting locus of control, parenting self-esteem, and in disciplinary styles.

It was expected that women with ADHD symptoms would attribute negative child behavior to external and uncontrollable forces, because the model of disinhibition proposes that deficits in the executive function working memory would result in difficulties holding events in one's mind, and deficits in hindsight. Deficits in self-regulation of affect/motivation/arousal would result in difficulties with objectivity and social perspective-taking. Analysis of behavior would be compromised by reconstitution. These executive functions may play a role in causal analysis, and may influence mothers'

attributions of child misbehavior. Forming accurate attributions of locus of control requires one to hold the child's behavior in mind, analyze the behavior, call on memories of similar previous situations (hindsight), being somewhat objective in formulating the attribution, which may involve trying to see the situation from the child's point of view (perspective-taking).

Parenting self-esteem may be influenced by similar executive functions. For example, the working memory's functions of holding events in one's mind, hindsight, forethought, and self-awareness may play a role in parental efficacy and satisfaction. These cognitions involve thoughts about ability in future parenting situations, as well as in past situations. In addition to these functions, internalization of speech, which involves description, reflection, and self-questioning may also play a role in parenting self-esteem. Finally, the role of self-regulation of affect/motivation/arousal, which includes the regulation of affect, objectivity, and social perspective-taking may also play a role in parenting self-esteem.

The four executive functions in the model of disinhibition may also play a role in disciplinary styles of women with ADHD. For example, consistent effective disciplinary styles would require the ability to hold events in one's mind, act on events, such as child misbehavior, consider the child's past behavior and how previous disciplinary behaviors worked (hindsight), the ability to think about how present action will affect future child behavior (forethought), anticipating child misbehavior (anticipatory set), and the use of non-verbal rule-governed behavior, regarding appropriate responses to child misbehavior.

Their accuracy in description and reflection on child misbehavior, problem solving abilities, and moral reasoning, may also influence discipline styles of women with ADHD. Self-regulation of affect/motivation/arousal may play a role not only in terms of the ability to be objective, and in social perspective-taking, but also in mothers' ability to regulate their emotional responses to child misbehavior. Mothers' ability to analyze the inappropriate child behavior, and formulate a plan of disciplinary action (synthesis) may also influence maternal disciplinary styles. Verbal and behavioral fluency to carry out the chosen course of action, and the ability to be creative in rewards and punishments used with the child may also be important functions in determining disciplinary styles.

#### Adult ADHD: Parenting Cognitions and Behaviors

Research has supported the view that ADHD symptoms can persist into adulthood, and that the presence of ADHD is also related to difficulties in other areas of adult functioning, such as in comorbid psychopathology symptoms, and marital relationships. These difficulties may be related to deficits in executive functioning, as outlined by Barkley's model of disinhibition. The present study proposes that in addition to these difficulties, mothers with ADHD will also report showing ineffective parenting cognitions and behaviors.

Parenting styles of adults with ADHD have important implications for the adjustment of children in these families, as these children already carry some genetic risk of developing the disorder (Biederman et al., 1990; Biederman, Faraone, Keenan, et al., 1992; Cadoret & Stewart, 1991; Faraone, Biederman, Keenan, & Tsuang, 1991; Faraone,

Biederman, & Milberger, 1994). For example, the child of a woman with ADHD is genetically at risk for developing difficulties in attention and impulsivity/hyperactivity. It is also possible that environmental factors may influence the expression of the child's difficulties. A child who is genetically at-risk and is interacting with a mother whose own deficits make it difficult to provide effective parenting, may be especially at risk, both genetically, and through the family environment.

A recent study examined parenting cognitions in women with ADHD who also had children with ADHD (Kneppers, 1998). Although the overall findings from this study were inconsistent, they lend some support to the possible relationship between ADHD and parenting. Although the study found no relationship between maternal ADHD and parental attributions for child behavior or emotional responses to child behavior, mothers with ADHD were more likely to give inaccurate descriptions of children's compliant behavior than mothers without ADHD. Mothers with ADHD reported more child behavior problems when observing video-taped compliant child behavior than mothers without ADHD. The inconsistent findings in the Kneppers study may be related to the fact that the women were not responding about their own children, or their own parenting cognitions, but were responding to an unknown child on video.

Another study focused on parental involvement of fathers of children with ADHD, but also measured paternal ADHD symptoms (Arnold, O'Leary, & Edwards, 1997). This study found that in highly involved fathers, those high in ADHD symptoms were more likely to report an over-reactive discipline style, than highly involved fathers

without ADHD symptoms. For fathers who were not highly involved, however, there were no differences in disciplinary styles between fathers with and without ADHD symptoms. These results may suggest that parenting cognitions and behaviors may be affected by parental ADHD symptoms, at least when parents are highly involved in their parenting role. Since mothers are often highly involved in parenting, it is likely that ADHD symptoms could affect the parenting styles of women with ADHD.

The research of Kneppers (1998) and Arnold, O'Leary, and Edwards (1997) provide some support for a relationship between parental ADHD and parenting cognitions and behaviors. In addition to these studies, a number of indirect lines of evidence suggest that parenting cognitions and disciplinary styles may be related to parental ADHD symptoms. Indirect lines of support for this relationship include research that shows a relationship between maternal psychopathology and parenting, research that shows a relationship between marital relationships and parenting, research on parents of children with ADHD, and case studies of individuals with ADHD.

First, parents with other disorders, such as depression and anxiety, demonstrate difficulties in parenting (Field et al., 1990; Forehand et al., 1986; Goodman et al., 1994; Hirshfeld et al., 1997; Kochanska et al., 1989; Stoneman et al., 1989; Weissman et al., 1972). Since many adults with ADHD also have comorbid anxiety and depression (Biederman et al., 1994; Downey, Stelson, Pomerleau, & Giordani, 1997; Fischer et al., 1997; Shekim et al., 1990), these findings may also apply to mothers with ADHD. Second, mothers who experience marital conflict are likely to show ineffective parenting



cognitions and behaviors. Since adults with ADHD are more likely to experience marital difficulties, these findings may also apply to mothers with ADHD. It is possible that maternal ADHD will only be related to parenting in those with high levels of psychopathology symptoms or low levels of marital adjustment. The moderating effects of comorbid maternal psychopathology and marital relationships have been discussed in the parenting literature (Belsky, 1984; Belsky et al., 1991; Cowan & Cowan, 1988; Dickie, 1987; Fincham & Bradbury, 1990; Simons et al., 1993).

Another possible line of indirect support for the relationship between maternal ADHD and parenting may lie in the research on parents of children with ADHD. Parents of children with ADHD view their families as having lower levels of expressiveness and autonomy, and perceive their family environment as less supportive and more stressful than parents of normal children (Brown & Pacini, 1989). Parenting a child with ADHD seems to be associated with patterns of attributions for child behavior that include attributions for negative child behavior that are internal to the child, attributions for positive child behavior that are external to the child, and feelings of having less control over positive and negative child behavior (Johnston & Freeman, 1997; Mash & Johnston, 1990; Sobol, Ashbourne, Earn, & Cunningham, 1989). These parents have also been found to be less responsive and rewarding, and more negative and directive than parents of children without the disorder (Danforth, Barkley, & Stokes, 1991). Parents of children with ADHD are also more likely to report lower levels of parenting self-efficacy and

satisfaction than those with normal children (Johnston & Mash, 1989; Lewis-Abney, 1993; Mash & Johnston, 1983b)

Research suggests the direction of these effects is mainly from child to parent (Barkley, 1989; Barkley, Karlson, Pollard, & Murphy, 1985; Cunningham & Barkley, 1978; Schachar, Taylor, Wieselberg, Thorley, & Rutter, 1987), because when the child is treated with stimulant medication and non-compliant behavior decreases, maternal rates of directive commands and criticism decrease and maternal warmth increases. However, at least one group of researchers has questioned whether some of the parenting behavior of mothers of children with ADHD may be due in part to the parent's own ADHD symptoms (Frick & Jackson, 1993). Given the genetic transmission of the disorder, these parents are more likely to have ADHD themselves than parents of children without ADHD. Biederman and others (Biederman, Faraone, Keenan, et al., 1992; Faraone et al., 1992, 1994) have reported that many parents of children with ADHD report symptoms compatible with the diagnosis of ADHD. In fact, it has been estimated that 15% to 20% of mothers of children with ADHD may have the disorder themselves (Biederman, Faraone, Keenan, et al., 1992; Faraone et al., 1992). In light of findings that parents of children with ADHD are more likely to have ADHD themselves, the literature detailing the parenting cognitions and behaviors of mothers of children with ADHD may be applicable to mothers who have ADHD symptoms themselves.

Another source of support for the relationship between maternal ADHD and parenting comes from case studies. Two case studies suggest that a relationship among these variables may indeed exist.

One of the case studies illustrates the potential effects of maternal inattention and impulsivity on mother-infant interactions and parenting (Daly & Fritsch, 1995). The mother in this case was distracted, inattentive, and unable to stay on task and maintain eye contact when feeding her 2 month-old child, resulting in the infant's hospitalization for non-organic failure to thrive. During the child's hospitalization it was discovered that the mother of the infant met criteria for ADHD. Upon initiation of stimulant medication for the treatment of her symptoms, the mother's ability to feed her child also significantly improved, resulting in the continued weight gain of the infant. With medication, the mother showed a marked decrease in distractibility when feeding her infant, resulting in improved eye contact and interaction with the child. This case illustrates one of the ways in which cognitive impairments in mothers with ADHD may influence parental functioning.

Evans, Vallano, and Pelham (1994) provide the second case. In this case, the mother, who was unable to control her 6-year-old ADHD son's behavior, was discovered to have ADHD herself. Although parent training for the son's ADHD was attempted, the mother's own ADHD symptoms interfered with her implementing the treatment at home. She failed to complete the monitoring tasks, and inconsistently implemented the management techniques. Following stimulant medication treatment for her symptoms,

the mother reported an improvement in her parenting behaviors and in her son's behavior (although he had not received medication). She also reported feeling more successful and competent in her parenting when taking the medication, compared to her sense of lack of parenting success and self-appraisals of failure when not taking the medication.

These case studies suggest that maternal ADHD symptoms could be related to parental behavior and parenting cognitions, including parenting self-esteem. Together with the research involving maternal psychopathology and parenting, marital relationships and parenting, and parenting cognitions and behaviors of parents of children with ADHD, this research lends support to the two empirical studies which have investigated this relationship directly (Arnold et al., 1997; Kneppers, 1998).

#### Methodological Issues

Most of the research that has examined ADHD in adulthood has been conducted within the past decade, during which much of the literature has focused on documenting the presence of ADHD symptoms in adulthood, establishing the validity of the diagnosis of ADHD in adults, and describing common comorbidities (Biederman et al., 1994; Downey et al., 1997; Greenfield, Hechtman, & Weiss, 1988; Mannuzza et al., 1993; Shekim et al., 1990; Weiss & Hechtman, 1993). Few researchers have examined parenting cognitions and behaviors, or other family-related constructs in adults with ADHD. The studies conducted by Kneppers (1998), Rucklidge (1998), and Shulman (1998) shed some light on possible relationships among parental ADHD, parenting, marital relationships, and comorbid psychopathology. However, the reliance of these

studies on samples of parents of children with ADHD limits their generalizability to adults with ADHD who may not have children with ADHD. In general, research on ADHD in adults has also suffered methodological problems, including an under-representation of women in samples and a reliance on clinic-based samples.

Little attention in the literature has been given to women and girls with ADHD. Biederman and others (1994) examined gender differences in a clinic sample of adults with ADHD and found an equal representation of men and women with the disorder. This is in contrast to the 3:1 ratio of boys to girls, so widely reported for children (Biederman et al., 1990; Gittelman, Mannuzza, Shenker, & Bonagura, 1985; Weiss et al., 1985). One possible explanation for this finding is that ADHD may cause significant impairments for girls, but that these impairments are not easily recognized in childhood because girls are more likely to manifest cognitive impairments, anxiety disorder, depression, and low self-esteem, and less likely than boys to show more visible comorbid behavior problems and conduct disorder (Biederman et al., 1991, 1994; Biederman, Faraone, & Lapey, 1992; Faraone et al., 1991; Wender, Reimherr, & Wood, 1981). These differences in childhood manifestations of ADHD between boys and girls may lead to a gender-based referral bias because children with externalizing disorders are more likely to be referred than those with internalizing disorders. Another explanation is that males tend to be more aggressive and oppositional, and since these behaviors are associated with ADHD in children, males are also found to be more likely to have ADHD (Barkley, 1996). The 3:1 ratio of boys to girls with ADHD can also be partially

explained by the fact that the diagnostic criteria for ADHD were developed primarily on male subjects (Barkley, 1996).

There is an increasing need for more research on women with ADHD, given the increasing incidence or recognition of the disorder in females during adulthood. Since women often have different roles and experiences than men, ADHD symptoms may influence them differently. In addition, if girls with ADHD demonstrate different symptoms than boys with ADHD, as described above, it stands to reason that women with ADHD may experience different symptoms than men with ADHD.

Another difficulty with the existing literature on adult ADHD, is the reliance on samples of children with ADHD who were followed into adulthood, parents of children with ADHD, or adults referred and diagnosed with ADHD. Due to referral biases in which people who exhibit more symptoms are more likely to be referred to clinics, subjects in these samples are more likely to have other problems in addition to ADHD, such as conduct problems, anxiety disorder, substance abuse, or depression (Barkley, 1990; Biederman et al., 1991; Biederman, Faraone, & Lapey, 1992). The results of these studies, therefore, cannot be generalized to the general population of adults with ADHD, at least some of whom may be suffering primarily from ADHD symptoms alone. Although a few community-based studies of adults with ADHD have been conducted recently (Murphy & Barkley, 1996b; Weyandt, Linterman, & Rice, 1995), these have been mostly descriptive in nature. More research using community samples, and

including women, are necessary to obtain a clear picture of adult ADHD and the impact it may have on various aspects of adult functioning.

### Rationale for the Present Study

In an effort to better understand the parenting difficulties experienced by women with ADHD, the present study examined the perceptions of mothers with and without ADHD symptoms on measures pertaining to psychopathology symptoms, marital adjustment, parenting self-esteem, parenting locus of control, and disciplinary styles. The study used a community sample of mothers of children between 3 and 6 years of age. Previous studies examining adult ADHD have used clinic-referred samples or adults who had been identified as having ADHD in childhood, and most have consisted of predominantly male samples. Moreover, parenting cognitions and behaviors of adults with ADHD have seldom been considered in the literature. It is important to examine parenting difficulties in women with ADHD symptoms, because their children are at-risk for developing the disorder, due to genetic factors. They may also be at-risk due to family-environmental factors, related to maternal parenting, comorbid maternal psychopathology symptoms, and marital relations. In the future, these findings may be used to generate interventions aimed at aiding women with ADHD, or to develop preventative interventions for children of women with ADHD.

The present study used self-report measures of ADHD symptoms, comorbid psychopathology, marital adjustment, parenting self-esteem, parenting locus of control, and disciplinary styles from a sample of 80 mothers identified primarily through

daycares. Thirty-seven of the mothers scored high in ADHD symptoms, and 43 scored low in ADHD symptoms. Comparisons were made between the two groups on demographic characteristics and scores on self-report measures, and multiple regression analyses were conducted to test for the moderating effects of comorbid psychopathology and marital adjustment on the relationship between maternal ADHD and parenting cognitions and styles.

### Hypotheses

Based on the recent theoretical work of Barkley (1997a) and also on previous findings in the adult ADHD, maternal psychopathology, and parenting literatures, a number of predictions were made regarding the general relationships among the variables. Figure 1 illustrates a model of proposed relationships among the variables. In the prediction of parenting cognitions and disciplinary styles, main effects were expected for ADHD symptoms, comorbid maternal psychopathology, and marital adjustment, and were represented by arrows running from these variables to parenting cognitions and disciplinary styles. The direction of the arrows is from predictor to criterion. Marital adjustment and comorbid maternal psychopathology were also expected to moderate the relationship between ADHD symptoms and parenting cognitions and disciplinary styles. The moderating effects of these variables were represented by arrows, which run from the moderators to the arrow that represents the relationship between ADHD and parenting cognitions and disciplinary styles. The model



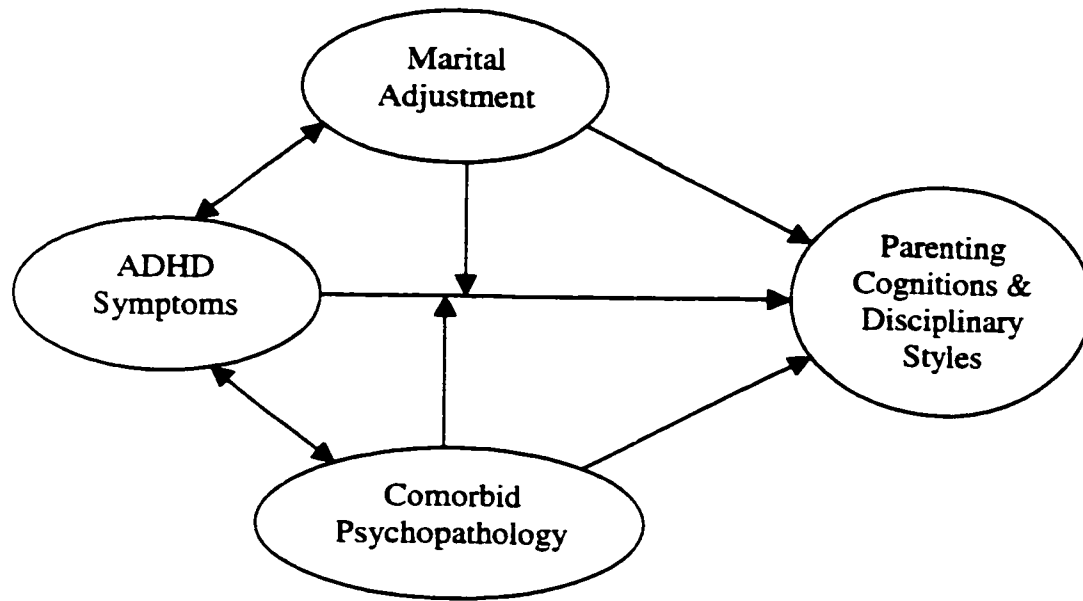


Figure 1. Model of proposed relationships among ADHD, comorbid psychopathology, marital adjustment, and parenting cognitions and disciplinary styles.

also illustrates the expected relationships between ADHD symptoms and marital adjustment, and between ADHD symptoms and comorbid maternal psychopathology. Bi-directional arrows represent these relationships, as they were tested through correlation analyses, which do not signify direction of relationships. This model represents the first seven hypotheses listed below.

### Maternal ADHD and Parenting

Hypothesis 1. Maternal ADHD symptoms will be related to lower self-ratings of parenting self-esteem, as measured by the parenting satisfaction and parenting efficacy scales of the Parenting Sense of Competence Scale (Johnston & Mash, 1989).

Hypothesis 2. Maternal ADHD symptoms will be related to self-ratings of external parenting locus of control, as measured by the Parenting Locus of Control Scale (Campis, Lyman, & Prentice-Dunn, 1986). That is, mothers with ADHD symptoms will report having less control of their child's behavior, taking less responsibility for their child's behavior, feeling as if their child has control over their lives, having more belief in fate, and feeling less able to influence their child's behavior; compared with mothers without ADHD symptoms.

Hypothesis 3. Maternal ADHD symptoms will be related to ineffective disciplinary styles, as measured by the Parenting Scale (Arnold, O'Leary, Wolfe, & Acker, 1993). Mothers with ADHD symptoms will report more laxness and overreactivity than mothers without ADHD symptoms.

### Maternal ADHD and Comorbid Psychopathology and Marital Adjustment

Hypothesis 4. Maternal ADHD symptoms will be related to comorbid maternal psychopathology symptoms, as measured by the Brief Symptom Inventory (Derogatis, 1992)

Hypothesis 5. Maternal ADHD symptoms will be related to marital adjustment, as measured by the Dyadic Adjustment Scale (Spanier, 1976)

#### Moderating Effects

Hypothesis 6. It is predicted that marital satisfaction will moderate, or buffer the effects of ADHD symptoms on the parenting variables. For the above predictions, the relationship between ADHD and negative parenting cognitions and disciplinary styles will be stronger in mothers who report low levels of marital satisfaction, and weaker in those who report higher levels of marital satisfaction.

Hypothesis 7. It is predicted that comorbid psychopathology symptoms will moderate the effects of ADHD symptoms on the parenting variables. For the above predictions, the relationship between ADHD and negative parenting cognitions and disciplinary styles will be stronger in mothers who report high levels of depression and anxiety, and weaker in those who report lower levels of depression and anxiety.

#### Other Predictions

Hypothesis 8. Women's self-report of current ADHD symptoms will be related to their self-reported retrospective recall of childhood ADHD symptoms.

Hypothesis 9. Women's self-reported current ADHD symptoms will be related to their partners' ratings of the women's ADHD symptoms.

Hypothesis 10. ADHD symptoms, as measured by the ADHD Behavior Checklist for Adults (Barkley & Murphy, 1998) will be related to ADHD symptoms as measured by the Conners' Adult ADHD Rating Scales (Conners et. al., 1999). Specifically, the Inattentive subscale of the ABCA will be related to the Inattention/Memory, Impulsive/Emotional Lability, and DSM Inattentive scales of the CAARS; and the Hyperactive/Impulsive scale of the ABCA will be related to the Hyperactive/Restless, and DSM Hyperactivity/Impulsivity scales of the CAARS.

## CHAPTER TWO

### METHODOLOGY

#### Participants

Eighty-two participants were recruited from local daycares, preschools, family physicians, and pediatricians. Eligible participants were mothers who were married or living in a common-law relationship, and had at least one child between the ages of 3 and 6 years. In an attempt to gain corroborative information on maternal ADHD symptoms, partners or spouses of the mothers were also asked to participate. However, due to difficulties in obtaining participation from partners, spousal participation was optional.

Mothers who participated ranged in age from 24 to 46 years, with a mean age of 34.6 years ( $SD = 3.52$ ). All mothers had between 1 and 7 children, although most women had one child (34.1%) or two children (47.6%). Of the women who participated, 34.2% reported they had been told they had or may have ADHD. Partners of 33 women (41.2%) participated. Partners who chose not to participate cited reasons such as being away from the home for work, insufficient time, or lack of interest in the study.

Mothers of children between the ages of three and six years were chosen because it was expected that few children would be diagnosed with ADHD in this age range. Since children of women with ADHD are more likely to have ADHD due to genetic factors, child ADHD status would likely be a confound for mothers of older children. Although some women in the current sample had older children with ADHD, the mothers were asked to respond to the parenting questionnaires while thinking of their child in the

three to six year age range. The three to six year age range was also chosen because the parenting measures in the present study have all been previously tested with parents of children in this age range.

### Measures

A demographic questionnaire and eight standardized measures were administered to the mothers. The ADHD Behavior Checklist for Adults (ABCA; Barkley & Murphy, 1998) was administered to mothers and their partners via a telephone interview. The following self-report questionnaires were mailed to the mothers: (a) the Conners' Adult ADHD Rating Scale (CAARS; Conners, Erhardt, & Sparrow, 1999); (b) a demographic questionnaire which was constructed for this study; (c) the Conners Parent Rating Scale (CPRS-48; Conners, 1988; Goyette, Conners, & Ulrich, 1978); (d) the Dyadic Adjustment Scale (DAS; Spanier, 1976); (e) the Brief Symptom Inventory (BSI; Derogatis, 1992); (f) the Parenting Sense of Competence Scale (PSOC; Johnston & Mash, 1989); (g) the Parental Locus of Control Scale (PLOC; Campis et al., 1986); and (h) the Parenting Scale (PS; Arnold et al., 1993).

With the exception of the demographic measure, all measures have been developed and tested previously in research with families or with adults with ADHD. Each of these measures is described below.

### Demographic Information

This instrument (entitled Family Information, see Appendix A) requested information about the respondents and their families. The demographics of primary

interest were age of respondent, occupation, socioeconomic status, education, number of children in the home, children's ADHD symptoms, mother's history of ADHD, and mother's current use of medication for ADHD. The demographic measure also included questions about the presence of depression, anxiety, conduct disorders, and substance abuse in mothers, partners, focus children, and other children.

#### Conners Parent Rating Scale

Also mailed to the mothers, the Conners Parent Rating Scale - 48 (Conners, 1988; Goyette et al., 1978) measures parents' ratings of child problems in five domains: conduct problems, learning problems, psychosomatic symptoms, impulsivity/hyperactivity, and anxiety symptoms. The CPRS items were included within the demographic questionnaire (see Appendix A). This scale has been shown to have high inter-rater reliability for mothers' and fathers' ratings ( $r = .87$ ), and is sensitive to treatment effects (Barkley, 1990; Goyette et al., 1978). The concurrent validity of this measure has been demonstrated in a study which found moderate to very high correlations between the CPRS scales and corresponding Revised Behavior Problem Checklist Scales (Cohen, 1988).

The CPRS-48 was included as an overall measure of child behavior problems, since mothers of children with behavior problems are known to have different parenting cognitions and behaviors than mothers of children without behavior problems (Johnston & Freeman, 1997; Mash & Johnston, 1990; Sobol et al., 1989). Because child behavior

problems is an important variable in predicting parenting cognitions and behaviors, this variable was included as a possible covariate for subsequent analyses.

### ADHD Symptoms

ADHD symptoms were measured with two instruments, the ADHD Behavior Checklist for Adults (ABCA) and the Conners' Adult ADHD Rating Scale (CAARS). The latter instrument was of primary interest, as it provided more descriptive information about ADHD symptoms and sequelae, beyond the DSM-IV criteria for the disorder. However, since the CAARS was a relatively new instrument, the ABCA was included to determine the validity of the CAARS, and as a basis for forming groups of women with high and low ADHD symptoms. Both measures are described below.

#### ADHD Behavior Checklist for Adults (ABCA).

The ADHD Behavior Checklist for Adults (Barkley & Murphy, 1998; see Appendix B for subscales and sample items) was administered via the telephone to determine the level of ADHD symptomatology. The 18 items making up this scale directly reflect the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV: American Psychiatric Association, 1994) criteria for a diagnosis of ADHD, with minor changes made to the wording to make them more appropriate for use with adults. Respondents are required to indicate on a 4 point scale (0= never or rarely; 1= sometimes; 2 = often; 3 = very often), how often each item describes their behavior over the past 6 months, and how often the item describes their behavior as a child (aged 5 to 12 years). Mothers were asked to write down the reference points of the 4-point rating



scale and refer to them during the telephone interview. The 18 items were administered first in reference to the mothers' current symptoms, then re-administered for retrospective recall of childhood symptoms. Whenever possible the interview was also administered to the spouses or partners of the mothers. The telephone administration of the ABCA to spouses was in reference to the mothers' current symptoms and their own current symptoms. The reason for including partners' ratings was to obtain another informant regarding maternal ADHD symptoms, and to obtain information regarding the partners' ADHD status. Partners were asked to write down the 4-point rating scale and refer to it throughout the telephone interview.

Nine items of the ABCA reflect the DSM-IV predominantly inattentive type of ADHD (e.g., "Difficulty sustaining my attention in tasks or fun activities"), while the remaining nine items reflect the DSM-IV hyperactive-impulsive subtype (e.g., "Fidget with hands or squirm in my seat"). Scores for current and retrospective symptoms were obtained via summation of all items to determine overall current and retrospective ADHD symptomatology, as well as summation of the items in each subtype to obtain current and retrospective measures of subtype for each participant.

Reliability and validity estimates have not been reported for the ABCA, however the items that make up the scale directly reflect DSM-IV criteria. Similar DSM-based rating scales for childhood symptoms of ADHD demonstrate high reliability (Barkley, 1998). For the present study, in cases in which partners participated, correlations were calculated between mothers' and partners' responses in an attempt to establish the

reliability of this measure. Since the DSM-IV criteria are currently the standard symptoms used by physicians and psychologists for diagnosing ADHD, these items are likely a valid measure of ADHD symptomatology.

Adult norms and cutoff scores for the ABCA are available for 3 different age groups (age 17 - 29, 30 - 49, 50+; Barkley & Murphy, 1998). The present study used the norms for the group aged 30 to 49 years for subjects who fell within that age range (95%), and the norms for the 17 to 29 year old group for subjects who fell in that age range. The ABCA was chosen for use in the current study because of its brevity and ease in administering over the telephone, and because the items directly reflect the DSM-IV criteria for ADHD.

#### Conners' Adult ADHD Rating Scale (CAARS).

It has been suggested that many people with ADHD also suffer a broader range of impairments that are not included in DSM-IV symptom criteria, including disorganization, difficulties in planning, cognitive restlessness, emotional lability, and poor self-concept (Conners, Erhardt, & Sparrow, 1999). In an attempt to obtain a thorough report of ADHD symptoms and associated features, participants completed the Conners' Adult ADHD Rating Scale – Self-Report, Long Form (Conners et al., 1999) which measures a range of cognitive and affective impairments that are associated with ADHD. A brief description of the CAARS, including sample items from each subscale is contained in Appendix C.

The CAARS consists of 66 self-report items that comprise eight ADHD subscales: Inattention and Memory Problems; Hyperactivity/Restlessness; Impulsivity/Emotional Lability; Problems with Self-Concept; DSM-IV Inattention; DSM-IV Hyperactivity-Impulsivity; DSM-IV Total; and ADHD Index. The first four scales are factor-derived and assess ADHD-related symptoms and behaviors. The three DSM-IV based scales assess ADHD symptoms as described by DSM criteria, and are very similar in wording to the ABCA scales. The ADHD Index scale is a summary scale reflecting overall ADHD symptoms.

The 12 item Inattention/Memory Problems factor taps some of the executive function processes discussed by Barkley (1997a), such as disorganization, planning, working memory, and self-monitoring. This scale includes items relating to task initiation, focusing on task requirements, goal-directed behavior, and completing tasks (e.g., "I lose things necessary for tasks or activities.") The Hyperactivity/Restlessness factor consists of 12 items which describe cognitive and physical hyperactivity and restlessness (e.g., "I am always on the go.") The Impulsivity/Emotional Lability factor consists of 12 items that tap temper, verbal impulsivity, stress intolerance, and labile mood (e.g., "I have a short fuse/hot temper.") The six items comprising the Problems with Self-Concept factor reflect feelings of hopelessness, social isolation, and lack of self-confidence (e.g., "I wish I had greater confidence in my abilities.") The nine items comprising the DSM-IV Inattention scale describe the nine DSM-IV inattentive symptoms (e.g., "I am forgetful in my daily activities.") The nine items of the DSM-IV

Hyperactivity-Impulsivity scale describe the nine DSM-IV Hyperactivity-Impulsivity symptoms (e.g., "I am always on the go.") The DSM-IV Total scale is the sum of the DSM-IV Inattentive and DSM-IV Hyperactive-Impulsive scales. Many of the DSM-IV-derived items are identical to those of the ABCA. The 12 items of the ADHD Index scale are the best set of items for distinguishing adults with ADHD from non-clinical adults.

The CAARS has been found to have high internal consistency on all scales, except the DSM-IV Hyperactivity-Impulsivity scale, which has a Cronbach's alpha of .67 (Conners et al., 1999). The alpha coefficients for all other scales range from .81 (ADHD Index) to .89 (Inattention/Memory Problems and Hyperactivity/Restlessness). Based on a sample of 61 men and women attending an ADHD clinic, one month test-retest correlations range from .80 for Impulsivity/Emotional Lability to .91 for Problems with Self-Concept. Normative data have been gathered on this measure, and are available separately by age and sex, based on a sample of 1026 normal adults. The CAARS has been shown to be a valid measure of ADHD symptoms (Conners et al., 1999). All subscales correlate significantly with the Wender Utah Rating Scale (Ward, Wender, & Reimherr, 1993), which retrospectively measures adults' recall of their own childhood ADHD symptoms. The CAARS also discriminates between adults with ADHD and non-clinical samples.

Although the CAARS is a relatively new instrument and has not been used in previous research other than the normative sample, it was chosen because it attempts to measure a broader range of cognitive and emotional impairments than other ADHD

measures. Although all eight CAARS scales were administered to the participants, the ADHD Index scale was chosen as the primary measure of ADHD for the testing of the main hypotheses. It was chosen because it was designed for use as a single indicator of the presence or absence of clinically significant ADHD symptoms.

#### Comorbid Psychopathology Symptoms

The Brief Symptom Inventory (BSI; Derogatis, 1992; see Appendix D for subscales and sample items) was administered to all subjects to determine their level of comorbid psychopathology symptoms. This measure consists of 53 self-report items, rated on a 5-point scale of distress. Symptom dimensions are Somatization (e.g., “Faintness or dizziness”), Obsessive-Compulsive (e.g., “Feeling blocked in getting things done”), Interpersonal Sensitivity (e.g., “Your feelings being easily hurt”), Depression (e.g., “Feeling blue”), Anxiety (e.g., “Feeling tense and keyed up”), Hostility (e.g., “Feeling easily annoyed or irritated”), Phobic Anxiety (e.g., “Having to avoid certain things, places, or activities because they frighten you”), Paranoid Ideation (e.g., “Feeling that most people cannot be trusted”), and Psychoticism (e.g., “The idea that someone else can control your thoughts”).

The BSI also contains three global scales: the Global Severity Index, which is the mean of all BSI items and the most sensitive of the global scales; the Positive Symptom Total, which is the sum of all positively-endorsed items; and the Positive Symptom Distress Index, which is the sum of all BSI items, divided by the number of positively endorsed items. The global scales were not intended to be used in the present study,

because previous research suggested the Depression and Anxiety scales would be of primary interest. However, the Global Severity Index was calculated for each participant.

Mean scores for each dimension are translated to T scores. The BSI has demonstrated moderate to high two-week test-retest reliability, ranging from .68 (Somatization) to .91 (Phobic Anxiety), and moderate to high internal consistency (Cronbach's alpha), ranging from .71 (Psychoticism) to .85 (Depression). The validity of the BSI has been demonstrated through studies which have shown the measure to be predictive of future depressive episodes, to discriminate between depressed and non-depressed women, and to be sensitive to treatment effects (Derogatis, 1992). The BSI scales have also been shown to correlate highly with MMPI scales (Derogatis, 1992).

The longer version of this measure (Symptom Checklist-90-Revised: Derogatis, 1983) is commonly used to assess psychological functioning in adults with ADHD (e.g., Barkley, Murphy, & Kwasnik, 1996; Biederman et al., 1990, 1993, 1994). The BSI was chosen over the longer version to reduce the amount of time and effort required of the subjects.

### Marital Functioning

To measure marital functioning of the mothers, the Dyadic Adjustment Scale (DAS: Spanier, 1976, 1989; see Appendix E for subscales and sample items), was completed by all participants. This scale includes items such as "What is the extent of agreement or disagreement between you and your partner when handling family finances?" and "How often do you and your mate leave the house after a fight?" The 32-

item scale consists of subscales that tap Dyadic Consensus (extent of agreement on important issues), Dyadic Satisfaction (extent of tension in the relationship or the extent of commitment to the relationship), Dyadic Cohesion (extent to which the couple shares common interests and activities), Affectional Expression (extent of satisfaction with the expression of affection and sex), and an overall scale of marital functioning, called Marital Adjustment. High scores reflect positive marital relationships. The DAS has acceptable reliability and validity. Scores on the DAS are positively correlated with other measures of marital satisfaction such as the Locke-Wallace measure, and scores on the DAS have been shown to discriminate between married and divorced couples (Spanier, 1989). Cronbach's alpha coefficients for the DAS range from .73 (Affectional Expression) to .96 (Marital Adjustment) (Spanier, 1989). For the present study, the overall Marital Adjustment scale was used for the main hypotheses. This scale was chosen because it was appropriate for use with married and unmarried dyads.

### Parenting Self-Esteem

The Parenting Sense of Competence Scale (PSOC; Johnston & Mash, 1989; see Appendix F for subscales and sample items) was also completed by all participants to determine perceived parenting satisfaction and efficacy. This measure contains items such as "Even though being a parent could be rewarding, I am frustrated now while my child is at his/her present age" and "If anyone can find the answer to what is troubling my child, I am the one". The PSOC consists of 17 items which comprise the two subscales: Satisfaction, an affective dimension reflecting manipulation, frustration, and motivation;

and Efficacy, a dimension which reflects skill, problem solving ability, and familiarity with the parenting role.

Validity has been demonstrated for the PSOC through studies which have shown the measure to discriminate between parents of hyperactive children and non-hyperactive children (Mash & Johnston, 1983a), and to predict mothers' behavior during play and task interactions with their children (Mash & Johnston, 1983b). The PSOC is also sensitive to parenting interventions for parents of children with ADHD (Odom, 1996). The PSOC has acceptable internal consistency ( $\alpha = .75$  for Satisfaction;  $\alpha = .76$  for Efficacy), and normative data are available for mothers and fathers of younger (aged 4 - 6 years) and older (7 - 9 years) children (Johnston & Mash, 1989). For ease in discussing the findings of the present study, the Satisfaction scale was referred to as Dissatisfaction throughout the present study so the name of the scale would reflect the direction of the construct being measured.

#### Parental Locus of Control

The Parental Locus of Control Scale (PLOC; Campis et al., 1986; see Appendix G for subscales and sample items) was used to assess whether mothers view their child's behavior as a direct consequence of their parenting effort (internal locus of control) or as outside the reach of their parenting efforts (external locus of control). The 47-item scale consists of five factors, derived from factor analysis, which were labeled Parental Efficacy (e.g., "What I do has little effect on my child's behavior"), Parental Responsibility (e.g., "There is no such thing as good or bad children - just good or bad



parents” reverse-scored), Child Control (e.g., “My life is chiefly controlled by my child”), Belief in Fate or Chance (e.g., “Being a good parent often depends on being lucky enough to have a good child”) , and Parental Control (e.g., “Sometimes I feel I don’t have enough control over the direction my child’s life is taking”). Items are rated on five-point Likert scales. Cronbach’s alpha reliability coefficients ranged from .67 for parental control, to .77 for parental responsibility. The total scale alpha coefficient was .92. The PLOC has been shown to discriminate between parents with parenting problems, and those without parenting problems, and is highly correlated with the Sense of Competence scale of the Parenting Stress Index (Campis et al., 1986).

High scores on Parental Efficacy, Parental Responsibility, and Parent Control indicate low feelings of effectiveness as a parent, not feeling responsible for their child’s behavior, and feeling unable to control their child’s behavior, respectively. To avoid confusion in discussing the findings of the present study, these three scales were referred to as Negative Parental Efficacy, Lack of Parental Responsibility, and Parent Lacks Control, so the names of the scales would reflect the direction of the constructs being measured. The remaining scales (Child Control and Belief in Fate/Chance) were already scored in a manner in which high scores reflected high levels of child control and belief in fate or chance, so they were referred to as their original names.

### Disciplinary Styles

Disciplinary styles were measured using the Parenting Scale (PS; Arnold et al., 1993), a 32-item questionnaire examining dysfunctional discipline style of parents with

young children. The measure was constructed using items that tapped discipline mistakes that have been identified in the parenting literature. Factor analysis of the items revealed a factor relating to permissive discipline that involved giving in, allowing rules to go unenforced, and providing positive consequences for misbehavior (Laxness); a second factor tapping anger, meanness, and irritability (Overreactivity); and a factor reflecting lengthy verbal responses (Verbosity). Each item consists of an ineffective parenting behavior, paired with an effective counterpart, to form high and low anchors for a 7-point scale, where 7 indicates frequent use of discipline mistakes and 1 indicates frequent use of the effective discipline strategies (see Appendix H for subscales and sample items). The questionnaires that were sent to the women, however, contained an error in the rating scale so that high scores reflected more effective strategies, and low scores reflected parenting mistakes. This error was corrected for in the statistical analyses by reverse-coding women's responses to the items, so that high scores reflected disciplinary mistakes. However, it should be noted that the measure was not administered in the standardized format, and its validity in the present study may be compromised.

The PS has demonstrated adequate internal consistency (Laxness  $\alpha = .83$ ; Overreactivity  $\alpha = .83$ ; Verbosity  $\alpha = .63$ ; Total  $\alpha = .84$ ), and test-retest reliability ( $r = .83, .82, .79$ , and  $.84$  for Laxness, Overreactivity, Verbosity, and Total, respectively). Evidence for the validity of the PS has been cited by the authors (Arnold et al., 1993). The measure has been shown to discriminate between clinic mothers having difficulties managing their children, and nonclinic mothers who were not having

parenting difficulties. The PS has also been shown to correlate with observational ratings of parent behavior. However, a recent study (Irvine, Biglan, Smolkowski, & Ary, 1999) suggested that the Parenting Scale might be comprised of only two factors, Laxness and Overreactivity. The present study was primarily interested in the PS Total score, as it reflects overall parenting styles.

#### Procedure

Participants were contacted via letters and posters requesting volunteers to participate in a research study on parenting and family relationships in women with and without attention difficulties. Prior to recruitment, directors of all daycare and preschool centres listed in the commercial telephone book for the Calgary area were contacted via telephone, informed of the nature of the study, and asked permission to disseminate recruitment letters to parents of children attending the centers (see Appendix I). Fifty private practice family physicians and pediatricians in Calgary were also contacted via telephone, informed of the nature of the study, and asked permission to post recruitment letters in their offices and to have the letters available for patients. These venues were chosen for recruitment because they were estimated to be places where mothers of children aged 3 to 6 years frequent. Due to financial constraints radio and newspaper ads were not used for recruitment purposes.

Recruitment letters contained a brief description of the nature and purpose of the study, the time commitment involved and contact information for the principal

investigator. Potential participants had the option of calling the researcher directly for more information on the study.

Of the 163 daycares contacted, 84 (52%) agreed to assist with recruitment. It was estimated that 3320 children were enrolled at all the daycares combined. Of the 50 physicians' offices contacted, 31 agreed to post recruitment letters. Seven of these were community medical clinics, which offered extended hours and drop-in service. The 82 participants were obtained primarily through the daycare centres (94%). The remaining subjects (6%) were obtained through the medical clinics, and no subjects were obtained through the other physicians' offices.

The principal investigator or an assistant visited all organizations that agreed to distribute letters. The recruitment letters were posted on bulletin boards in physicians' offices and made available so mothers could take the information on the study home with them. Recruitment letters were dropped off at daycares and preschools, and distributed by staff, or placed in a common area, easily viewed and accessible by parents. In some cases, letters were distributed to parents by the principal investigator when parents arrived at the centre to pick up their children. An answering machine was set up in a private office or lab at the University of Calgary to take the messages from potential participants. The outgoing message included a greeting and brief description of the study; a request for the caller to leave their first name, telephone number, and a time that was convenient to be called to discuss the study; and a statement that they would be contacted with information about the study as soon as possible.

Potential participants who left messages were contacted and given information regarding the project. Mothers who were interested in participating were asked to verbally consent to participate and provide their mailing information. A telephone script was closely followed when speaking with the mothers (see Appendix J) to ensure that all women received the same information and were addressed in a similar manner. It was explained that participation would consist of a five to ten minute telephone interview and approximately 75 minutes of completing questionnaires in their homes. When a mother was interested in participating in the study, she had the option of having the telephone interview immediately (i.e., during the same phone call), or scheduling another time for the interview. Mothers were also asked if they would ask their partners if they would like to participate in a five minute telephone interview regarding the mothers' and their own symptoms. However, if a mother did not want to ask her partner to participate, or if the partner did not wish to participate, the mother was still able to continue in the study. In cases where partners were interviewed, the partners' interviews were conducted either during the same phone call as the interviews with the mothers, or at another time if it was more convenient.

After the mother's telephone interview, a questionnaire packet was mailed to her home with a self-addressed stamped envelope for the mother to return the questionnaires to the researcher. Packets included a consent form, instructions for completing the packet, a self-addressed stamped envelope for returning the completed measures, a description of the purpose and nature of the study, a form for requesting a summary of the results, and

the measures described above, arranged in random order. Most questionnaire packets were returned to the researcher within three to four weeks of the telephone interview.

In accordance with ethical guidelines for research involving telephone and mailed surveys, participants were not required to sign and return an informed consent form. The information for informed consent for the telephone portion was given in the telephone script, and women and partners verbally consented to participating. In accordance with ethical guidelines, the telephone script included a verbal explanation of the university of affiliation, the purpose of the study, the fact that participation is voluntary, the time commitment necessary, and the manner in which confidentiality was be ensured. For the mailed questionnaire portion, the information required for informed consent was combined with detailed instructions for participation (see Appendix K), and the consent form (see Appendix L) was included with the set of questionnaires.

A separate form (see Appendix M) was included which participants completed and returned if they wished to receive a summary of the results, an information packet on ADHD, or if they wished to be contacted regarding future research on adults with ADHD. An envelope was provided in which the request form could be sealed, and then returned with the completed questionnaires. The envelopes containing request forms were removed from the completed questionnaires, placed in a separate location in a locked filing cabinet, and opened after the research had been completed. To control for potential order effects, the order of the questionnaires was completely randomized within each packet. Mothers who had more than one child in the 3 to 6 year age range, were

randomly assigned to respond to the questionnaires about their younger or older child in that age range.

A method of matching telephone interviews to completed questionnaire packets was followed, since full names were not recorded on either interview forms or questionnaire packets. In order to ensure confidentiality, each packet was given a subject number on the top right corner of the return envelope, which was used to match up the telephone interview forms with the questionnaire packets. When mothers agreed to participate, the researcher assigned them identification numbers which were recorded on the interview forms, address information forms, and questionnaire packets. Completed interview forms and address information were held in a locked filing cabinet in an office at the University of Calgary until all components were received (i.e., the mother's interview is completed; if applicable, the partner interview is completed; and the questionnaire packet is received). Unopened incoming questionnaire packets were put with the interview information, and the address information (the only place where identifying information was recorded) was discarded, leaving only the subjects' responses to interviews and questionnaires and no identifying information.

Arrangements were made for a chartered psychologist to be available to the mothers if they felt distressed during or following the completion of the questionnaires. The name and number of the psychologist were included in the instructions letter.

## CHAPTER THREE

### RESULTS

#### Approach to Statistical Analysis

A continuous approach to the measurement of ADHD was used in testing for the main hypotheses, predicting comorbid maternal psychopathology and marital adjustment to moderate the relationships between maternal ADHD and parenting cognitions and disciplinary styles. This allowed the use of regression procedures, which are the preferred method for testing for moderator variables with a sample size of 82 subjects. However, in an attempt to describe the sample as clearly as possible, in calculating descriptive statistics, the sample was divided into two groups based on the level of mothers' ADHD symptoms compared with normative cutoff scores. Because so little is known about adult women with ADHD symptoms, it was necessary to examine demographic characteristics and descriptive statistics closely. Although the main hypotheses were tested using a continuous approach to ADHD symptoms, the descriptive statistics were examined separately for women with high and low levels of ADHD symptoms. As recommended by Barkley and Murphy (1998), women were categorized as having high ADHD symptoms if they scored higher than 1.5 standard deviations above the normative mean (the threshold for clinical significance) on the ABCA. Women who scored below 1.5 standard deviations above the mean were categorized as having low ADHD symptoms.



Means were examined separately for the groups because the overall means of the entire sample may have been misleading. The influence of the responses of women with high ADHD symptoms may inflate the means on certain measure, while the influence of the responses of women with low ADHD symptoms may deflate the mean. Examining each group separately allows a more accurate and detailed description of the sample, and allows statistical comparisons between the groups, and informal comparisons between each group and the normative means.

A chi square analysis was performed to determine whether some women scored high in current ADHD symptoms, but low in retrospective recall of childhood ADHD symptoms. It was believed that these women would not meet the DSM-IV criteria for ADHD, which states that a history of childhood ADHD symptoms is necessary for a diagnosis of ADHD in adulthood (APA, 1997). The analysis indicated that 2.4% ( $n = 2$ ) of the women scored above the cutoff score for current symptoms but below the cutoff score for retrospective symptoms of ADHD. It was speculated that these women scored high in current ADHD symptoms due to high stress, or other reasons, not related to actually having ADHD. One of these women stated that she believed her ADHD symptoms were due to a diagnosed thyroid problem. The data obtained from these two women were not included in any subsequent analyses. Thus, the final sample consisted of 80 mothers.

The results will be presented in four sections. The first will present demographic characteristics for the entire sample of women, as well as for the high and low ADHD groups separately. The second section will present descriptive statistics for each of the

measures separately for women who scored relatively high and low in ADHD symptoms, as measured by the ABCA, as well as descriptive statistics for the entire sample (i.e., both groups together). This will involve comparisons between women who scored relatively high in ADHD symptoms, versus those who scored relatively low in ADHD symptoms, as well as comparisons with normative data from previous research. The third section will present correlations among criterion (parenting), moderator (comorbid maternal psychopathology and marital adjustment), and predictor (ADHD) variables. The fourth section will present the testing of the hypotheses. This section will present six separate regression analyses to test the moderating effects of comorbid maternal psychopathology and marital adjustment on the relationship between maternal ADHD and parenting cognitions and disciplinary styles.

When comparing groups on dependent measures that contain several subscales, multivariate analyses of variance (MANOVA) were used, because this procedure allows the analysis of several dependent variable at once, while holding the probability of making a Type I error at alpha. In cases where significant differences were indicated by MANOVA, post-hoc univariate analyses were examined, using the Bonferroni adjustment to control Type I error in the follow up tests. The Bonferroni adjustment involves dividing the number of univariate tests being performed (the number of subscales in a measure) by the acceptable alpha level (.05 for the present study). Independent sample t-tests were used for measures that contain only one score. When heterogeneity of variances existed, separate variance estimates were used in the

calculation, rather than pooled variances. Pearson's chi-square tests were performed to test for independence in categorical data. Chi-square tests allow the researcher to determine whether the obtained frequencies for a variable are distributed independently of scores on another measure.

### Demographic Characteristics

The responses from all daycares, physicians, and clinics resulted in 117 calls to the research lab. Of these, three did not meet requirements of having a child between the ages of three and six years, or of being married or in a common-law relationship. Of the 114 potential subjects, 113 agreed to participate, and one declined due to insufficient time to participate. Eighty-two (73%) of the remaining participants completed the telephone interviews and returned their questionnaire packets. Forty-one partners agreed to participate in telephone interviews, although in eight of these cases, the mothers did not return their questionnaire packets. Therefore the final participation number for partners was 33. As described previously, the data from two women were eliminated from analyses due to inconsistent reports of ADHD symptoms in childhood and adulthood. Thirty-one subjects completed the telephone interview but did not return their questionnaires. An examination of these cases revealed that eight of these subjects (26%) scored above the clinical cutoff for the ABCA.

As described above, the women were assigned to groups, depending on their ABCA scores. Forty-three (54%) of the women scored more than 1.5 standard deviations

above the mean on the ABCA, and were considered to be in the high ADHD group, while the remaining 37 (46%) women were considered the low ADHD group.

### General Demographic Characteristics of the Families

As shown in Table 1, the general demographic characteristics of the women and their families were similar for the high and low ADHD groups. The 80 women who participated in the study ranged in age from 24 to 46 years, with a mean age of 32.27 years. For the high ADHD group the mean age was 30.84 years, and for the low ADHD group the mean was 33.84 years. An independent measures t-test indicated that the difference between the two groups was not statistically significant,  $t(42.16) = 1.75, p > .05$ .

All of the women had between one and seven children. The average number of children in the family was similar for both groups, 1.95 for the high ADHD group, 1.94 for the low ADHD group, and 1.95 for the entire sample. The number of children in the family did not differ significantly between the two groups,  $t(78) = 0.98, p > .05$ . The focus child, which was defined as the child between 3 and 6 years, about whom the parenting questionnaires were directed, had a mean age of 4.19 years for the entire sample, 4.23 years for the high ADHD group, and 4.11 years for the low ADHD group. The difference between the groups in the mean age of the focus child was not significant,  $t(77) = -.48, p > .05$ . For the entire sample, 42.7% of the focus children were male and 57.3% were female. A chi-square test indicated that the sex of the focus children was distributed independently of the groups,  $\chi^2(1, N = 80) = 0.11, p > .05$ .

Table 1

General Demographic Characteristics of the Families

Demographic variable	Entire sample <sup>a</sup>	High ADHD <sup>b</sup>	Low ADHD <sup>c</sup>
<b>Age (years)</b>			
Mean (SD)	32.27 (7.28)	30.84 (3.16)	33.84 (10.03)
<b>Number of children</b>			
Mean (SD)	1.95 (1.02)	1.95 (0.78)	1.94 (1.25)
<b>Age of focus child (years)</b>			
Mean (SD)	4.19 (1.10)	4.23 (1.13)	4.11 (1.09)
<b>Sex of focus child</b>			
Male	33 (41.2%)	17 (39.5%)	16 (43.2%)
Female	47 (58.8%)	26 (60.5%)	21 (56.8%)
<b>Household Income</b>			
\$25000 or less	0 (0%)	0 (0%)	0 (0%)
\$25001 – \$45000	4 (4.9%)	(2.3%)	(5.4%)
\$45001 – \$60000	8 (9.8%)	(11.6%)	(8.1%)
\$60001 – \$100000	53 (64.6%)	(65.1%)	(64.9%)
over \$100000	17 (20.7%)	(20.9%)	(21.6%)

<sup>a</sup>N = 80. <sup>b</sup>n = 43. <sup>c</sup>n = 37.

For the entire sample, and for each group, most women (about 65%) reported their family income was between \$60,000 and \$100,000. A chi-square test indicated that household income levels were distributed independently of the groups,  $\chi^2 (3, N = 80) = 0.75, p > .05$

### Employment and Education Demographics

Most of the mothers were employed outside the home. Table 2 summarizes the demographic data relating to maternal employment and education. For the entire sample and for each group, approximately 40% of the women were employed full time, another 40% were employed part time, and about 20% were not employed outside the home. A chi-square test indicated that the employment status of the women was independently distributed between the high and low ADHD groups,  $\chi^2 (3, N = 80) = 0.73, p > .05$ . The average number of hours worked per week was similar for both groups, 29.61 hours for the high ADHD group, 31.33 hours for the low ADHD group, and 30.47 hours for the entire sample. There were no significant differences in the number of hours worked between the two groups,  $t (56.28) = .53, p > .05$ .

About 20% of the entire sample reported they were self-employed. A chi-square analysis indicated that the distribution of self-employment in the sample was independent of the groups,  $\chi^2 (2, N = 80) = 0.62, p > .05$ . The entire sample of women reported having changed their jobs an average of 1.27 times in the past five years. Women in the high ADHD groups reported significantly more job changes (mean = 1.73) over the past five years than women in the low ADHD group (mean = 0.72),  $t (75) = -3.05, p < .01$ .

Table 2

Demographic Characteristics Related to Women's Employment and Education

Demographic variable	Entire sample <sup>a</sup>	High ADHD <sup>b</sup>	Low ADHD <sup>c</sup>
<b>Employment status</b>			
Full time	33 (40.7%)	18 (41.9%)	13 (36.1%)
Part time	32 (39.5%)	17 (39.5%)	15 (41.7%)
Not employed	16 (19.8%)	8 (18.6%)	8 (22.2%)
<b>Hours per week</b>			
Mean (SD)	30.47 (13.01)	29.61 (10.89)	31.33 (15.54)
<b>Self-employed?</b>			
yes	16 (21.6%)	8 (20.5%)	8 (24.2%)
no	59 (78.4%)	31 (79.5%)	25 (75.8)
<b>Job changes in past 5 years</b>			
Mean (SD)	1.27 (1.51)	1.73 (1.55)	0.722 (1.32)
<b>Education</b>			
less than high school	3 (3.7%)	3 (7.0%)	0 (0%)
High school graduate	3 (3.7%)	1 (2.3%)	1 (2.7%)
some post-secondary	30 (36.6%)	15 (34.9%)	14 (37.8%)
University/college graduate	39 (47.5%)	21 (48.9%)	18 (48.6%)
Graduate training	7 (8.5%)	3 (7.0%)	4 (10.8)

<sup>a</sup>N = 80. <sup>b</sup>n = 43. <sup>c</sup>n = 37.

Most of the women who participated had attended at least some form of post-secondary education. Only 3.7% of the entire sample had not completed high school, and another 3.7% had completed high school but did not attend post-secondary education. Almost 37% of the entire sample had attended at least some college or university, while 47.5% had graduated from college or university. Eight and a half percent of the women had graduate level training. A chi-square test indicated that women's education levels were distributed independently, regardless of the groups,  $\chi^2(4, N = 80) = 9.35, p > .05$ .

#### Marriage and Partner Demographics

All participants were either married or living in a common-law relationship, as specified in the requirements for participation. Table 3 shows the demographic characteristics relating to the women's marriage, and their partners. Ninety percent of the entire sample were married, while the remaining 10% were involved in common-law relationships. A chi-square test indicated mothers' marital status was distributed independently of the groups,  $\chi^2(1, N = 80) = 0.27, p > .05$ . One participant reported a same-sex partner. The partners of the women ranged in age from 25 to 49 years, with a mean age of 33.71 years. One subject reported her husband's year of birth as 1919. Although it is possible that this was correct, it was more likely an error in filling out the questionnaire. Therefore the partner whose age was calculated as 79 years was not included in obtaining the mean age and range for the partners. There were no significant differences between the two groups in partners' mean age,  $t(43.87) = 1.91, p > .05$ .

All women reported that their partners were employed outside the home.



Table 3

Demographic Characteristics Relating to Marriage and Partners

Demographic variable	Entire sample <sup>a</sup>	High ADHD <sup>b</sup>	Low ADHD <sup>c</sup>
<b>Marital status</b>			
Married	72 (90.0%)	38 (88.4%)	34 (91.9%)
Common-law	8 (10.0%)	5 (11.6%)	3 (8.1%)
<b>Partners' age (years)</b>			
Mean (SD)	33.71 (8.43)	31.98 (4.08)	35.76 (11.43)
<b>Partners' employment status</b>			
Full time	72 (90.0%)	39 (90.7%)	32 (88.9%)
Part time	8 (10.0%)	4 (9.3%)	4 (11.1%)
<b>Partners' hours per week</b>			
Mean (SD)	41.92 (8.66)	41.35 (7.52)	42.63 (10.16)
<b>Partners' education</b>			
High school graduate	2 (2.5%)	2 (4.7%)	0 (0%)
some post-secondary	22 (27.5%)	9 (20.9%)	13 (35.1%)
University/college graduate	40 (50.0%)	22 (51.2%)	18 (48.6%)
Graduate training	16 (20.0%)	10 (23.3%)	6 (16.2%)

<sup>a</sup>N = 80. <sup>b</sup>n = 43. <sup>c</sup>n = 37.

According to the women's reports, 90.0% of the partners were employed full-time, while the remaining 10.0% were employed part-time. Partners' employment status was distributed independently of the groups,  $\chi^2 (1, N = 80) = 0.07, p > .05$ . Women reported that their partners worked an average of 41.93 hours per week, with no significant differences between the two groups,  $t (76) = .64, p > .05$ . Women reported that 27.5% of the partners attended some college or university, 50.0% had completed college or university, and 20.0% had graduate-level training. The remaining 2.5% of the partners had completed high school but not attended post-secondary education. Partners' education levels were distributed independently of the groups,  $\chi^2 (3, N = 80) = 20.89, p > .05$ .

### Descriptive Statistics

Descriptive statistics for each of the measures are presented for the entire sample as a whole, as well as separately for women with high and low ADHD symptoms. The descriptive statistics presented below are organized under the headings: reports of psychopathology in the family, ADHD symptoms, focus child problems, comorbid maternal psychopathology, marital adjustment, and parenting variables. Within each heading, descriptive statistics will be presented for the entire sample, as well as for each group (i.e., women with high ADHD scores, and women with low ADHD scores) separately. Comparisons will also be made between the high and low ADHD groups, and between data from the present sample and normative data obtained from samples in previous studies.

Findings from the current study will be compared to normative data on an informal basis (i.e., without using statistical tests) because of differences in sample sizes and demographic characteristics between the present study and normative studies. Although the normative data collected in previous studies may not be directly comparable to the present study for the reasons stated above, some general comparisons can be made.

### Psychopathology in the Family

Mothers were asked to report if they, their children, or their partners had ever been diagnosed with ADHD, anxiety disorders, depression, conduct or oppositional disorders, or substance abuse/dependency. These questions were included in the demographic measure which is presented in Appendix A. It should be noted that the wording of the questions “Have you ever been told you have or may have, or received treatment for...” did not necessarily suggest these people had these disorders at the time when the questionnaires were completed. However, the responses suggest at least a history of certain disorders in the present sample.

Responses to the questions about psychopathology in the family are summarized in Tables 4 and 5. Of the women who participated, 35% reported that they had been diagnosed with ADHD. When examining the high and low ADHD groups separately, significantly more women had been diagnosed with ADHD in the high ADHD symptom group (46.5%), compared with the low ADHD symptom group (21.6%),  $\chi^2 (2, N = 80) = 7.54, p < .05$ .

Some women (23%) reported taking stimulant medications, such as Ritalin. All

Table 4

Psychopathology in Mothers and Partners

Disorder	Entire sample <sup>a</sup>	High ADHD <sup>b</sup>	Low ADHD <sup>c</sup>
<b>Mothers</b>			
ADHD	28 (35%)	20 (46.5%)	8 (21.6%)
Learning disability	9 (11.2%)	6 (14.0%)	3 (8.1%)
Anxiety	7 (8.8%)	3 (7.0%)	4 (10.8%)
Depression	12 (15.0%)	6 (14.0%)	6 (16.2%)
Conduct disorder	0 (0%)	0 (0%)	0 (0%)
Substance abuse	1 (1.3%)	1 (2.3%)	0 (0%)
<b>Partners</b>			
ADHD	10 (12.5%)	5 (11.6%)	5 (13.5%)
Learning Disability	2 (2.5%)	1 (2.3%)	1 (2.7%)
Anxiety	2 (2.5%)	0 (0%)	2 (5.4%)
Depression	8 (10.0%)	4 (9.3%)	4 (10.8%)
Conduct disorder	1 (1.3%)	0 (0%)	1 (2.7%)
Substance abuse	4 (5.0%)	3 (7.0%)	1 (2.7%)

<sup>a</sup>N = 80. <sup>b</sup>n = 43. <sup>c</sup>n = 37.

Table 5

Psychopathology in the Focus Child and Other Children

Disorder	Entire sample <sup>a</sup>	High ADHD <sup>b</sup>	Low ADHD <sup>c</sup>
<b>Focus child</b>			
ADHD	0 (0%)	0 (0%)	0 (0%)
Learning disability	0 (0%)	0 (0%)	0 (0%)
Oppositional-defiant disorder	0 (0%)	0 (0%)	0 (0%)
<b>Other children</b>			
ADHD	16 (22.9%)	10 (25.6%)	6 (19.4%)
Learning disability	7 (10.0%)	4 (10.3%)	3 (9.7%)
Oppositional-defiant disorder	0 (0%)	0 (0%)	0 (0%)

<sup>a</sup>N = 80. <sup>b</sup>n = 43. <sup>c</sup>n = 37.

women who reported taking such medications also reported being diagnosed with ADHD. Of the women in the high ADHD group, 32.6% reported current use of stimulant medication. Of the low ADHD group, 13.5% reported taking stimulant medication. Of the entire sample, 11.2% reported having a learning disability, 8.8% reported having an anxiety disorder, 15% reported having depression, and 1.3% reported having a substance abuse problem. Chi-square analyses indicated no significant differences between the groups for these disorders ( $\chi^2 (1, N = 80) = 0.68, p > .05$  for learning disabilities;  $\chi^2 (1, N = 80) = 0.37, p > .05$  for anxiety;  $\chi^2 (1, N = 80) = 0.08, p > .05$  for depression;  $\chi^2 (1, N = 80) = 0.87, p > .05$  for substance abuse). None of the women reported that they had been diagnosed with conduct disorder.

Women reported that their partner had been diagnosed with ADHD in 12.5% of the cases. 2.5% reported their partners as having a learning disability; 2.5% reported their partner as having an anxiety disorder; 10.0% reported their partners as having depression; 1.3% reported a conduct disorder diagnosis in their partners, and 5.0% reported their partners as having a substance abuse disorder. These percentages were similar for partners of women in both groups. Chi-square tests indicated no significant relationships between women's ADHD (i.e., high or low ADHD group) and reports of partners' psychopathology ( $\chi^2 (1, N = 80) = 0.06, p > .05$  for ADHD;  $\chi^2 (2, N = 80) = 3.62, p > .05$  for learning disabilities;  $\chi^2 (2, N = 80) = 4.05, p > .05$  for anxiety;  $\chi^2 (2, N = 80) = 1.79, p > .05$  for depression;  $\chi^2 (2, N = 80) = 2.89, p > .05$  for conduct disorders; and  $\chi^2 (2, N = 80) = 1.68, p > .05$  for substance abuse).

None of the mothers reported a diagnosis of ADHD, learning disabilities, or oppositional-defiant disorder in the focus children. Almost 23% of the women reported another child in the family had ADHD, and 10% reported another child had a learning disability. There were no differences in these rates for the high and low ADHD groups, according to chi square tests ( $\chi^2 (1, N = 80) = 0.39, p > .05$  for ADHD;  $\chi^2 (1, N = 80) = 0.01, p > .05$  for learning disabilities). MANOVAs indicated no differences between women with and without a child with ADHD for parenting self-esteem, parenting locus of control, or parenting styles. There were also no differences in marital adjustment and comorbid psychopathology in women with and without a child with ADHD. None of the women reported a diagnosis of oppositional-defiant disorder in their other children.

#### ADHD Symptoms

Self-ratings were obtained from mothers with respect to their current ADHD symptoms and their retrospective recall of childhood ADHD symptoms and from partners with respect to partners' own current ADHD symptoms and their wives' current symptoms. The ABCA provided scores for DSM-IV-based symptoms of Inattention, Hyperactivity/Impulsivity, and Total ADHD symptoms for women. Self-report ratings were obtained for mothers about their current and retrospective recall of childhood symptoms, and for partners, about their current symptoms. Partners also gave ratings of the mothers' current symptoms. The CAARS provided scores for the empirically derived subscales (Inattention/Memory Problems, Hyperactivity/Restlessness, Impulsivity/Emotional Lability, and Problems with Self-Concept), DSM-IV based

Inattention symptoms, Hyperactivity/Impulsivity symptoms, and Total symptoms, and an overall ADHD Index.

#### ABCA Scales.

Means and standard deviations for the ABCA scores for the entire sample, and for normative samples (Barkley & Murphy, 1998) are shown in Table 6. Based on a non-clinical normative sample of men and women aged 30 to 49 years, mean scores for the present sample on current Inattention and Total scales fell above the clinical significance cut-off scores suggested by Murphy and Barkley (1.5 standard deviations above the mean for the normative sample). Women's mean score on current Hyperactivity/Impulsivity was below the clinical cut-off score. Based on a normative sample of females, aged 30 to 49 years, women's mean scores for retrospective recall of childhood ADHD symptoms also fell above the clinical significance cutoff for Hyperactivity/Impulsivity and Total. The mean score for Inattention was just below the cut-off. As shown in Table 7, mean scores for partners' self-ratings of current ADHD symptoms were similar to those of the normative sample, with none falling above the clinically significant cutoff scores. Partners' ratings of women's ADHD symptoms cannot be compared to a normative sample, because norms have not been reported for spousal ratings.

Pearson correlations were performed to determine agreement between mothers' self-ratings of current ADHD, and their partners' ratings of the mothers' current ADHD. Mothers' self-ratings of Inattention, Hyperactivity/Impulsivity, and Total ADHD were significantly correlated with partners' ratings of mothers' Inattention,  $r = 0.72$ ,  $p < .01$ ;



Table 6

Women's Means, Standard Deviations (SD), and Norms for the ABCA

Symptom	Mean (SD)	Normative mean (SD)	Normative N	Clinical cutoff
<b>Current symptoms</b>				
Inattention	13.51 (8.47)	5.5 (4.4)	316	12.1
Hyperactivity/ Impulsivity	10.18 (7.27)	6.7 (4.3)	309	13.2
Total	23.70 (14.94)	12.0 (7.8)	299	23.7
<b>Retrospective symptoms</b>				
Inattention	15.95 (7.71)	7.2 (6.1)	133	16.4
Hyperactivity/ Impulsivity	13.79 (7.16)	6.0 (5.1)	135	13.7
Total	29.74 (14.35)	13.2 (10.8)	129	29.4

Note. N = 80 for all scales.

Table 7

Partners' Means, Standard Deviations (SD), and Norms for the ABCA

Symptom	Mean (SD)	Normative mean (SD)	Normative N	Clinical cutoff
<b>Mothers' symptoms</b>				
Inattention	12.21 (7.85)	--	--	--
Hyperactivity/ Impulsivity	7.91 (5.02)	--	--	--
Total	20.12 (11.96)	--	--	--
<b>Partner's Own Symptoms</b>				
Inattention	7.06 (4.72)	5.5 (4.4)	316	11.4
Hyperactivity/ Impulsivity	6.48 (4.68)	6.7 (4.3)	309	13.2
Total	13.55 (8.98)	12.0 (7.8)	299	23.7

Note. Dashes indicate that norms were not available for spousal ratings of ADHD. N = 33 for all scales.

Hyperactivity/Impulsivity,  $r = 0.61$ ,  $p < .01$ ; and Total ADHD,  $r = 0.70$ ,  $p < .01$ .

Correlations also indicated that mothers' self-ratings of current ADHD symptoms were significantly related to mothers' retrospective recall of childhood ADHD symptoms for Inattention ( $r = 0.70$ ,  $p < .01$ ), Hyperactivity/Impulsivity ( $r = 0.72$ ,  $p < .01$ ), and Total ( $r = 0.73$ ,  $p < .01$ ). As described above, a chi-square analysis was performed to determine the number of women who reported high current ADHD symptoms but low retrospective recall of childhood symptoms. This was performed because of the DSM-IV criterion which states that a history of ADHD is necessary for current diagnosis of ADHD in adults. As noted previously, the analysis indicated that only 2 participants (2.4%) reported high current symptoms but low retrospective recall of childhood symptoms.

Based on the ABCA current scores, the sample was split into two groups as described above: those scoring above the 1.5 standard deviation cutoff in overall ADHD symptoms, and those scoring below the cutoff. The two subjects who scored high in current symptoms but low in retrospective symptoms were not included in either group. The high ADHD group consisted of 43 women, and the low ADHD group consisted of 37 women.

#### CAARS Scales.

Means and standard deviations of the women's scores on the CAARS are presented in Table 8. Compared to the normative sample of women aged 18 to over 50 years, reported by Conners and others (1999), the women in the entire sample scored high on all measures. However, for all scales except Inattention/Memory and DSM

Table 8

Means, Standard Deviations (SD) and Norms for the CAARS by Groups

ABCA scale	Means (SD)			Norms
	Entire sample <sup>a</sup>	High ADHD <sup>b</sup>	Low ADHD <sup>c</sup>	
Inattention/ Memory	16.79 (11.34)	26.23 (4.64)	5.62 (5.31)	9.66 (6.15)
Hyperactivity/ Restlessness	15.90 (9.59)	22.49 (7.49)	8.51 (5.51)	12.15 (7.09)
Impulsivity/ Emotional Lability	13.62 (9.46)	21.23 (4.76)	4.78 (5.06)	10.43 (5.68)
Problems with Self-Concept	7.22 (5.47)	10.49 (4.52)	3.46 (3.88)	6.65 (4.10)
DSM Inattention	12.84 (9.04)	20.39 (3.31)	3.76 (4.06)	6.83 (4.09)
DSM Hyperactivity/ Impulsivity	9.04 (6.47)	12.93 (5.84)	4.70 (3.98)	8.58 (4.24)
DSM Total	21.88 (13.90)	33.33 (6.75)	8.46 (6.75)	15.42 (7.27)
ADHD Index	13.89 (9.68)	21.84 (4.17)	4.59 (5.08)	10.24 (5.62)

<sup>a</sup>N = 80. <sup>b</sup>n = 43. <sup>c</sup>n = 37.

Inattention, mean scores fell within one standard deviation of the normative means. The mean scores for the Inattention/Memory and DSM Inattention scales fell within 1.5 standard deviations of the normative mean.

When means and standard deviations were examined separately for high and low ADHD groups, the means of all CAARS scales for the low ADHD group fell below the normative means. The means for the high ADHD group fell well above the normative means (i.e., at least 1.5 standard deviations above the mean), with the exception of the Problems with Self-Concept scale. A MANOVA was performed to determine whether differences existed between the high and low ADHD groups on the Inattention/Memory, Hyperactivity/Restlessness, Impulsivity/Emotional Lability, Problems with Self-Concept, DSM Inattention, DSM Hyperactivity/Impulsivity, and ADHD Index scales. The DSM Total scale could not be included in the MANOVA because it was linearly dependent on other scales in the measure. Results indicated a significant difference existed between the groups on at least one of the CAARS scales,  $F(7,72) = 68.08, p < .05$ . Univariate follow-up analyses using the Bonferroni adjustment indicated that there were significant differences between the groups on all seven subscales. When compared with the low ADHD group, the high ADHD group scored significantly higher on the Inattention/Memory scale,  $F(1,78) = 343.15, p < .007$ ; the Hyperactivity/Restlessness scale,  $F(1,78) = 87.91, p < .007$ ; the Impulsivity/Emotional Lability scale,  $F(1,78) = 223.97, p < .007$ ; the Problems with Self-Concept scale,  $F(1,78) = 54.75, p < .007$ ; the DSM Inattention scale,  $F(1,78) = 407.59, p < .007$ ; the DSM Hyperactivity/Impulsivity,

$F(1,78) = 52.38, p < .007$ ; and the ADHD Index,  $F(1,78) = 278.03, p < .007$ . A  $t$ -test revealed that the DSM Total scale was also significantly higher for the high ADHD group, compared with the low ADHD group,  $t(78) = -17.00, p < .05$ .

Pearson correlations were performed to determine whether the various CAARS measures were related to the ABCA scales. As Table 9 shows, all the CAARS subscales were significantly intercorrelated with all three ABCA scales. As would be expected, the DSM Inattention and Inattention/Memory scales were highly correlated with the ABCA Inattention scale ( $r = 0.72, p < .01$ ;  $r = 0.75, p < .01$ , respectively). The Impulsivity/Emotional Lability scale was also highly correlated with the ABCA Inattention scale ( $r = 0.71, p < .01$ ), as were the DSM Total and ADHD Index scales ( $r = 0.71, p < .01$ ;  $r = 0.73, p < .01$ , respectively). The DSM Hyperactivity, Hyperactivity/Restlessness, and Impulsivity/Emotional Lability scales of the CAARS were highly correlated with the ABCA Hyperactivity/Impulsivity scale ( $r = 0.70, p < .01$ ;  $r = 0.65, p < .01$ ;  $r = 0.67, p < .01$ , respectively). As with the ABCA Inattention scale, the ABCA Hyperactivity/Impulsivity scale was also highly correlated with the CAARS Total and ADHD Index scales ( $r = 0.67, p < .01$ ;  $r = 0.61, p < .01$ , respectively).

Interestingly, the demographic item that measured whether women had been diagnosed as having ADHD was only correlated with the Hyperactivity/Restlessness scale of the CAARS ( $r = .31, p < .05$ ). This means the higher women scored on the Hyperactivity/Restlessness scale, the more likely they were to be diagnosed with ADHD. However, none of the other CAARS scales were related to ADHD diagnosis.

Table 9

Intercorrelations Between the ABCA and CAARS Scales

CAARS scale	ABCA Scales		
	Inattention	Hyperactivity/Impulsivity	Total
Inattention/Memory	.75**	.57**	.72**
Hyperactive/Restless	.51**	.65**	.62**
Impulsive/Emotional	.71**	.66**	.73**
Self Esteem Problems	.56**	.40**	.52**
DSM Inattention	.72**	.50**	.66**
DSM Hyperactivity	.47**	.70**	.62**
Total	.71**	.67**	.74**
Index	.73**	.61**	.72**

\*\*p &lt; .01.

### Focus Child Problems

Mean CPRS scores for the entire sample, and for each group are shown in Table 10, along with the published norms for the measure. For the total sample, means ranged from 0.16 for the Psychosomatic scale, to 1.09 for the Impulsivity/Hyperactivity scale. The means were very similar to those of the normative sample, which consisted of ratings of parents of 74 male and female children, aged 3 to 5 years of age. When the CPRS scores were examined separately for women with high and low ADHD symptoms, all mean scores still fell within one standard deviation of the normative mean for both groups. A MANOVA was performed to determine whether differences existed between the high and low ADHD groups for the Conduct, Learning Problems, Psychosomatic, Impulsivity/Hyperactivity, and Anxiety scales of the CPRS. Results indicated that the means for the groups were not significantly different from one another,  $F(5,74) = 1.09$ ,  $p > .05$ .

### Comorbid Maternal Psychopathology

Table 11 shows the means and standard deviations for the entire sample, and for the high and low ADHD groups for the BSI scales. Norms were based on a non-clinical sample of 974 men and women (Derogatis, 1992). For the entire sample, means ranged from .20 for Somatization to 1.22 for Obsessive-Compulsive. The total sample means were within one standard deviation of the normative mean for all subscales except Obsessive-Compulsive. Means for the low ADHD group were all within one standard deviation of the normative mean. For the high ADHD group, means for Depression,



Table 10

Means, Standard Deviations (SD), and Norms for the CPRS by Groups

CPRS scale	Means (SD)			
	Entire sample <sup>a</sup>	High ADHD <sup>b</sup>	Low ADHD <sup>c</sup>	Norms
Conduct	0.51 (0.58)	0.56 (0.60)	0.41 (0.55)	0.51 (0.37)
Learning Problems	0.67 (0.57)	0.66 (0.59)	0.46 (0.42)	0.55 (0.44)
Psychosomatic	0.16 (0.25)	0.18 (0.23)	0.13 (0.27)	0.08 (0.16)
Impulsive/ Hyperactive	1.09 (0.77)	1.17 (0.77)	0.91 (0.69)	1.06 (0.70)
Anxiety	0.49 (0.54)	0.43 (0.54)	0.58 (0.55)	0.61 (0.60)

<sup>a</sup>N = 80. <sup>b</sup>n = 43. <sup>c</sup>n = 37.

Table 11

Means, Standard Deviations (SD), and Norms for the BSI by Groups

BSI scale	Means (SD)			Norms
	Entire sample <sup>a</sup>	High ADHD <sup>b</sup>	Low ADHD <sup>c</sup>	
Depression	0.43 (0.60)	0.58 (0.66)	0.26 (0.46)	0.28 (0.46)
Anxiety	0.64 (0.59)	0.81 (0.54)	0.44 (0.61)	0.35 (0.45)
Somatization	.20 (.42)	.16 (.38)	.25 (.46)	.29 (.40)
Obsessive-Compulsive	1.22 (.97)	1.89 (.70)	.43 (.56)	.43 (.48)
Interpersonal				
Sensitivity	.62 (.64)	.79 (.61)	.41 (.60)	.32 (.48)
Hostility	.62 (.64)	1.00 (.58)	.17 (.37)	.35 (.42)
Phobic Anxiety	.26 (.54)	.22 (.40)	.31 (.67)	.17 (.36)
Paranoid Ideation	.24 (.39)	.33 (.48)	.14 (.22)	.34 (.45)
Psychoticism	.38 (.46)	.53 (.45)	.21 (.41)	.15 (.30)
Global Severity Index	.53 (.47)	.72 (.44)	.31 (.40)	.30 (.31)

<sup>a</sup>N = 80. <sup>b</sup>n = 43. <sup>c</sup>n = 37.

Anxiety, Somatization, Interpersonal Sensitivity, Phobic Anxiety, Paranoid Ideation, and the Global Severity Index were similar to those of the normative group (within 1.5 standard deviations of the mean). However, the mean for Hostility was more than 1.5 standard deviations above the mean, and the mean for Obsessive-Compulsive was more than three standard deviations above the normative mean.

A MANOVA revealed a significant difference between the two groups on the Depression, Anxiety, Obsessive-Compulsive, Interpersonal Sensitivity, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism scales of the BSI,  $F(9,70) = 18.44, p < .05$ . Although the means for the high ADHD group were similar to the normative group for Anxiety, Interpersonal Sensitivity, and Psychoticism, significant differences were noted on these scales when compared with the low ADHD group in univariate follow-up tests ( $F(1,78) = 8.62, p < .006$ ;  $F(1,78) = 7.86, p < .006$ ;  $F(1,78) = 11.09, p < .006$  for Anxiety, Interpersonal Sensitivity, and Psychoticism, respectively). Follow-up univariate tests using Bonferroni adjustment also indicated that the groups differed significantly on Obsessive-Compulsive,  $F(1,78) = 105.01, p < .006$ ; and Hostility,  $F(1,78) = 56.57, p < .006$ . There were no significant differences between the groups on Somatization,  $F(1,78) = 5.91, p > .006$ ; Depression,  $F(1,78) = 6.06, p > .006$ ; Phobic Anxiety,  $F(1,78) = 0.61, p > .006$ ; or Paranoid Ideation,  $F(1,78) = 4.98, p > .006$ . A t-test indicated a significant difference between the two group means for the Global Severity Index,  $t(78) = -4.40, p < .05$ . The BSI Global Severity Index was used as a general measure of comorbid maternal psychopathology, rather than the mean of the Depression and Anxiety

scales. This was decided because depression was not related to ADHD and BSI scales other than Anxiety were significantly related to ADHD symptoms in this sample.

### Marital Adjustment

The means and standard deviations for the scales of the DAS are presented in Table 12. All the means for the entire sample fell within one standard deviation of the normative mean, based on a sample of 218 married adults (Spanier, 1976). An examination of the means of the high and low ADHD groups revealed that all scores for both groups also fell within one standard deviation of the normative means. A MANOVA indicated no significant differences between the groups for the Dyadic Consensus, Dyadic Satisfaction, Affectional Expression, and Dyadic Cohesion scales of the DAS,  $F(4,75) = 1.49, p > .05$ .

### Parenting Variables

Means and standard deviations for the PLOC, PSOC, and PS are given in Tables 13 through 15. Results will be discussed for each measure separately, below.

#### Parenting Self-Esteem.

As shown in Table 13, the Efficacy and Dissatisfaction scales of the PSOC for the entire sample were 34.65 and 26.50, respectively. Compared to the normative sample of parents of 78 boys, and 90 girls, aged four to six years, the Efficacy scale was more than 1.5 standard deviations above the mean. Mothers in the low ADHD group scored well above two standard deviations above the normative mean, while mothers in the high ADHD group scored within one standard deviation of the mean. For Dissatisfaction, the

Table 12

Means, Standard Deviations (SD), and Norms for the DAS, by Groups

DAS scale	Means (SD)			
	Entire sample <sup>a</sup>	High ADHD <sup>b</sup>	Low ADHD <sup>c</sup>	Norms
Dyadic Consensus	46.12 (7.21)	45.05 (7.53)	47.62 (6.60)	57.9 (8.5)
Dyadic				
Satisfaction	38.39 (6.89)	36.98 (7.73)	40.27 (5.21)	40.5 (7.2)
Affectional				
Expression	9.02 (1.80)	8.65 (1.70)	9.46 (1.86)	9.0 (2.3)
Dyadic Cohesion	16.13 (4.52)	15.54 (4.76)	16.92 (4.00)	13.4 (4.2)
Dyadic				
Adjustment	109.67 (17.64)	106.21 (19.84)	114.27 (13.19)	114.8 (17.8)

<sup>a</sup>N = 80. <sup>b</sup>n = 43. <sup>c</sup>n = 37.

Table 13

Means, Standard Deviations (SD), and Norms for the PSOC by Groups

PSOC scale	Means (SD)			
	Entire sample <sup>a</sup>	High ADHD <sup>b</sup>	Low ADHD <sup>c</sup>	Norms
Efficacy	34.65 (8.49)	30.70 (8.90)	39.24 (5.06)	25.52 (5.97)
Dissatisfaction	26.50 (10.18)	31.91 (9.69)	20.22 (6.52)	37.40 (6.60)

<sup>a</sup> $N = 80$ . <sup>b</sup> $n = 43$ . <sup>c</sup> $n = 37$ .

Table 14

Means, Standard Deviations (SD), and Norms for the PLOC by Groups

PLOC scale	Means (SD)			Norms
	Entire sample <sup>a</sup>	High ADHD <sup>b</sup>	Low ADHD <sup>c</sup>	
<b>Negative Parental</b>				
Efficacy	27.28 (5.19)	29.51 (5.56)	24.51 (3.12)	17.62
<b>Lack of Parental</b>				
Responsibility	29.06 (3.21)	28.77 (3.31)	29.41 (3.18)	30.43
Child Control	20.52 (2.04)	20.74 (1.83)	20.32 (2.31)	14.37
Fate/Chance	26.95 (5.12)	28.30 (5.31)	25.19 (4.47)	21.55
<b>Parent Lacks</b>				
Control	28.01 (5.62)	29.84 (6.13)	25.65 (4.03)	26.63

<sup>a</sup>N = 80. <sup>b</sup>n = 43. <sup>c</sup>n = 37.

Table 15

Means, Standard Deviations (SD), and Norms for the PS by Groups

PS scale	Means (SD)			Norms
	Entire sample <sup>a</sup>	High ADHD <sup>b</sup>	Low ADHD <sup>c</sup>	
Laxness	3.42 (1.41)	4.09 (1.44)	2.64 (0.89)	2.4 (0.8)
Overreactivity	2.85 (1.19)	3.36 (1.24)	2.25 (0.79)	2.4 (0.7)
Verbosity	3.39 (1.40)	4.02 (1.53)	2.69 (0.82)	3.1 (1.0)
Total	3.23 (1.29)	3.34 (1.36)	2.52 (0.74)	2.6 (0.6)

<sup>a</sup>N = 80. <sup>b</sup>n = 43. <sup>c</sup>n = 37.



mean for women in the entire sample was more than 1.5 standard deviations below the normative mean. The high ADHD group scored within one standard deviation of the normative mean, while the low ADHD group reported Dissatisfaction that was more than two standard deviations below the mean.

A MANOVA was performed to determine if differences existed for Efficacy and Dissatisfaction for the high and low ADHD symptom groups. Results indicated a significant difference between the two groups on at least one of the PSOC scales,  $F(2,77) = 19.12, p < .05$ . Follow-up univariate tests with the Bonferroni adjustment indicated that the groups differed significantly on both Efficacy and Dissatisfaction scales. When compared with the low ADHD group, the high ADHD group scored significantly lower on parenting Efficacy,  $F(1,78) = 26.67, p < .025$ , and significantly higher in parenting Dissatisfaction,  $F(1,78) = 38.73, p < .025$ . Therefore in the current sample, mothers with higher ADHD symptoms reported lower efficacy and satisfaction than mothers with lower ADHD symptoms.

#### Parental Locus of Control.

Means for the current sample on the PLOC were compared with a normative group of 60 parents who reported no parenting problems. The authors did not publish standard deviations for the normative sample. As shown in Table 14, for Negative Parental Efficacy, the means of the current sample were much higher than that of the normative sample (mean = 17.62). This was true for the entire sample (mean = 27.28), and for the high and low ADHD groups (mean = 29.51, mean = 24.51, respectively). For

Lack of Parental Responsibility, the means of the entire sample (mean = 29.06), the high ADHD group (mean = 28.77), and the low ADHD group (mean = 29.41) were similar to the normative mean (mean = 30.43). When examining Child Control, the mean of the entire sample (mean = 20.52), high ADHD group (mean = 20.74), and low ADHD group (mean = 20.32) were higher than that of the normative sample (mean = 14.37). Belief in Fate/Chance was also higher for the current sample (entire sample mean = 26.95; high ADHD group mean = 28.30; low ADHD group mean = 25.19) than in the normative sample (mean = 21.55). However, means for the Parent Lacks Control scale (entire sample mean = 28.01; high ADHD group mean = 29.84; low ADHD group mean = 25.65) were similar to that of the normative sample (mean = 26.63).

A MANOVA was performed to determine whether differences existed between the two groups on Negative Parental Efficacy, Lack of Parental Responsibility, Child Control, Belief in Fate/Chance, and Parent Lacks Control. Results of the MANOVA suggested there were significant differences between the high and low ADHD groups for at least one of the PLOC scales,  $F(5,74) = 6.27, p < .05$ . Follow-up analyses using the Bonferroni adjustment for multiple tests, indicated significant differences between the groups on the Negative Parental Efficacy, Belief in Fate/Chance, and Parent Lacks Control scales. The mean score for Negative Parental Efficacy for the high ADHD group was significantly higher than the mean score of the low ADHD group,  $F(1,78) = 23.46, p < .01$ . This indicates that the high ADHD group reported more feelings of ineffectiveness in the parenting role, compared to the low ADHD group. Those in the high ADHD group

also scored significantly higher in Belief in Fate/Chance, than those in the low ADHD group,  $F(1,78) = 7.89, p < .01$ . Mean scores for Parent Lacks Control were also significantly higher for the high ADHD groups than for the low ADHD group,  $F(1,78) = 12.59, p < .01$ . This indicates that mothers in the high ADHD group reported feeling less in control of their children's behavior, compared with those in the low ADHD group.

#### Disciplinary Styles.

Mean scores on the PS for the current sample were high compared with the normative non-clinical sample of 51 mothers of boys and girls aged 18 to 48 months. For this measure, high scores indicated high endorsement of Laxness, Overreactivity, and Verbosity. For the all scales of this measure, the means of the entire sample were within 1.5 standard deviations of the normative mean, as shown in Table 15. The mean scores for the low ADHD group were similar to the norms for the measure (i.e., within one standard deviation of the normative mean). However, the high ADHD group mean was more than two standard deviations above the mean for Laxness and Total.

A MANOVA analyzing Laxness, Overreactivity, and Verbosity for the two groups, indicated significant differences between the groups on at least one of the PS scales,  $F(3,74) = 8.41, p < .05$ . Follow-up univariate tests, using the Bonferroni adjustment indicated that the high ADHD group scored higher than the low ADHD group in Laxness,  $F(1,76) = 25.83, p < .017$ ; Overreactivity,  $F(1,76) = 19.36, p < .017$ ; and Verbosity,  $F(1,76) = 22.23, p < .017$ . A t-test indicated that the high ADHD group scored significantly higher on the PS Total scale than the low ADHD group,  $t(67.04) =$

5.47,  $p < .05$ . This indicates that mothers in the high ADHD group reported using less effective parenting styles than those in the low ADHD group.

### Correlations

Pearson correlations were performed between predictors and moderators, to test hypotheses 4 and 5, which predicted that maternal ADHD would be related to increased comorbid maternal psychopathology and decreased marital adjustment. Given the relatively large number of correlations performed (8 tests for each moderator) the alpha level was adjusted to a level of .006. Table 16 presents the correlations of moderator variables (comorbid maternal psychopathology, marital adjustment) with the CAARS scales. The Hyperactivity/Restlessness DSM Hyperactivity/Impulsivity and DSM Total scales were not correlated with either of the moderator variables. The DSM Inattention scale was significantly correlated with comorbid symptoms ( $r = .36, p < .006$ ), but was not correlated with marital adjustment ( $r = -.28, p > .006$ ). All the other CAARS scales were significantly correlated with both comorbid psychopathology, and with marital adjustment. High levels of ADHD symptoms were related to higher comorbid maternal psychopathology and lower marital adjustment.

One of the assumptions of testing moderator effects is that there is a relationship between the predictor and criterion variables. Prior to performing regression analyses to test for the moderating effects of marital adjustment and comorbid psychopathology, it was necessary to determine whether there was a relationship between maternal ADHD and the parenting variables. Table 17 shows the correlations between the CAARS scales

Table 16

Correlations Between the CAARS scales and Moderator Variables

CAARS scale	Moderators	
	Comorbid Symptoms	Marital Adjustment
Inattention/Memory	.41**	-.35**
Hyperactive/Restless	.08	.02
Impulsive/Emotional Lability	.40**	-.29**
Self-Esteem Problems	.49**	-.38**
DSM Inattention	.36**	-.28
DSM Hyperactive/Impulsive	.10	-.03
DSM Total	.28	-.19
ADHD Index	.37**	-.18

\*\*  $p < .006$ .

Table 17

Correlations Between the CAARS Scales and PSOC Scales

CAARS scale	PSOC Scales	
	Efficacy	Dissatisfaction
Inattention/Memory	-.45**	.54**
Hyperactive/Restless	-.14	.17
Impulsive/Emotional Lability	-.39**	.44**
Self-Esteem Problems	-.41**	.43**
DSM Inattention	-.55**	.63**
DSM Hyperactive/Impulsive	-.05	.05
DSM Total	-.38**	.43**
ADHD Index	-.47**	.53**

\*\*  $p < .006$ .

and parenting self-esteem. The CAARS Hyperactivity/Restlessness and DSM Hyperactivity/Impulsivity scales were not related to either of the PSOC scales. However, all other CAARS scales were significantly correlated with both PSOC scales. High ADHD symptoms were related to lower Efficacy scores and higher Dissatisfaction scores.

Table 18 shows the correlations between the CAARS scales and the PLOC. As with the PSOC scales, the Hyperactivity/Restlessness and DSM Hyperactivity/Impulsivity scales of the CAARS were not significantly correlated with any of the PLOC scales. In addition, the Lack of Parent Responsibility and Child Control scales of the PLOC were not significantly related to any of the CAARS scales. The Negative Parental Efficacy scale was correlated with the remaining CAARS scales (i.e., all the scales except the Hyperactivity/Restlessness and DSM Hyperactivity/Impulsivity scales). Belief in Fate/Chance was correlated with Inattention/Memory Problems and DSM Inattention, while Lack of Parental Control was correlated with Inattention/Memory Problems, DSM Inattention, and the ADHD Index. For these parenting locus of control measures, high ADHD was related to an external parenting locus of control.

Table 19 shows the correlations between the CAARS scales and parental disciplinary styles. The DSM Hyperactivity/Impulsivity and Hyperactivity/Restlessness scales were not significantly related to any of the parenting styles. Laxness,

Table 18

Correlations Between the CAARS Scales and PLOC Scales

CAARS scale	PLOC Scales				
	NPE <sup>a</sup>	LPR <sup>b</sup>	CC <sup>c</sup>	BFC <sup>d</sup>	LPC <sup>e</sup>
Inattention/Memory	.46**	-.15	.06	.29**	.30**
Hyperactive/Restless	.07	-.21	-.01	-.03	.08
Impulsive/					
Emotional Lability	.38**	-.12	.05	.18	.25
Self-Esteem Problems	.43**	-.09	-.01	.26	.28
DSM Inattention	.52**	-.07	.08	.40**	.42**
DSM Hyperactive/					
Impulsive	.02	-.25	-.04	-.15	-.01
DSM Total	.33**	-.16	.03	.19	.27
ADHD Index	.40**	-.13	.04	.29**	.31**

Note: <sup>a</sup>NPE = Negative Parental Efficacy. <sup>b</sup>LPR = Lack of Parental Responsibility. <sup>c</sup>CC = Child Control. <sup>d</sup>BFC = Belief in Fate/Chance. <sup>e</sup>LPC = Lack of Parent Control.

\*\*  $p < .006$ .



Table 19.

Correlations Between the CAARS Scales and PS Scales

CAARS scale	PS scales			
	Laxness	Overreactivity	Verbosity	Total
Inattention/Memory	.51**	.48**	.47**	.51**
Hyperactive/Restless	.23	.17	.22	.23
Impulsive/Emotional Lability	.44**	.44**	.42**	.45**
Self-Esteem Problems	.42**	.44**	.36**	.42**
DSM Inattention	.59**	.53**	.54**	.58**
DSM Hyperactive/Impulsive	.13	.11	.17	.15
DSM Total	.45**	.39**	.43**	.45**
ADHD Index	.52**	.50**	.49**	.52**

\*\*  $p < .006$ .

Overreactivity, Verbosity, and the Total PS score were positively related to higher ADHD symptoms on all the remaining CAARS scales (Inattention/Memory, Impulsivity/Emotional Lability, Problems with Self-Esteem, DSM Inattention, DSM Total, and ADHD Index).

Another assumption for testing moderators is that the correlations between the moderators and the criterion variables should not be too high. Correlations were examined between the moderator variables (comorbid maternal psychopathology, and marital adjustment) and the criterion variables (parenting variables). Since 11 correlations were performed on each moderator variable, the alpha level was adjusted to .004. Results are summarized in Table 20. The parenting self-esteem and disciplinary style measures and their subscales were all related to both comorbid psychopathology and to marital adjustment. High comorbid maternal psychopathology and low marital adjustment were related to lower Efficacy, higher Dissatisfaction, more Laxness and Overreactivity, and overall ineffective disciplinary styles. For the PLOC scales, Negative Parental Efficacy and Belief in Fate/Chance were related to comorbid psychopathology, while Negative Parental Efficacy was related to lower marital adjustment.

#### Hypothesis Testing

Six separate hierarchical multiple regressions were performed to test the hypotheses. The predictor for all analyses was the CAARS ADHD Index, which is an indicator of the presence of clinically significant ADHD symptoms. The moderators for all analyses were comorbid maternal psychopathology and marital adjustment, which

Table 20

Correlations Between Parenting and Moderator Variables

Parenting scale	Moderators	
	Comorbid Symptoms	Marital Adjustment
PSOC Scales		
Efficacy	-.39**	.39**
Dissatisfaction	.43**	-.42**
PLOC Scales		
Negative Parental Efficacy	.38**	-.35**
Lack of Parental Responsibility	.17	-.11
Child Control	.067	-.24
Belief in Fate/Chance	.36**	-.21
Parent Lacks Control	.27	-.19
PS Scales		
Laxness	.40**	-.34**
Overreactivity	.38**	-.45**
Verbosity	.29	-.30
Total	.38**	-.38**

\*\*  $p < .004$ .

were entered as interaction terms. A separate regression analysis was performed for each criterion (parenting) variable. Adjusted  $R^2$  values were reported for each regression, due to the small sample size. A methodological requirement for testing moderators is a significant relationship between the predictors (including moderators), and the criterion variables (Cohen & Willis, 1985; Holmbeck, 1997). As discussed earlier, two criterion variables, the Lack of Parental Responsibility and Child Control scales of the PLOC, were not significantly related to the predictor variable (CAARS Index scale). Therefore regression analyses were not performed for these variables.

According to Holmbeck (1997) multiple regressions, which use the continuous forms of the variables, are the preferred strategy for testing moderating effects. However, in testing for moderator effects, Baron and Kenny (1986) state that it is preferable that the moderator is uncorrelated with the predictor and criterion variables. This is preferable because high correlations between these variables may result in multicollinearity problems. However, since diagnostic statistics did not reveal multicollinearity problems in the data, the multiple regression analyses were carried out to test for the presence of moderating effects in the current data set. Nonetheless, results based on these analyses should be interpreted with caution.

When examining interaction (moderator) effects in regression analysis, multicollinearity problems can occur, because the interaction terms are the cross-products of the main effect terms (Holmbeck, 1997; Jaccard, Wan, & Turrisi, 1990). Multicollinearity occurs when variables in the regression are too highly correlated with

one another. When this occurs, it is redundant to include both variables in the regression equation. Aikens and West (1991) have suggested using deviation score cross-products (each score minus its mean) rather than raw score crossproducts to combat this problem. They call the deviation scores “centered”. To minimize multicollinearity effects, the present study used centered variables for the interaction terms for all regression analyses.

Since the analyses presented above revealed no significant relationships between CPRS measures and the predictors (including the moderators) and criterion measures, the CPRS was not included as a covariate in the analyses. For all six analyses, maternal ADHD (measured by the CAARS Index score) was considered the predictor variable, while comorbid maternal psychopathology (the Global Severity Index of the BSI) and the marital adjustment scale of the DAS were the moderator variables. The criterion variables were the PSOC Efficacy, PSOC Dissatisfaction, PLOC Negative Parental Efficacy, PLOC Belief in Fate/Chance, PLOC Parent Lacks Control, and PS Total scales. For each regression, maternal ADHD, comorbid psychopathology, and marital adjustment were entered together on the first step. The second step included the addition of the Maternal ADHD X marital adjustment (ADHD X DAS), Maternal ADHD X comorbid psychopathology (ADHD X BSI), marital adjustment X comorbid psychopathology (DAS X BSI) interaction terms, as well as the three way interaction (ADHD X DAS X BSI). The results will be discussed separately for each criterion variable.

Interactions were entered on the second step of all the analyses, even if there were no significant main effects. This is because moderator effects can mask main effects. For example, if there is a strong positive relationship between the predictor and criterion at one level of the moderator, and a strong negative relationship between the predictor and criterion at the other level of the moderator, the two conflicting effects may negate one another in the main effects.

Due to the small sample size of the present study, any interpretation of the moderator effects would be speculative. However, exploratory examinations of the interaction (moderator) effects were conducted, as suggested by Aikens and West (1991). Aikens and West suggest that in the cases of significant interaction effects in multiple regression analyses, the moderator effects can be better understood by calculating the “simple slopes.” First the moderator variable should be categorized into high and low levels, based on the mean for that variable. Then the predictor should be regressed on the criterion separately for each level of the moderator, yielding “simple slopes” and y-intercepts for high and low levels of the moderator. These simple slopes and intercepts can then be plotted to illustrate the effects of the moderator on the criterion and predictor variables. For the present study the simple slopes which were calculated, must be interpreted with caution, as noted previously, due to the small sample size.

#### Parenting Self-Esteem- Efficacy

Results for the first analysis are presented in Table 21. As described above, ADHD, marital adjustment, and comorbid psychopathology were entered together on the

Table 21

Summary of Hierarchical Regression Analysis for Variables Predicting PSOC- Efficacy

(N=80)

Variable	<u>B</u>	<u>SE B</u>	Beta
Step 1			
ADHD	-.160	.061	-.265*
Marital Adjustment	.122	.050	.252*
Comorbid Psychopathology	-1.911	.843	-.238*
Step 2			
ADHD X Marital Adjustment	-.005	.005	-.117
ADHD X Comorbid Psychopathology	.173	.066	.254*
Marital X Comorbid Psychopathology	-.059	.041	-.165
ADHD X Marital X Comorbid Psych.	-.006	.004	-.157

Note: adjusted  $R^2 = .27$  for step 1;  $R^2$  change = .10 for step 2 ( $p < .05$ ).

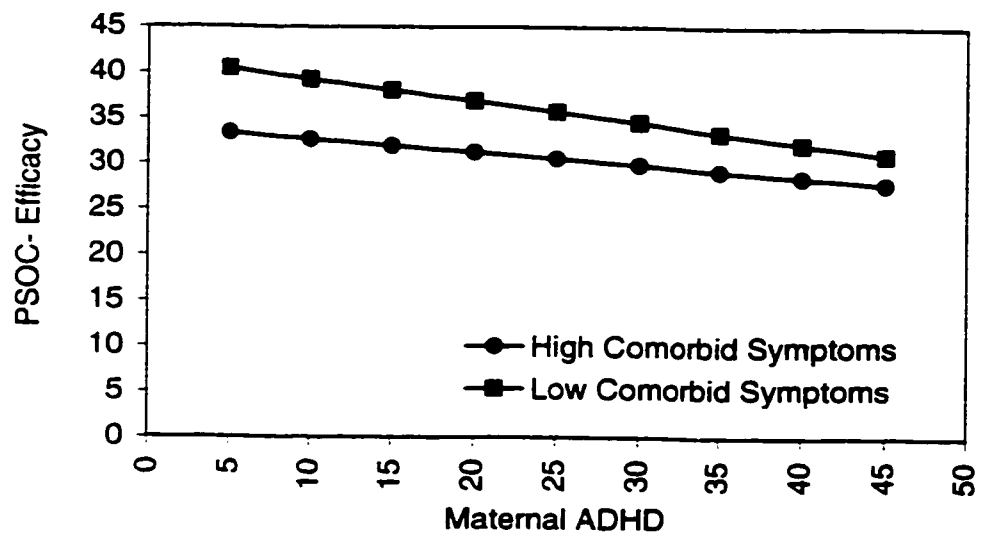
\*  $p < .05$ . \*\*  $p < .01$ .

first step, followed by the addition of the interaction terms (moderators) on the second step. No multivariate outliers were identified in a-priori examination of the data. The first step produced a significant regression,  $F(3,76) = 10.51, p < .001$ . ADHD, marital adjustment, and comorbid psychopathology accounted for 27% of the variance in Efficacy. Maternal ADHD significantly predicted Efficacy  $t(76) = 2.62, p < .05$ . Comorbid symptoms also significantly predicted Efficacy,  $t(76) = 2.27, p < .05$ , as did marital adjustment,  $t(76) = -2.45, p < .05$ . High levels of marital adjustment and low levels of ADHD and comorbid symptoms were related to higher levels of Efficacy.

Step 2 resulted in a significant increase in the adjusted  $R^2$  value ( $F$  change = 2.92,  $p < .05$ ). The addition of the interaction terms resulted in an increase of 10% of the variance accounted for by the model. The total model accounted for 37% of the variance in Efficacy. The ADHD X comorbid psychopathology interaction significantly predicted Efficacy,  $t(72) = -2.61, p < .05$ . This indicates the moderating effect of comorbid maternal psychopathology on the relationship between ADHD and Efficacy, supporting hypothesis 7, which predicted that comorbid symptoms would moderate the effects of ADHD on the parenting variables. All other interactions were not significant, including the interaction between Marital Adjustment and ADHD, which is contrary to hypothesis 6, which predicted marital adjustment would moderate the relationship between ADHD and parenting.

Plots of the simple slopes of the regression of ADHD on Efficacy at high and low levels of comorbid psychopathology are illustrated in Figure 2. The plots indicate that





**Figure 2:** Plot of regression lines for ADHD and Efficacy at high and low levels of comorbid psychopathology

the regression equations for ADHD and Efficacy are similar in strength and direction for the high and low levels of psychopathology. Women with higher ADHD symptoms reported lower efficacy at high and low levels of comorbid psychopathology, than women with low ADHD symptoms. However, the reports of Efficacy at all levels of ADHD were higher for women with lower comorbid psychopathology symptoms than they were for women with higher comorbid psychopathology.

### PSOC-Dissatisfaction

Results for the second analysis are presented in Table 22. A preliminary examination of the data identified no multivariate outliers. The first step produced a significant regression,  $F(3,76) = 13.98, p < .001$ . Together, ADHD, marital adjustment, and comorbid psychopathology accounted for 33% of the variance in Dissatisfaction. ADHD, comorbid symptoms, and Marital adjustment were significant predictors of Dissatisfaction,  $t(76) = -3.18, p < .01$ ;  $t(76) = -2.62, p < .05$ ;  $t(76) = 2.66, p < .01$ . High ADHD and comorbid symptoms and low marital adjustment was associated with higher Dissatisfaction.

The addition of the interaction terms resulted in a significant increase in the variance accounted for in Dissatisfaction ( $F$  change = 3.57,  $p < .05$ ). The interaction terms accounted for an additional 10%, bringing the total variance accounted for to 43%. The ADHD X comorbid psychopathology interaction significantly predicted Dissatisfaction,  $t(72) = -2.94, p < .01$ . This indicates the moderating effect of comorbid

Table 22

Summary of Hierarchical Regression Analysis for Variables Predicting PSOC-  
Dissatisfaction (N=80)

Variable	<u>B</u>	<u>SE B</u>	Beta
Step 1			
ADHD	.223	.070	.308**
Marital Adjustment	-.152	.057	-.261**
Comorbid Maternal Psychopathology	2.53	.965	.262*
Step 2			
ADHD X Marital Adjustment	.010	.005	.199
ADHD X Comorbid Psychopathology	-.219	.074	-.269**
Marital X Comorbid Psychopathology	.030	.047	.069
ADHD X Marital X Comorbid Psych.	-.008	.005	-.157

Note: adjusted  $R^2 = .33$  for step 1;  $R^2$  change = .10 for step 2 ( $p < .05$ ).

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

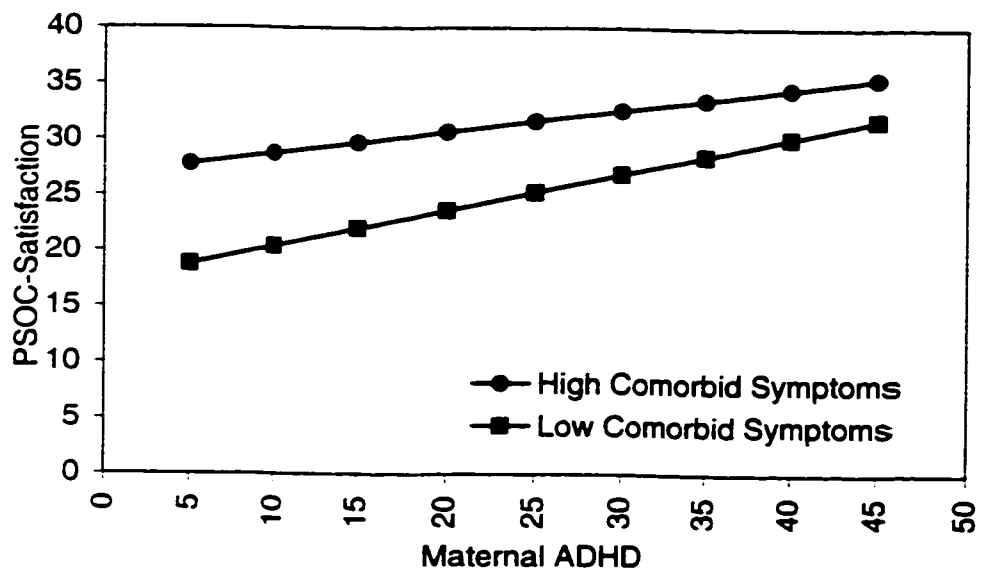
maternal psychopathology on the relationship between ADHD and Dissatisfaction, supporting hypothesis 7, which predicted that comorbid symptoms would moderate the relationship between ADHD and parenting. All other interactions were not significant, including the interaction between marital adjustment and ADHD, which is contrary to hypothesis 6, which predicted marital adjustment would moderate the relationship between ADHD and parenting.

The moderating effect was plotted in Figure 3. Again, the regression equations for the relationships between ADHD and Dissatisfaction were similar in strength and direction for high and low levels of comorbid psychopathology. However, women with higher comorbid psychopathology symptoms reported more Dissatisfaction at all levels of ADHD than women with lower comorbid psychopathology symptoms.

#### PLOC-Negative Parental Efficacy

Results for the third regression analysis are shown in Table 23. No multivariate outliers were identified in a preliminary examination of the data. The first step, in which ADHD, marital adjustment, and comorbid psychopathology were entered, produced a significant regression,  $F(3,76) = 7.88, p < .001$ . These variables accounted for 21% of the variance in Negative Parental Efficacy.

Consistent with Hypothesis 2, which predicted maternal ADHD would be related to parenting locus of control, ADHD significantly predicted Negative Parental Efficacy,  $t(76) = 2.07, p < .05$ . The greater the mothers' ADHD symptoms, the more ineffective they felt as parents. Comorbid psychopathology also significantly predicted



**Figure 3:** Plot of regression lines for ADHD and Dissatisfaction at high and low levels of of comorbid psychopathology

Table 23

Summary of Hierarchical Regression Analysis for Variables Predicting PLOC- Parenting Efficacy (N=80)

Variable	<u>B</u>	<u>SE B</u>	Beta
Step 1			
ADHD	.081	.039	.218*
Marital Adjustment	-.061	.032	-.205
Comorbid Maternal Psychopathology	1.249	.538	.258*
Step 2			
ADHD X Marital Adjustment	.003	.003	.109
ADHD X Comorbid Psychopathology	-.109	.043	-.262*
Marital X Comorbid Psychopathology	.023	.027	.103
ADHD X Marital X Comorbid Psych.	.004	.003	.136

Note: adjusted  $R^2 = .21$  for step 1;  $R^2$  change = .08 for step 2 ( $p > .05$ ).

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

Negative Parental Efficacy,  $t(76) = 2.32, p < .05$ . Higher levels of comorbid psychopathology were related to feeling more ineffective as parents. Marital adjustment did not significantly predict Negative Parental Efficacy. The addition of the interaction terms on step 2 did not significantly improve the  $R^2$  value, contrary to hypotheses 6 and 7, which predicted the moderating roles of comorbid symptoms and marital adjustment in the relationship between ADHD and parenting. Therefore marital adjustment and comorbid maternal psychopathology did not play moderating roles in the relationship between ADHD and Negative Parenting Efficacy.

#### PLOC- Belief in Fate/Chance

Results for the fourth regression are displayed in Table 24. No multivariate outliers were identified in a preliminary examination of the data. The first step, which included ADHD, marital adjustment, and comorbid psychopathology, produced a significant regression,  $F(3,76) = 4.19, p < .01$ . These variables accounted for 11% of the variance in Belief in Fate/Chance. Comorbid symptoms predicted Belief in Fate/Chance,  $t(76) = 2.61, p < .05$ . Maternal ADHD and marital adjustment did not significantly predict Belief in Fate/Chance.

The addition of the interaction effects on step 2 resulted in a significant increase in the  $R^2$  value ( $F$  change = 2.78,  $p < .05$ ). The addition of these variables accounted for an additional 12% of the variance in Belief in Fate/Chance. The entire model accounted for 23% of the variance. In the second step, one interaction effect was significant, indicating a moderating effect for comorbid psychopathology on the relationship between

Table 24

Summary of Hierarchical Regression Analysis for Variables Predicting PLOC- Belief in Fate/Chance (N=80)

Variable	<u>B</u>	<u>SE B</u>	Beta
Step 1			
ADHD	.032	.041	.088
Marital Adjustment	-.026	.033	-.087
Comorbid Maternal Psychopathology	1.47	.564	.302*
Step 2			
ADHD X Marital Adjustment	.006	.003	.213
ADHD X Comorbid Psychopathology	-.121	.044	-.294**
Marital X Comorbid Psychopathology	.017	.028	.078
ADHD X Marital X Comorbid Psych.	.002	.003	.089

Note: adjusted  $R^2 = .11$  for step 1;  $R^2$  change = .12 for step 2 ( $p < .05$ ).

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



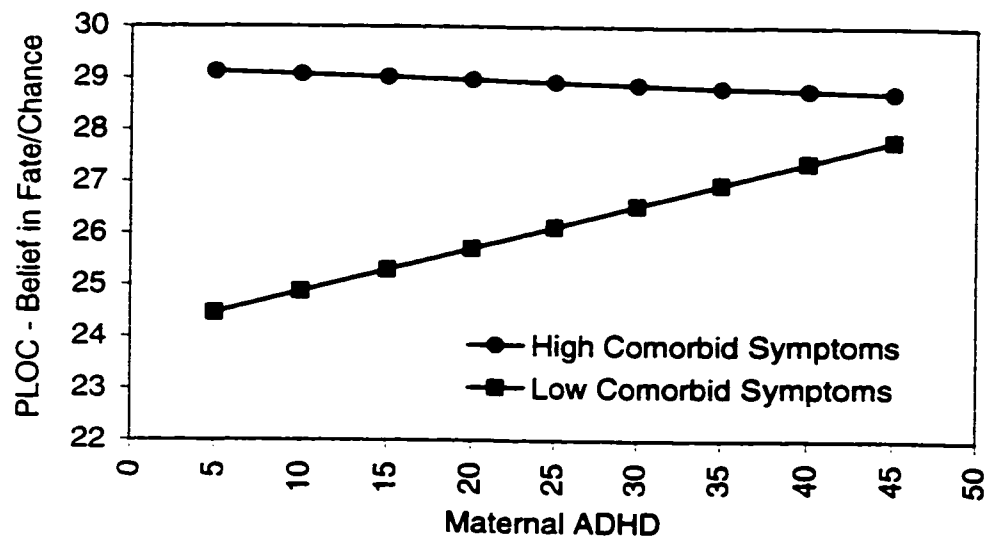
ADHD and Belief in Fate/Chance. The ADHD X comorbid psychopathology interaction significantly predicted Belief in Fate/Chance,  $t(72) = -2.74, p < .01$ .

Plots of the simple slopes of the regression of ADHD on Belief in Fate/Chance at high and low levels of comorbid psychopathology are illustrated in Figure 4. When mothers scored high in comorbid psychopathology, there appeared to be no relationship between maternal ADHD and Belief in Fate/Chance. However, for women who scored low in comorbid psychopathology, there was a strong positive relationship between ADHD and Belief in Fate/Chance. For mothers who scored low on comorbid maternal psychopathology, high ADHD was related to higher Belief in Fate/Chance.

#### PLOC-Parent Lacks Control

Results for the fifth analysis are presented in Table 25. A Preliminary examination of the data revealed no multivariate outliers. The first step produced a significant regression equation,  $F(3,76) = 3.49, p < .05$ . ADHD, marital adjustment, and comorbid psychopathology accounted for 9% of the variance in Parent Lacks Control. The main effects for maternal ADHD, comorbid symptoms, and marital adjustment were not significant.

The addition of the interaction terms in step 2 resulted in a significant increase in the adjusted  $R^2$  value ( $F$  change = 2.87,  $p < .05$ ). The interaction variables accounted for a 12% increase in the variance accounted for in Parent Lacks Control. The entire model accounted 21% of the variance.



**Figure 4:** Plot of regression lines for ADHD and Belief in Fate/Chance at high and low levels of comorbid psychopathology

Table 25

Summary of Hierarchical Regression Analysis for Variables Predicting PLOC- Parent Control (N=80)

Variable	<u>B</u>	<u>SE B</u>	Beta
Step 1			
ADHD	.079	.045	.199
Marital Adjustment	-.024	.037	-.074
Comorbid Maternal Psychopathology	1.046	.624	.196
Step 2			
ADHD X Marital Adjustment	.007	.003	.261*
ADHD X Comorbid Psychopathology	-.120	.049	-.266*
Marital X Comorbid Psychopathology	.028	.031	.116
ADHD X Marital X Comorbid Psych.	.003	.003	.096

Note: adjusted  $R^2 = .09$  for step 1;  $R^2$  change = .12 for step 2 ( $p < .05$ ).

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

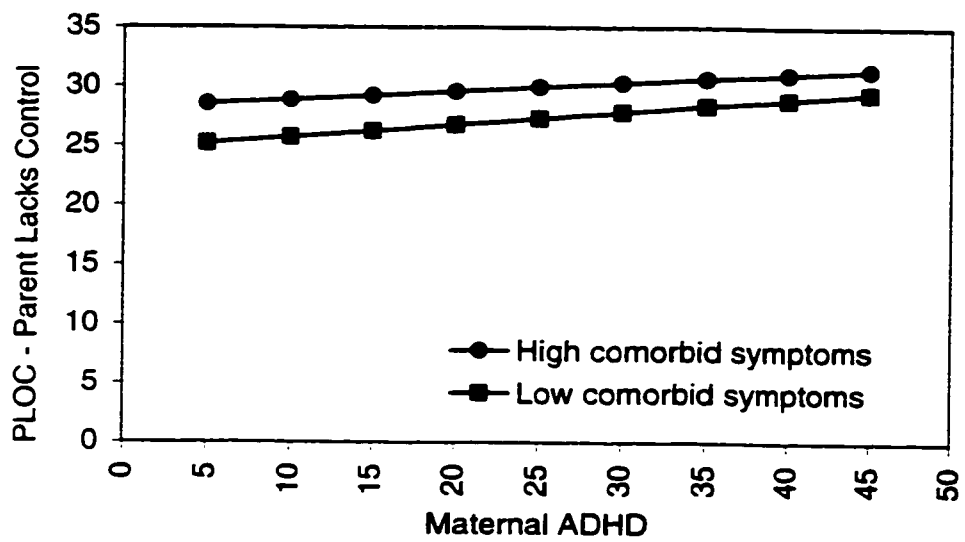
Two interaction effects were significant. The ADHD X marital adjustment interaction significantly predicted Parent Lacks Control,  $t(72) = 2.12, p < .05$ , as did the ADHD X comorbid psychopathology interaction,  $t(72) = -2.46, p < .05$ . These results indicate significant moderator effects for marital adjustment and comorbid maternal psychopathology on the relationship between ADHD and Parent Lacks Control.

Figure 5 was plotted using the simple slopes of the regressions of ADHD on Parent Lacks Control at high and low levels of comorbid psychopathology. From this plot it appeared that the relationships between ADHD and Parent Lacks Control were similar in strength and direction for both levels of comorbid psychopathology. In both high and low psychopathology groups, the higher the ADHD symptoms, the less mothers felt they had control over their child's behavior. However, women at all levels of ADHD who scored high on comorbid psychopathology showed more lack of control than those who scored low comorbid psychopathology.

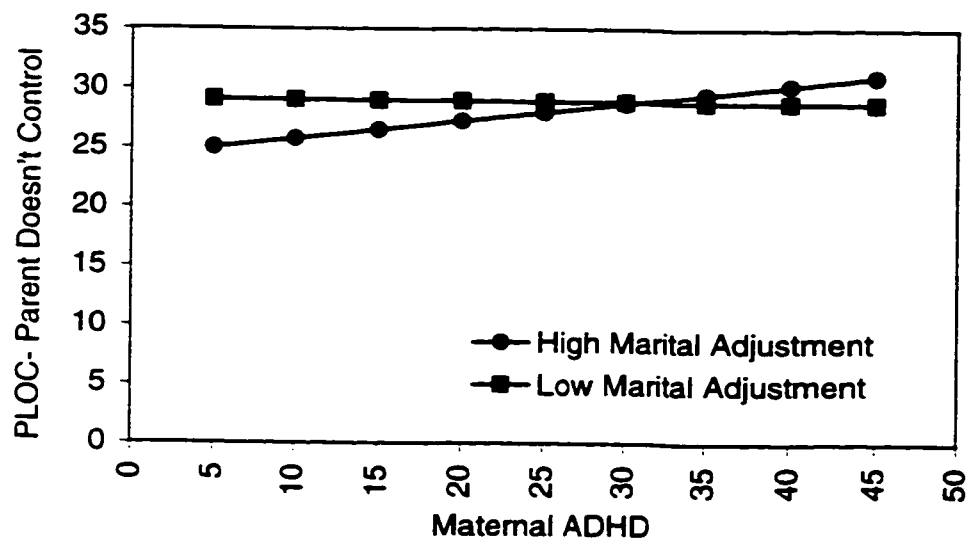
For the moderating effect of marital adjustment on ADHD and Parent Lacks Control, Figure 6 was plotted. For mothers with low marital adjustment, there was no relationship between ADHD and Parent Lacks Control. However, for mothers with high marital adjustment there was a slightly stronger relationship between ADHD and Parent Lacks Control. For mothers with high marital adjustment, higher ADHD was related to more lack of control over the child's behavior.

#### PS-Total

The criterion for the final analysis was the Parenting Scale Total score. No



**Figure 5:** Plot of regression lines for ADHD and Parent not in Control at high and low levels of comorbid psychopathology



**Figure 6:** Plot of regression lines for ADHD and Parent not in Control at high and low levels of Marital Adjustment

multivariate outliers were identified in a preliminary examination of the data. As described above, ADHD, marital adjustment, and comorbid psychopathology were entered together on the first step, followed by the addition of the interaction terms on the second step. The results are presented in Table 26. The first step resulted in a significant regression analysis,  $F(3,76) = 15.64, p < .001$ . The variables in the first step accounted for 29% of the variance in maternal disciplinary styles.

Maternal ADHD was a significant predictor of disciplinary styles,  $t(76) = 0.279, p < .01$ , which was consistent with hypothesis 3, which predicted that ADHD would be related to ineffective disciplinary styles. Higher self-ratings of ADHD predicted less effective parenting styles (more laxness, overreactivity, and verbosity). Comorbid maternal psychopathology also significantly predicted parental disciplinary styles,  $t(76) = .362, p < .01$ . Mothers with higher levels of comorbid psychopathology were more likely to report ineffective parenting styles. Marital adjustment did not significantly predict disciplinary styles,  $t(76) = 1.71, p > .05$ . The addition of the interaction terms on the second step did not yield a significant increase in the  $R^2$  value, contrary to hypotheses 6 and 7, which predicted the moderating roles of comorbid symptoms and marital adjustment on the relationship between ADHD and parenting.

Table 26

Summary of Hierarchical Regression Analysis for Variables Predicting Parenting Styles(N=80)

Variable	<u>B</u>	<u>SE B</u>	Beta
Step 1			
ADHD	.026	.009	.279**
Marital Adjustment	-.013	.007	-.169
Comorbid Maternal Psychopathology	1.00	.289	.362**
Step 2			
ADHD X Marital Adjustment	.001	.000	.037
ADHD X Comorbid Psychopathology	-.005	.025	-.019
Marital X Comorbid Psychopathology	.009	.015	.072
ADHD X Marital X Comorbid Psych.	.001	.001	.062

Note: adjusted  $R^2 = .29$  for step 1;  $R^2$  change = .01 for step 2 ( $p > .05$ ).

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



## CHAPTER FOUR

### DISCUSSION

The purpose of this study was to examine parenting cognitions, disciplinary styles, marital satisfaction, and comorbid psychopathology symptoms in women with and without ADHD symptoms. Most of the previous research on adult ADHD has been with males, and most studies have used as subjects parents of children with ADHD, or children with ADHD who have been followed into adulthood. Marital adjustment and comorbid maternal psychopathology were conceptualized as moderators in the relationship between maternal ADHD and parenting cognitions and disciplinary styles. First some of the critical findings that describe the sample will be presented, followed by a discussion of the hypotheses that were tested. Finally, limitations of the present study and directions for future research will be presented.

#### Descriptive Findings

##### Comorbid Maternal Psychopathology

Consistent with previous research (Biederman, Faraone, Keenan, Knee, & Tsuang, 1990; Biederman, Newcorn, & Sprich, 1991; Biederman et al., 1993, 1994; Mannuzza, Klein, Bessler, Malloy, & LaPedula, 1993; Weiss, Hechtman, Milroy, & Perlman, 1985; Wender, 1987, 1995), comorbid maternal psychopathology was related to maternal ADHD ratings. As noted previously, high levels of overall maternal ADHD were related to high levels of comorbid psychopathology. However, upon closer examination of the correlations, this relationship appeared to exist only for the inattentive

and cognitive ADHD symptoms, and not for the hyperactive, impulsive and restless symptoms. Women in the current sample presented with a greater variety of comorbid symptoms than was expected, although this was not tested in the hypotheses. Based on previous literature, it was expected that women with ADHD symptoms would report higher anxiety and depression (Biederman et al., 1994; Rucklidge, 1998), but not necessarily higher hostility, or other symptoms measured on the BSI, when compared to women with low ADHD symptoms.

One of the unexpected findings with respect to women's comorbid symptoms was that the high and low ADHD groups differed in their levels of anxiety, but not in their levels of depression, according to MANOVAS. Women with high ADHD symptoms were more likely to report anxiety symptoms, but were no more likely to report symptoms of depression, compared to those with low ADHD symptoms. In addition, women with high ADHD had more Obsessive-Compulsive symptoms, more Interpersonal Sensitivity problems, more Hostility, and more symptoms of Psychoticism, compared to women with low ADHD symptoms. However, when compared with norms the women with high ADHD symptoms only reported high Obsessive-Compulsive and Hostility symptoms. Anxiety, Interpersonal Sensitivity, and Psychoticism were similar to the norms. Thus women with high ADHD symptoms were more likely to experience high levels of Hostility and Obsessive-Compulsive symptoms compared to those with low ADHD symptoms, and when compared with normative data. However, women with high ADHD symptoms reported higher levels of Anxiety, Interpersonal Sensitivity, and

Psychoticism only compared to the low ADHD group, but their scores on these measures were still within the average range.

Upon closer examination of the BSI items, some of these unexpected items can be explained. The Obsessive-Compulsive scale consists of items very similar to ADHD symptoms and related problems, such as “trouble remembering things,” “feeling blocked in getting things done,” “trouble concentrating,” and “your mind going blank”.

Although no women reported having been diagnosed with a conduct problem, ADHD was related to high scores on the Hostility scale of the BSI. The Hostility scale relates to anger and anger management skills. Although some research has suggested conduct problems may be less of a problem for women with ADHD than for men with ADHD (Biederman et al., 1994; Shaywitz & Shaywitz, 1987), results from the present study suggest that women with ADHD do have significant difficulties with anger and hostility. The data do not tell us, however, whether women with ADHD act out as individuals with conduct problems do, or if they express their anger in another way. Some researchers, for example, have suggested that although males tend to express their anger overtly through aggressive behavior, females tend to use more covert, or relational ways of expressing anger (Bjorqvist, Osterman, & Kaukiainen, 1992; Crick & Dodge, 1996; Crick & Werner, 1998). Crick and Werner (1998) have suggested that girls view relational aggression, which includes socially manipulative acts such as ostracizing others, more positively, while boys view overt aggression more positively. Although the present study did not examine expression of anger, it is possible that the women

expressed their anger and hostility through relational aggression, which would explain why none of the women reported conduct problems. It is also possible that the women's anger is not being expressed at all. The findings of the present study suggest that women with ADHD symptoms who do not report conduct problems may still have significant difficulties with anger, which may translate into anger management problems.

The relationship between ADHD and symptoms of psychoticism was unexpected. However this finding must be interpreted within the context of the BSI items. Two out of the five symptoms on the scale reflect interpersonal isolation, which may be related to a lack of social skills, or other ADHD symptoms. Another item, "the idea that something is wrong with your mind" was highly endorsed by subjects in the high ADHD group. The popular clinical literature (e.g., Hallowell & Ratey, 1994) suggests that adults with undiagnosed ADHD often feel distress due to their inability to understand the cause of their symptoms. It is likely that the high scores on this scale for the ADHD group was more a reflection of the women's distress over ADHD symptoms, than of true psychotic symptoms.

The lack of a relationship between ADHD and depression was another unexpected finding. Existing research on ADHD has suggested that depression is related to ADHD in samples of women (Biederman et al., 1994; Rucklidge, 1998). However, findings of the present study are inconsistent with these reports. Although women with ADHD symptoms reported higher levels of depression than women without ADHD symptoms, the difference was not statistically significant. Since previous studies used

samples of clinically-referred women, it is possible that a referral bias in which women with more problems are referred for treatment, accounted for the differences in findings.

#### The Current Sample: High levels of ADHD

Of particular note is the high percentage of women in the present sample that endorsed ADHD symptoms. Almost 54% of the participants scored in the clinically significant range according to Murphy and Barkley's (1997) cutoff scores for the ABCA. The women who scored high on the ABCA also scored high on the CAARS scales. The women's high scores were also strongly corroborated by their spouses in many cases. There are a few possible explanations as to why the present sample contained a much higher rate of ADHD than would be predicted by prevalence rates. First, there may have been a response bias in the present sample of women. The recruitment letters specifically described some symptoms of ADHD and requested women who identified with these symptoms to respond. Women who strongly identified with the described symptoms may have had a vested interest in participating, because they may have wanted additional information about ADHD, or they may have suspected they had ADHD. Although it was thought that many women with ADHD who initially intended to participate would not participate due to symptoms of disorganization, forgetting, and busy schedules, it could be that the women with ADHD symptoms made participation in the study a priority due to their vested interest. Second, the prevalence rates for women with ADHD may be underestimated. As discussed earlier, research suggests that ADHD may be underdiagnosed in girls and women (Biederman et al., 1994). Third, the high ADHD

symptoms endorsed by these women may be related to everyday stressors involved in running a busy household. The present study attempted to control for the extraneous variable of stress by requiring a childhood history of ADHD symptoms in women in the high ADHD group. Fourth, with recent research examining ADHD in women and girls, society may be becoming more aware that these symptoms exist in women. Some women may have been more open to participating in a study on ADHD due to recent media attention to women and girls with ADHD symptoms.

#### The Current Sample: Predominantly Inattentive

A unique aspect of this sample was its high endorsement of inattentive symptoms of ADHD. It has been suggested that adults with ADHD present with more inattentive symptoms than children. Barkley (1997) has suggested that part of the developmental trajectory for individuals with ADHD may be a progression towards the inattentive subtype and away from the hyperactive symptoms. If this is indeed true, one would expect an adult sample to have a higher proportion of inattentive symptoms than hyperactive-impulsive symptoms.

It has also been suggested that girls and women with ADHD may present with more inattentive symptoms and fewer hyperactive symptoms of ADHD than boys and men. Since the present sample consisted of all women, this may also explain the high ratings of inattentive symptoms in this sample.

#### ADHD Symptoms Versus Diagnosis

Compared to prevalence rates, the present sample also had a high percentage of ADHD diagnoses. While 54% of the women scored in the clinically significant range on self-report scales, just 35% of the sample reported having a diagnosis of ADHD. This finding supports the findings of Barkley and Murphy (1998) who suggested based on normative data for the ABCA that current DSM-IV criteria for ADHD are too restrictive for use with adults. An interesting finding was that although significantly more women were diagnosed with ADHD in the high ADHD group, compared to the low ADHD group, there were few relationships between scores on self-report ADHD scales and the presence of an ADHD diagnosis. Of the CAARS scales, only the Hyperactive/Restless scale was related to ADHD diagnoses.

One possible explanation for this finding is that some of the women reported taking stimulant medications or natural remedies for their ADHD symptoms. If some women with ADHD diagnoses were being successfully treated with these medications, their scores on the self-report measures of ADHD symptoms would be lower than they would be without the medications. This would make it more difficult to observe a relationship between ADHD diagnosis and ADHD symptoms. The finding that 13.5% of the low ADHD group was taking stimulant medication for the treatment of diagnosed ADHD provides some evidence of this explanation.

Another possibility is that there is a referral bias towards identifying women with externalizing symptoms. It is possible that women with hyperactive symptoms are more likely to be diagnosed with ADHD than women with attention problems. Since the

Hyperactive/Restless scale of the CAARS taps the externalizing aspects of ADHD, it would be more strongly related to an ADHD diagnosis than the internalizing scales, such as Inattention/Memory. This was found in the present sample.

#### ADHD and Demographic Characteristics

Previous research has found certain demographic characteristics to be present in ADHD samples. For example, Barkley (1996), Murphy and Barkley (1996a) and Biederman and others (1993) have reported that adults with ADHD were more likely to have marital and social problems, employment difficulties including a higher number of job changes, and cognitive impairments compared to adults without ADHD. The present study partially supported these findings. Women in the high ADHD group had changed jobs more often than those in the low ADHD group. However, women in the high ADHD group had similar household incomes, education levels, employment status, and hours worked per week. The two groups also had similar levels of marital satisfaction.

Although the tendency of women in the high ADHD group to change jobs more often may be related to ADHD symptoms, such as becoming bored easily, being unable to completing tasks, or poor social skills, they may also be related to personal choices regarding childcare for their children, or career development. Although it is impossible to determine whether the women's job changes were related to their ADHD symptoms, it appears that in this sample the presence of ADHD symptoms was not related to the other negative outcomes cited by previous researchers. The women in the high ADHD group



did not report lower incomes, education levels, or marital satisfaction compared with the women in the low ADHD group.

### Child Functioning

Mothers in the current sample rated their focus children as having few behavioral problems. None of the focus children were diagnosed with any forms of psychopathology, and mothers' ratings on the CPRS indicated no problems in the areas of conduct, learning, psychosomatic, impulsivity/hyperactivity, or anxiety. This was surprising, given the level of parenting impairment and ADHD and comorbid symptoms reported by mothers, particularly those in the high ADHD group. Since the present study did not examine child functioning for other children in the family, it is not known whether the older children of these women are experiencing difficulties. It is possible that the focus children are too young to be influenced by the impact of negative parenting and maternal psychopathology. However, since most of the children in the present sample attended daycares or preschools, it is also possible that the positive influence of other caregivers ameliorated the effects of impaired parenting.

### Hypotheses Testing

The results partially supported the hypothesized model which predicted that marital adjustment and comorbid psychopathology would moderate the relationship between maternal ADHD and each parenting variable. Maternal ADHD was related to all of the parenting cognitions and behaviors that were examined in the present study. In

general, comorbid psychopathology moderated the relationship between ADHD and most parenting variables, but marital adjustment did not play a moderating role.

### Maternal ADHD and Parenting Cognitions

Based on MANOVAs, mothers with high ADHD symptoms were more likely to report lower parenting self-esteem, a more external parenting locus of control, and less effective disciplinary styles, compared with mothers with low ADHD symptoms. However, there appear to be inconsistencies in these findings because the high ADHD group scored above the normative means on the parenting self-esteem measure. When comparing the women's reports to established norms these findings suggest that women with ADHD symptoms have high parenting self-esteem, but have more external parenting locus of control for parenting, and use more ineffective disciplinary styles. Both the parenting locus of control and self-esteem scales include an efficacy scale. The group with high ADHD symptoms reported above average efficacy on the parenting self-esteem scale, yet reported below average efficacy on the parenting locus of control scale.

A possible explanation for this finding may lie in how the efficacy construct was operationalized by the authors of the two measures. The efficacy scale of the PLOC was designed to correlate with general efficacy measures, and reflects an external locus of control (Campis et al., 1986). In contrast, the efficacy scale of the PSOC was conceptualized as a measure of perceived knowledge and skill with respect to parenting demands (Johnston & Mash, 1989). Perhaps the mothers with ADHD know they have the skills and knowledge required to be a good parent, but have difficulty actually

carrying out the parenting behaviors. This explanation would be consistent with Barkley's model of behavioral disinhibition (1997b).

According to this model, ADHD is not a disorder of skill, but of performance. If mothers with ADHD feel they have the skills necessary for parenting, but are unable to form a course of action for implementing the skills, they may feel as though they have no control over their parenting outcomes. They may feel as though some outside force, such as the child, or luck has more control over parenting outcomes than they themselves have. This would explain why women with ADHD symptoms in the present sample are more likely to feel negative parenting efficacy, to believe in fate or chance, and to feel that they are not in control of their child. Difficulties in executive functions could also result in mothers with ADHD utilizing ineffective disciplinary styles. Deficits in goal-directed behavior may make it difficult for mothers with ADHD to be vigilant to child misbehavior. Difficulties with regulation of self-affect may result in overreactive responses to children.

#### Moderating Effects

The findings suggest that comorbid psychopathology plays a moderating role in the relationship between maternal ADHD symptoms and parenting cognitions. This was found for all measures of parenting cognition in the present study. It was expected that the absence of comorbid symptoms would buffer the effects of ADHD on parenting self-esteem, resulting in a stronger relationship between ADHD and parenting self-esteem in the presence of comorbid symptoms and a weaker relationship in the absence of comorbid symptoms. However, this was not supported. High ADHD predicted lower

parenting self-esteem, and external parenting locus of control only at low levels of comorbid psychopathology. When comorbid psychopathology was high, there were no relationships between ADHD and parenting cognitions. This suggests that the presence of comorbid psychopathology buffers the effects of ADHD on parenting self-esteem and locus of control. However, it is also possible that comorbid psychopathology is more strongly related to parenting self-esteem than is ADHD, and high levels of comorbid psychopathology may mask the effects of ADHD symptoms. If this were true, when women were high in both ADHD and comorbid symptoms, the negative effects of comorbid psychopathology on parenting may be so strong that the effects of ADHD would be difficult to observe. However, when women were high in ADHD but low in comorbid psychopathology the negative effects of ADHD on parenting would be more salient. The data provide some support for this interpretation.

The findings of the present study suggest that comorbid psychopathology moderates the prediction of parenting cognitions and disciplinary styles by ADHD. Marital adjustment seems to predict parenting self-esteem, but does not moderate the prediction of parenting cognitions or disciplinary styles. From these findings it seems that women who are experiencing anxiety, hostility, interpersonal problems, depression, and other symptoms, think about parenting differently than women not experiencing these symptoms. While previous studies have established a relationship between maternal psychopathology and parenting, the present study suggests that a combination of maternal ADHD and comorbid psychopathology may also predict parenting cognitions.

There was little evidence to suggest that marital adjustment plays a moderating role in the prediction of parenting cognitions and disciplinary styles. Marital adjustment moderated the relationship between ADHD and the amount of perceived control the mother had over her children, but did not moderate in the prediction of the other parenting cognitions or in disciplinary styles. This suggests that maternal ADHD predicts disciplinary styles and most of the measured parenting cognitions, in the same way, regardless of levels of marital adjustment. However, the relationship between high maternal ADHD and Parent Lacks Control existed only for women who had high marital adjustment. For women with low marital adjustment, there was no relationship between maternal ADHD and Parent Lacks Control. The direction of this moderating effect was not expected. It is possible that marital adjustment is more strongly related to Parent Lacks Control than is maternal ADHD. If this were the case, when marital adjustment is low, the effect of the negative marital relationship on women's perceived control over their child may be so strong that it masks the effects of ADHD symptoms on this type of parenting cognition. However, when marital adjustment is high, the effects of ADHD on the perception of control over the child is more visible.

The finding that marital adjustment did not moderate the relationship between ADHD and most parenting cognitions and disciplinary styles was unexpected. Based on the findings of this study it appears that the effects of marital adjustment on parenting, when they exist, are more direct in nature, rather than interactive.

#### Marital Adjustment

From the findings of the present study, it appears that marital adjustment predicts parenting self-esteem but not parental locus of control or parental disciplinary styles. Although marital adjustment does not seem to predict parenting locus of control, it does play a moderating role in predicting whether mothers feel in control of their child. For the most part, marital adjustment does not moderate the relationship between ADHD and parenting cognitions or disciplinary styles.

The finding that high marital adjustment was related to higher levels of parenting self-esteem and more effective parenting styles is consistent with previous research (Forehand & Brody, 1985; Miller et al., 1993). In the presence of a supportive spousal relationship, the demands of child-rearing may seem less daunting than in the presence of conflictual spousal relationships. With the help of a supportive partner, women may be more able to engage in less lax, overreactive, and verbose parenting styles, and may feel more confidence and satisfaction in the parenting role. However, it is difficult to determine why marital adjustment did not predict any aspects of parental locus of control or parental disciplinary styles. Although marital adjustment was correlated with disciplinary styles and with the Negative Parental Efficacy scale of the measure of parental locus of control, marital adjustment did not predict these measures when maternal ADHD and comorbid psychopathology were included in the equation. This suggests that once the effects of ADHD and comorbid psychopathology were accounted for, marital adjustment did not predict disciplinary styles or negative parental efficacy.

The relationship between marital adjustment and ADHD has not been the focus of many empirical studies. Although some research suggests higher divorce rates among adults with ADHD than adults without ADHD (Biederman et al., 1993; Murphy & Barkley, 1996a), the only study to date which focused on marital adjustment and ADHD found no relationships between these variables (Shulman, 1998). The finding that self-reports of marital adjustment were not related to ADHD in women lends further support to the findings of Shulman (1998), who suggested that marriages of individuals with ADHD might work due to the efforts of the partner without ADHD. This speculation provides an interesting starting point for future studies on ADHD and marital relationships. For example the present study did not examine partners' perceived marital adjustment. Future studies which examine partners of women with ADHD may find that partners' reports of marital adjustment are lower for partners of women with ADHD than they are in partners of women without ADHD symptoms. This finding would be consistent with the speculation that partners of individuals with ADHD carry more of the weight in the relationship than the partners with ADHD. Other forms of social support may play greater roles in the prediction of parenting cognitions and disciplinary styles. For example, women who have strong social support networks may have more effective parenting cognitions regardless of the quality of their marital relationship.

Contrary to the hypotheses, there were no relationships between marital adjustment and ADHD. Although some studies and clinical literature suggest that adults with ADHD experience marital relationship problems, women with high ADHD

symptoms in the present study did not report more marital problems than those with low ADHD symptoms. Both groups reported about average levels of agreement on important issues, satisfaction with their relationship, satisfaction with the expression of affection in the relationship, and the number of shared interests. As Roney and others have suggested (1992), it is possible that some people with ADHD view their spousal relationship as a source of structure and support and work to keep it healthy.

### Parenting Styles.

The analysis of parenting styles revealed a model somewhat different than the models obtained for the prediction of the parenting cognitions. Only the direct effects of maternal ADHD and comorbid psychopathology predicted parenting styles. Marital adjustment or comorbid psychopathology did not moderate the relationship between ADHD and parenting styles. This suggests that the relationship between ADHD and parenting styles was the same for women regardless of their levels of comorbid symptoms and their marital adjustment. Since parenting disciplinary styles is a behavioral construct, and parenting self-esteem and locus of control are cognitive constructs, it is not surprising that they are predicted by different sets of variables. It appears that although parenting cognitions are predicted by a complex interaction of maternal ADHD, comorbid psychopathology symptoms, and in some cases marital adjustment, parenting behavior (at least disciplinary styles) are predicted by the main effects of maternal ADHD and comorbid psychopathology symptoms.

### Other predictions: Validity of the ADHD Measures



Hypotheses were formulated regarding the validity of the ADHD measures used in the present study. The hypotheses which predicted relationships between women's self-reported current ADHD symptoms and their retrospective recall of childhood ADHD symptoms, between women's and partners' ratings of women's ADHD symptoms, and between the scales of the ABCA and the CAARS were supported. These findings not only provide evidence for the validity of the measures used in this study, but also provided more clarity with respect to the description of the current sample, by indicating that most women with ADHD symptoms samples in this study had a history of ADHD symptoms. This suggests that their symptoms are likely due to ADHD rather than to other extraneous variables, such as stress or illness.

In clinical settings, a diagnosis of ADHD involves obtaining corroborative information from spouses regarding the adult's ADHD symptoms. In the current study, partners' ratings of mothers' ADHD symptoms were strongly related to mothers' own ratings of their symptoms. These findings suggest that the women's self-ratings of ADHD symptoms were likely reliable.

Womens' and partners' ratings of womens' inattention symptoms were more strongly related than were their ratings of hyperactive-impulsive symptoms. Since hyperactivity is generally more observable than inattention, this observation was unexpected. Perhaps disorganization and forgetfulness has more of an impact on family life than it does in other situations. This would explain why spouses so accurately reported these symptoms of ADHD. It is also possible that inattention symptoms cause

more distress to the women, and they may have discussed these symptoms with their partners more than they discussed their hyperactivity symptoms. Since many of the women reported predominantly inattentive symptoms, the low variability in hyperactive symptoms may have affected the strength of these correlations.

Besides corroborative information, a diagnosis of ADHD also requires the presence of ADHD symptoms prior to age 7. In the present study almost 96% of the high ADHD group retrospectively reported clinically significant ADHD symptoms in childhood. In an attempt to ensure that the high ADHD group subjects actually had symptoms due to ADHD and not due to another problem such as stress or an illness, the two subjects who did not recall childhood ADHD symptoms were eliminated from the data. It should be noted, however, that a diagnosis of ADHD requires a detailed clinical interview, which was not included in the present study. Since it is not possible to diagnose ADHD on the basis of rating scales alone, it is impossible to determine whether the women in the high ADHD symptom group actually had ADHD. However, the addition of partners' corroborative reports and retrospective self-reports in the current study provides some support that the women with high ADHD symptoms would meet DSM criteria for ADHD.

This study also provides support for the validity of both the CAARS and the ABCA as measures of adult ADHD symptoms. As was predicted, very high correlations were found between the DSM based CAARS scales and the corresponding ABCA scales. In addition, high correlations were observed among other scales of the ABCA and the

CAARS. Correlations suggested that the Inattention/Memory, Impulsivity/Emotional Lability, Problems with Self-Esteem, DSM Inattention, DSM Total, and ADHD Index scales of the CAARS were strongly related to Inattention symptoms of ADHD, while the Hyperactivity/Restlessness and DSM Hyperactivity/Impulsivity scales of the CAARS were strongly related to Hyperactivity/Impulsivity symptoms of ADHD.

#### Implications for Mothers with ADHD

This study suggests that women with ADHD symptoms have high levels of comorbid psychopathology, and ineffective parenting cognitions and disciplinary styles, compared to women without ADHD. However, parenting cognitions and behaviors are predicted by a complex interaction of ADHD, comorbid psychopathology, and in some cases marital adjustment.

Women with ADHD may have difficulties with daily childrearing activities, and may be overly lax, overreactive, or talkative in their disciplinary styles. They may also have low self-esteem with respect to their parenting abilities, and may have an external locus of control for parenting. These parenting cognitions and behaviors may lead to serious difficulties for families in which a child also has ADHD. Although the present study did not find that women with ADHD symptoms were more likely to have children with ADHD, other studies have found a relationship between child and parental ADHD (Biederman, Faraone, Keenan, et al., 1992; Faraone et al., 1992). Often a major part of handling a child with ADHD involves setting limits, being vigilant about child

misbehavior, and remaining calm in disciplining the child. However, these skills are important in the parenting of any child, with or without ADHD.

In addition to these difficulties in parenting behaviors, women with ADHD may also have ineffective parenting cognitions. Low self-esteem with respect to their child-rearing abilities, and an external locus of control for parenting may result in women with ADHD feeling overwhelmed by childrearing responsibilities, which may be exacerbated by comorbid psychopathology. The inclusion of cognitive-behavioral therapies, such as anger management, to change these ineffective parenting cognitions may be helpful to the emotional well being of women with ADHD.

#### Strengths and Limitations of the Present Study

The present study examined a unique sample compared to those which have previously been studied. Rather than relying on adults who were diagnosed in childhood and followed into adulthood, identifying parents of children with ADHD, or using clinically-identified adults, the present study examined women in a community-based sample who identified themselves as having or not having attention problems. The resulting sample was a predominantly inattentive, all female, adult sample, which included women who self-reported high ADHD symptoms and women who reported low ADHD symptoms. The study examined parenting cognitions and disciplinary styles, which have not been studied with this kind of sample in the past.

However, some of the aspects of the study which make it unique, also represent limitations in generalizing the study to the general population of women with ADHD.

Because of selection biases in having women in the community self-refer themselves for the study, this sample may not be similar to clinical samples of women with ADHD whom practicing psychologists may treat. This was a sample of convenience, which mostly consisted of middle- to high-income families, who may not be representative of the general population. Because the sample consisted of women with predominantly inattentive symptoms of ADHD, the results cannot be generalized to men or to people with predominantly hyperactive-impulsive symptoms. This sample also was comprised of women who were married or living in a common-law relationship, so results cannot be generalized to single mothers. Another consideration for this sample is that many of the women were recruited from daycare and preschool facilities. It is likely that the skills and attitudes of women whose children are in daycare may differ from those of women who choose not to work outside the home, or who use private babysitters for their children. Overall, these sampling issues suggest that current sample may be quite different from women who may present in clinical settings. They may not have the same socioeconomic or educational characteristics, which may effect parenting skills and cognitions.

Another limitation of this study relates to sample size. The sample size of 80 women was not sufficient to perform structural equation modeling (SEM) to test the predicted model. SEM is the preferred method for testing the presence of moderator variables, and would have resulted in a more powerful analysis, allowing for the more precise interpretation of moderators.

The use of medication in the present sample is a possible confound to the study. The effects of this confound were reduced by conceptualizing ADHD as a continuous measure of symptomatology in the present study, rather than as a dichotomous diagnosis. Women in the high ADHD group reported high ADHD symptoms regardless of whether they were diagnosed with ADHD or whether they were taking stimulant medication. This means that women in the high ADHD group who reported taking medication for ADHD were still reporting high ADHD symptoms, regardless of the medication. This suggests that the medications they were taking were not effective in reducing their ADHD symptoms, or that these women had particularly high ADHD symptoms to begin with if their symptoms were still over the clinical cut-off even with medication. Thus, it is difficult to speculate the ways in which medication use among women with high ADHD symptoms may influence their parenting cognitions and behaviors. Future studies which take a continuous approach to the measurement of ADHD symptoms may examine differences between groups of women who are taking medication and not taking medication, with high and low ADHD symptoms. However, due to insufficient sample sizes, this was unable to be examined in the present study.

Yet another limitation of this study is the reliance on self-report measures for all variables. Since self-report measures are susceptible to measurement error, and especially social desirability biases, it would be preferable to use some other form of measurement for at least some of the variables. Also, since ADHD and comorbid

disorders were not clinically diagnosed, it is difficult to determine whether the present sample would meet criteria for DSM-IV disorders.

### Directions for Future Research

The present study provides preliminary data suggesting relationships between maternal ADHD, parenting cognitions, disciplinary styles, and comorbid symptoms and marital adjustment. Due to the limitations previously discussed, further research in this area is necessary before drawing strong conclusions based on these findings. Since this is one of the first studies to examine parenting cognitions and disciplinary styles in adults with ADHD, there are many areas which require further research. Future studies may examine parenting cognitions and disciplinary styles in men, or in adults with predominantly hyperactive-impulsive symptoms of ADHD. Alternative methods of measurement may include clinical interviews to determine ADHD diagnoses, or behavioral observations of parent behavior and parent-child interactions.

Future studies should collect larger samples than the present study and employ structural equation modeling techniques. Further examination of the moderating role of comorbid psychopathology is necessary to fully understand the nature of the relationship between ADHD and parenting cognitions and disciplinary styles.

The next step for future research would be to determine whether the ineffective cognitions and disciplinary styles that were observed in women with high ADHD symptoms can be changed through cognitive-behavioral therapy, anger management, and parent training, or through stimulant medication of the adult with ADHD.

Another important finding that requires further study is the relationship between ADHD symptoms and hostility. The present study found that even in the absence of self-reported conduct problems, women with ADHD symptoms reported high levels of anger or hostility. Future studies may explore how this anger is expressed in women with ADHD, and whether anger management training helps women with these symptoms.

### Conclusion

The findings provide preliminary evidence that the presence of ADHD symptoms is related to parenting cognitions and disciplinary styles, although the buffering effects of comorbid psychopathology may complicate the relationships. The findings suggest that the presence of comorbid psychopathology may buffer the effects of maternal ADHD on parenting cognitions, while lower levels of comorbid symptoms are related to a stronger relationship between ADHD and parenting cognitions. It appears that when things are going well for mothers (i.e., they have few comorbid symptoms), the effects of ADHD on parenting are strong. However, if mothers are experiencing difficulties with comorbid psychopathology symptoms, the effects of ADHD on parenting cognitions may be weaker. Findings of the present study suggest that marital adjustment is related to mothers' perceived knowledge and abilities regarding parenting, but not to their attributions (internal or external) about parenting behaviors. Women with high ADHD symptoms also experienced a number of comorbid symptoms, including anxiety, hostility and interpersonal problems. This underscores the importance of considering the presence of comorbid disorders when assessing women with ADHD.



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**APPENDIX A**  
**DEMOGRAPHIC INFORMATION FORM**

## Family Information

## 1. Mother's Information

- (a) Your date of birth: \_\_\_\_\_ (mm/dd/yy)
- (b) Relationship status: (check one) \_\_\_\_\_ Married \_\_\_\_\_ Common-law
- (c) Number of previous marriages (if any): \_\_\_\_\_
- (d) Employment status: \_\_\_\_\_ - Full-time / Part-time / Seasonal / Not Employed (circle one)
- Number of hours per week: \_\_\_\_\_
- Self Employed (e.g., run own business)? Y / N
- How many times have you changed jobs in the past 5 years? \_\_\_\_\_
- (e) Occupation: \_\_\_\_\_
- (f) Educational level: (circle the highest level attained)
- |                           |   |    |    |    |    |
|---------------------------|---|----|----|----|----|
| Below high school (grade) | 4 | 5  | 6  | 7  | 8  |
| High School (grade)       | 9 | 10 | 11 | 12 | 13 |
| College (years)           | 1 | 2  | 3  | 4  | 5  |
| University (years)        | 1 | 2  | 3  | 4  | 5  |
| Graduate school (years)   | 1 | 2  | 3  | 4  | 5  |
- (g) Have you ever experienced the following academic difficulties? (circle yes or no)
- |                         |       |
|-------------------------|-------|
| Special class placement | Y / N |
| Repeated grades         | Y / N |
| Required tutoring       | Y / N |
- (h) Have you ever been diagnosed with Attention Deficit / Hyperactivity Disorder (ADD/ADHD)?
- \_\_\_\_\_ No \_\_\_\_\_ Yes
- If Yes, when? \_\_\_\_\_ (mm/yy)
- Are you currently taking medication for ADHD/ADD?
- \_\_\_\_\_ No \_\_\_\_\_ Yes.
- Name and dose of Medication: \_\_\_\_\_
- (i) Have you been told you have/received treatment for: (circle yes or no)
- |                                |       |
|--------------------------------|-------|
| Learning Disabilities          | Y / N |
| Anxiety                        | Y / N |
| Depression                     | Y / N |
| Conduct/Oppositional Disorders | Y / N |
| Substance Abuse/Dependency     | Y / N |
- (j) Please indicate your consumption level of each of the following (if any):
- Smoking: \_\_\_\_\_ cigarettes/wk      Alcohol: \_\_\_\_\_ drinks/wk
- Coffee: \_\_\_\_\_ cups/wk      Recreational Drugs: \_\_\_\_\_ times/wk

## 2. Target Child Information

This section refers to your preschool aged child. If you have more than one child aged 3-6 years, please answer this section with respect to the *youngest* child: (subsequent referral to "target child" in this project will be in reference to this child)

(a) Date of Birth: \_\_\_\_\_ (dd/mm/yy) (b) Gender: M / F

(c) Have you ever been told your target child has any of the following, or has he or she ever received treatment for any of the following:

	If Yes, date when the problem was identified	
Attention Deficit/Hyperactivity Disorder	Y / N	_____ (mm/yy)
Learning Disability	Y / N	_____ (mm/yy)
Oppositional/Defiant behavior	Y / N	_____ (mm/yy)
Other (Please specify):		
_____	Y / N	_____ (mm/yy)
_____	Y / N	_____ (mm/yy)
_____	Y / N	_____ (mm/yy)

(d) Is your target child taking any medications for these or other problems?

\_\_\_\_\_ No \_\_\_\_\_ Yes.

Name of Medication: \_\_\_\_\_  
mg/day: \_\_\_\_\_

Name of Medication: \_\_\_\_\_  
mg/day: \_\_\_\_\_

Name of Medication: \_\_\_\_\_  
mg/day: \_\_\_\_\_

Please rate how much of a problem each of the following behaviors are for your target child (with a checkmark):

	Not at all	Just a little	Pretty Much	Very Much
1. Picks at things (nails, fingers, hair, clothing).				
2. Sassy to grown-ups.				
3. Problems with making or keeping friends.				
4. Excitable, impulsive.				
5. Wants to run things.				
6. Sucks or chews (thumb, clothing, blankets).				
7. Cries easily or often.				
8. Carries a chip on his or her shoulder.				
9. Daydreams.				
10. Difficulty in learning.				
11. Restless in the "squirmy" sense.				
12. Fearful (of new situations, new people or places, going to school)				
13. Restless, always up and on the go.				
14. Destructive.				
15. Tells lies, or stories that aren't true.				
16. Shy.				

	Not at all	Just a little	Pretty Much	Very Much
17. Gets into more trouble than others same age.				
18. Speaks differently from others same age (baby talk, stuttering, hard to understand)				
19. Denies mistakes or blames others.				
20. Quarrelsome.				
21. Pouts and sulks.				
22. Steals.				
23. Disobedient. or obeys but resentful.				
24. Worries more than others (about being alone, illness, or death)				
25. Fails to finish things.				
26. Feelings easily hurt.				
27. Bullies others				
28. Unable to stop a repetitive behavior.				
29. Cruel.				
30. Childish or immature (wants help he or she shouldn't need, clings, needs constant reassurance).				
31. Distractibility or attention span a problem.				
32. Headaches				
33. Mood changes quickly and drastically.				
34. Doesn't like or doesn't follow restrictions or rules.				
35. Fights constantly.				
36. Doesn't get along well with brothers or sisters.				
37. Easily frustrated in efforts.				
38. Disturbs other children.				
39. Basically an unhappy child.				
40. Problems with eating (poor appetite, up between bites).				
41. Stomach aches.				
42. Problems with sleep (can't fall asleep, up too early, up in the night)				
43. Other aches and pains.				
44. Vomiting or nausea.				
45. Feels cheated in family circle.				
46. Boasts and brags.				
47. Lets self be pushed around.				
48. Bowel problems (frequently loose, irregular habits, constipation).				

3. Other Children's Information

(a) Number of other children in household (not including target child): \_\_\_\_\_

(b) Date of birth and gender of each child: date of birth (dd/mm/yy)      gender (M/F)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

Note: for the following questions, please refer to these children using the number next to their date of birth and gender.

(c) Have you been told any of these children have any of the following, or have they been treated for any of the following:

If Yes, which child, and the date when the problem was identified (mm/yy)

Attention Deficit/Hyperactivity Disorder Y / N
Child # \_\_\_ Date: \_\_\_
Child # \_\_\_ Date: \_\_\_
Child # \_\_\_ Date: \_\_\_
Child # \_\_\_ Date: \_\_\_

Learning Disability Y / N Child # \_\_\_ Date: \_\_\_
Child # \_\_\_ Date: \_\_\_
Child # \_\_\_ Date: \_\_\_
Child # \_\_\_ Date: \_\_\_

Oppositional/Defiant behavior Y / N
Child # \_\_\_ Date: \_\_\_
Child # \_\_\_ Date: \_\_\_
Child # \_\_\_ Date: \_\_\_
Child # \_\_\_ Date: \_\_\_

Other (Please specify): Y / N
Child # \_\_\_ Date: \_\_\_
Child # \_\_\_ Date: \_\_\_
Child # \_\_\_ Date: \_\_\_
Child # \_\_\_ Date: \_\_\_

4. Partner Information

- (a) Date of birth: (dd/mm/yy)
(b) Employment status: (circle one) - Full-time / Part-time / Seasonal / Not employed
- Number of hours per week:
- Self Employed? Y / N

(c) Occupation:

(d) Educational level: (circle the highest level attained)
Below high school (grade) 4 5 6 7 8
High School (grade) 9 10 11 12 13
College (years) 1 2 3 4 5
University (years) 1 2 3 4 5
Graduate school (years) 1 2 3 4 5

## 5. Family Information

- (a) Has anyone in your family, not including yourself, received a diagnosis/treatment for:  
(circle yes or no and indicate whom, e.g., target child, child #1, child #2, etc., or partner)

	Y / N	Whom:
Learning Disabilities	Y / N	_____
Anxiety	Y / N	_____
Depression	Y / N	_____
Conduct/Oppositional Disorders	Y / N	_____
Substance Abuse/Dependency	Y / N	_____

- (b) Has anyone in your family, not including yourself, ever experienced the following academic difficulties  
(circle yes or no and indicate whom, e.g., target child, child # 1, child #2, etc., or partner)

	Y / N	Whom:
Special class placement	Y / N	_____
Repeated grades	Y / N	_____
Required tutoring	Y / N	_____

- (c) Household income: (check one)
- \_\_\_\_\_ <25,000
- \_\_\_\_\_ 25,001 - 45,000
- \_\_\_\_\_ 45,001 - 60,000
- \_\_\_\_\_ 60,001 - 100,000
- \_\_\_\_\_ >100,001

**APPENDIX B**  
**ADHD BEHAVIOR CHECKLIST FOR ADULTS**



## ADHD Behavior Checklist for Adults

Subscale	Description	Examples
Inattentive Type	Inattentive symptoms of the DSM-IV.	Difficulty sustaining my attention in tasks or fun activities. Don't listen when spoken to directly. Easily distracted.
Hyperactive-Impulsive Type	Hyperactive-Impulsive symptoms of the DSM-IV.	Fidget with hands or feet or squirm in my seat. Feel restless. Having difficulty awaiting turn.
Total	Summation of the Inattentive and Hyperactive-Impulsive symptoms.	

Murphy and Barkley (1998).

**APPENDIX C**  
**CONNERS' ADULT ADHD RATING SCALE**

## Conners' Adult ADHD Rating Scale

Subscale	Description	Examples
Inattention/ Memory Problems	High scores indicate slower learning ability, problems organizing and completing tasks, trouble concentrating.	I don't plan ahead. I can't get things done unless there's an absolute deadline. I misjudge how long it takes me to do something or go somewhere.
Hyperactivity /Restlessness	High scores indicate suggest difficulty working on the same task for very long, and more feelings of restlessness and being "on the go" than others.	It's hard for me to stay in one place for very long. I'm bored easily. It takes a great deal of effort for me to stay still.
Impulsivity/ Emotional Lability	High scores indicate frequent and fast mood changes, impulsive acts, and being easily angered and irritated by others.	I say things without thinking. I still throw tantrums. I annoy other people without meaning to.
Problems with Self-Concept	High scores indicate poor social relationships, and low self-esteem.	I avoid new challenges because I lack faith in my abilities. I'm not sure of myself.
DSM-IV Inattentive Symptoms	High scores indicate tendencies associated with the inattentive subtype of ADHD, as described in the DSM-IV.	I lose things necessary for tasks and activities. I have problems organizing my tasks and activities.
DSM-IV Hyperactive- Impulsive Symptoms	High scores indicate tendencies associated with the hyperactive-Impulsive subtype of ADHD, as described in the DSM-IV.	I talk too much. I have trouble waiting in lines or taking turns with others. I am restless or overactive.
DSM-IV Total	High scores indicate meeting more criteria for ADHD, as described in the DSM-IV.	
ADHD Index	High scores indicate clinically significant levels of ADHD symptoms compared to adults with low scores. This scale is useful for differentiating clinical ADHD individuals from non-clinical individuals.	I have a short fuse/hot temper. Things I hear or see distract me from what I'm doing. I can't keep my mind on something unless it's really interesting.

Conners, Erhardt, and Sparrow (1999).

**APPENDIX D**  
**BRIEF SYMPTOM INVENTORY**

## Brief Symptom Inventory

Subscale	Description	Examples
Somatization	This scale reflects distress arising from perceptions of bodily dysfunction.	Pains in the heart or chest. Numbness or tingling in parts of your body.
Obsessive-Compulsive	Reflects symptoms of the disorder, such as thoughts, images, and impulses that are irresistible, but yet unwanted by the individual.	Having to check and double-check what you do. Your mind going blank.
Interpersonal Sensitivity	Items reflect feelings of personal inadequacy.	Your feelings being easily hurt. Feeling very self-conscious with others.
Depression	Reflects symptoms of clinical depression, including dysphoric mood and withdrawal.	Feeling hopeless about the future. Feeling no interest in things.
Anxiety	Items reflect nervousness, tension, panic attacks, and terror.	Nervousness or shakiness inside. Spells of terror and panic.
Hostility	Items reflect feelings and actions characteristic of anger.	Temper outbursts you cannot control. Having urges to smash or break things.
Phobic Anxiety	Items reflect persistent irrational fear in response to a specific person, place, object, or situation.	Having to avoid certain things, places, or activities, because they frighten you. Feeling nervous when you are alone.
Paranoid Ideation	Items represent paranoid behavior as a disordered mode of thinking.	Feeling that you are watched or talked about by others. Feeling that people will take advantage of you if you let them.
Psychoticism	Items range from reflecting withdrawal and isolation, to signs of psychosis.	Never feeling close to another person. The idea someone else can control your mind.

Derogatis (1992)

**APPENDIX E**  
**DYADIC ADJUSTMENT SCALE**

## Dyadic Adjustment Scale

Subscale	Description	Examples
Dyadic Consensus	Reflects the extent of agreement between partners on matters important to the relationship.	Handling family finances. Religious matters.
Dyadic Satisfaction	Measures the amount of tension in the relationship, including the extent to which the individual has considered ending the relationship.	Do you confide in your mate? How often do you and your mate quarrel?
Affectional Expression	Assesses the individual's satisfaction with affective expression and sex in the relationship.	Demonstration of affection. Being too tired for sex.
Dyadic Cohesion	Measures the common interests and activities shared by the couple.	Have a stimulating exchange of ideas. Laugh together.
Marital Adjustment	Total score of all subscales of the measure.	

Spanier (1989).

**APPENDIX F**  
**PARENTING SENSE OF COMPETENCE SCALE**



**Parenting Sense of Competence Scale**

Subscale	Description	Examples
Satisfaction	High scores reflect parenting frustration, anxiety, and low motivation.	Even though being a parent could be rewarding, I am frustrated now while my child is at his/her present age. Sometimes I feel like I'm not getting anything done.
Efficacy	High scores reflect skill and familiarity in the parenting role.	The problems of being a parent are easy to solve once you know how your actions affect your child, an understanding I have acquired. Considering how long I have been a mother, I feel thoroughly familiar with this role.

Johnston and Mash (1989).

Note: The Satisfaction scale was referred to as Dissatisfaction throughout the present study so the name of the scale would reflect the direction of the scale.

**APPENDIX G**  
**PARENTAL LOCUS OF CONTROL SCALE**

## Parental Locus of Control Scale

Subscale	Description	Examples
Parental Efficacy	High scores indicate a parent who does not feel effective in the parenting role.	What I do has little effect on my child's behavior. My child usually ends up getting his/her way, so why try?.
Parental Responsibility	High scores indicate a parent who does not feel responsible for her child's behavior.	Children's behavior problems are often due to mistakes their parents make (R). My child's behavior problems are no one's fault but my own (R).
Child Control	High scores reflect parents who feel their child's needs and demands dominate their lives.	My life is chiefly controlled by my child. It is easy for me to avoid and function independently of my child's attempts to have control over me (R).
Belief in Fate or Chance	High scores reflect parents who believe that parenting and child behavior are influenced by external factors, such as fate or chance.	Without the right breaks, one cannot be an effective parent. Success in dealing with children seems to be more a matter of child's moods and feelings at the time rather than one's own actions.
Parental Control	High scores reflect parents who feel unable to control their child's behavior.	It is often easier to let my child have his/her way, than to put up with a tantrum. Sometimes I feel I do not have enough control over the direction my child's life is taking.

Campis, Lyman and Prentice-Dunn (1986).

Note: (R) indicates reverse-scored items. Parental Efficacy, Parental Responsibility, and Parent Control scale were referred to as Negative Parental Efficacy, Lack of Parental Responsibility, and Parent Lacks Control for the present study, so the names of the scales would reflect the direction of the constructs being measured.

**APPENDIX H**  
**PARENTING SCALE**

## Parenting Scale

Subscale	Description	Examples
Laxness	High scores reflect permissive disciplinary style, including behaviors such as giving in, and not enforcing rules.	If my child gets upset I back down and give in (I stick to what I said). If my child misbehaves and then acts sorry, I let it go that time (I handle the problem like I usually would).
Overreactivity	High scores reflect behaviors involving anger, meanness, or irritability.	I insult, say mean things, or call my child names most of the time (never or rarely). I get so frustrated or angry that my child can see I'm upset (I handle it without getting upset).
Verbosity	High scores reflect behavior involving lengthy verbal responses, and relying on talking even when talking is ineffective.	I make my child tell me why he/she did it (I say "no" or take some other action). If saying no doesn't work right away, I keep talking and try to get through to my child (I take some other kind of action).

Arnold, O'Leary, Wolff, and Acker (1993).

Note: effective strategies are in parentheses

**APPENDIX I**  
**RECRUITMENT LETTER**

**VOLUNTEERS NEEDED!****Mothers Wanted to Participate in Study on  
Parenting Styles and Beliefs in Women with and without Attention Problems**

As mothers of young children, many women experience some difficulties in getting organized, following through on plans, getting work started, or have trouble focusing their attention on what they're doing, perhaps having many projects on the go at once, and become frustrated at times. For some women, these attention difficulties are more of a problem than for others.

We are looking for mothers who have attention difficulties like those described above, and mothers without these problems, to take part in a research study on family relationships and parenting styles and beliefs. To be eligible to participate, you must have at least one child, aged 3 to 6 years, and be married or in a common-law relationship. We are particularly interested in mothers who know or think they may have an attention deficit disorder. However, you do **not** have to have an attention deficit disorder (e.g., ADD, ADHD) to participate.

Time Commitment - 10 min. telephone interview  
- approximately 75 minutes completing questionnaires  
(mailed to your home)

In return for your time, we will provide interested participants with a summary of results from the study, as well as information and resources on Attention Deficit Hyperactivity Disorder. If you think you might be interested in participating, and would like more information about the study, please phone 220-3159, and leave your first name and telephone number on our answering machine. We will contact you with more information about the study, and answer any questions you may have.

Thank you for your consideration, we appreciate your help,

Ms. Tracy Banks-Villegas, B.A. (Researcher)  
Department of Psychology, University of Calgary  
Telephone: (403) 220-3159

Dr. Eric Mash, Ph.D., C. Psych. (Research Supervisor)  
Department of Psychology, University of Calgary  
Telephone: (403) 220-4959

Note: This study has been approved by the appropriate ethics committee at the University of Calgary.

**APPENDIX J**  
**TELEPHONE SCRIPT**



### Telephone Script

My name is Tracy Banks-Villegas, from the University of Calgary and I'm calling because you had indicated interest in participating in a research study on parenting styles and family relationships in mothers with and without attention difficulties. I'm calling to explain the project, which will take about 5-10 minutes. Is this a good time?

Thank you for your interest in our study. I am a graduate student in clinical psychology, and my thesis examines marital relationships, and parenting styles of women with and without attention problems. This research may provide a better understanding of family-related problems faced by women with attention problems, including Attention Deficit-Hyperactivity Disorder. The findings will be helpful to both professionals and parents by identifying aspects of family life that are difficult for women with attention problems, which in the future, may lead to the development of interventions aimed at helping these women.

We recognize that as a parent, you are very busy, but we hope that you will be able to help us. We are looking for mothers who have at least one child aged 3 to 6 years to participate in a telephone interview and complete questionnaires. We are not necessarily looking for women with attention deficit-hyperactivity disorder, but rather, we are looking for women in the general population who experience some attentional and/or impulsivity difficulties, as well as those who do not experience these problems.

This study involves two parts. If you choose to participate in the study, you will first be asked some questions over the phone, which will take about 10 minutes. These questions will focus on the degree to which you experience difficulties in attention, impulsivity, and hyperactivity, and the degree to which you experienced these problems as a child. If you choose to participate, the telephone interview can be conducted today, or arrangements can be made for me to call back at a more convenient time. Part of assessing attention problems involves getting information from others about how they view your attention problems, if you have any. Therefore, if you agree, I would like to also ask your spouse or partner the same set of questions about your current attention problems - this is optional. If you do not want your partner to be asked these questions, or if your partner does not want to participate, you can still participate in the rest of the study.

For the second part of the study, a packet of questionnaires will be sent to your home. The questionnaires will take approximately one hour of your time. The packet will contain a form concerning background family information such as the number of children you have, your children's ages, your age, occupation, family income, and questions about learning and attention problems in your family; followed by six other questionnaires. The questionnaires will ask for your views about your relationship with your partner,

your thoughts about parenting, and your personal life (i.e., areas where you may be experiencing difficulties, such as memory, organization, concentration, sadness, nervousness). Should you have any questions while completing the questionnaires, you will be able to call me for clarification. A self-addressed stamped envelope will be enclosed for you to return the packet.

If you decide to participate in the study, I will need your name and address to send you the packet. I will ask for this information after the telephone interview, and the packet will be sent out immediately. I will call you back in approximately three weeks to inquire if you have completed the questionnaires and returned them.

Your participation is completely voluntary and you are free to withdraw at any time.

If you decide to participate, your responses to the interview and questionnaires will be kept confidential, and a number of steps will be taken to ensure that whenever possible, your identifying information (i.e., your name, address, and phone number) will be kept separate from your responses. In order to ensure your privacy, no identifying information will be written on the telephone interview form, or any questionnaires. The self-addressed stamped envelope that you will return your questionnaires in, will have a number on the top right hand corner. This number will be used to match up the telephone interview with the questionnaires - your telephone interview form will have the same number on it. The form that I will have with your name and address will be kept separate from your responses, and once I receive your questionnaire packet the form will be discarded. Throughout the study all information will be kept in a locked filing cabinet in an office at the University, and no one else will have access to it.

Upon completion of the study, we will send you a summary of the results, and information and resources on attention deficit hyperactivity disorder, if you are interested.

Do you have any questions regarding the study that I may help clarify?

Would you like to participate in this study? Do you consent to being interviewed over the telephone and having questionnaires sent to your home, as described earlier in our conversation? Do you understand that your participation in this study is voluntary, and you may withdraw at any time? Do you have any questions about the purpose and nature of the study, the time commitment involved, or the manner in which confidentiality will be maintained?

Would you like to proceed with the telephone interview now (it will take about 5 more minutes), or would you rather arrange for a more convenient time? (proceed to interview, or schedule appointment for interview)

Would you like to ask your partner to participate?

I would like to give you my name and telephone number in case you have any questions or concerns before you receive your questionnaire packet:

Tracy Banks-Villegas: 220-3159

Research supervisor: Dr. E. J. Mash, 220-4959

Script for talking with partners:

My name is Tracy Banks-Villegas, from the University of Calgary. Your wife or partner is participating in a research study on parenting styles and family relationships in mothers with and without attention difficulties, and I would like to invite you to participate if you are interested. Part of assessing attention difficulties involves getting information from others about how they view the person's attention problems, so I would like to ask you some questions about your wife or partner's attention problems. This will take about 5 minutes, and is voluntary. If you do not want to participate, your wife or partner can still participate in the rest of the study. If you choose to participate, your responses to the interview will be kept confidential, and will not be discussed with your partner. Your interview responses will be kept in a secure location, and no identifying information will be included except an identification number that will allow your responses to be matched up to your partner's responses for data analysis.

Would you like to participate in this study? Do you consent to being interviewed over the telephone, as described earlier in our conversation? Do you understand that your participation in this study is voluntary, and you may withdraw at any time? Do you have any questions about the purpose and nature of the study, the time commitment involved, or the manner in which confidentiality will be maintained?

**APPENDIX K**  
**INSTRUCTIONS LETTER**

### Instructions for Completing the Questionnaires

Thank you for your participation in this study. The purpose of this project is to examine marital relationships, and parenting styles of women with and without attention difficulties. Before you begin, we ask that you please read the letter entitled "Information About This Project" to ensure you understand and are comfortable with the procedures outlined. This package includes 7 questionnaires plus two forms, one requesting a summary of the results or information on Attention Deficit Hyperactivity Disorder (ADHD), following the study and another that gives consent to be contacted regarding future research on adults with ADHD. We ask that you please try and keep in mind your child referred to as the Focus Child when you are completing the questions. The Focus child refers to your child who is between the ages of 3 and 6 years. If you have more than one child in this age range, the Focus Child refers to your **youngest** child between 3 and 6 years of age. The specific instructions for each questionnaire are presented at the top of the individual forms. We want you to read and consider each question thoughtfully, but do not dwell too long on any one question. We recommend that you answer each question with your first response. Remember, that participation is completely voluntary and you are free to stop at any time or leave any question blank if you choose.

We ask that you complete these forms in private when time permits. Please do not consult family members while filling out the questionnaires, we are interested in your perceptions and impressions of the family unit. It is not necessary that you complete these forms all in one sitting. However, we do ask that you please complete the forms in the order in which they were received. We would appreciate it if you can please return the completed packet one week from the time you receive it.

All the information you provide us with will be completely confidential (please do not write your name on any of the questionnaires). It is important that you understand

that there are no right or wrong answers to any of the questions. The study is not designed to evaluate individual family functioning but rather to look for trends across families. If you would like to receive a full summary of the results upon completion of the study, or information and resources on ADHD, please fill out the request for information form and place it in the separate envelope provided and include it with your packet of questionnaires. When you have finished the questionnaires, please seal the questionnaire package in the self-addressed stamped envelope provided and deposit it in a mailbox. Once again, thank you for participating in this study. Your time and assistance is extremely helpful to us. If you have any questions at all concerning the instructions, please do not hesitate to contact Tracy Banks-Villegas at 220-3159.

Researcher

Tracy Banks-Villegas  
Graduate Student  
Department of Psychology  
University of Calgary  
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Phone: (403) 220-3159

Research Supervisor

Dr. Eric Mash, Ph.D., C. Psych  
Professor  
Department of Psychology  
University of Calgary  
Calgary, AB  
T2N 1N4  
Phone: (403) 220-4959

**APPENDIX L**  
**CONSENT FORM**

## University of Calgary

### Information About this Research Project

**Research Project Title:** Family functioning and parenting styles of women with attention difficulties

**Researchers:** Ms. Tracy Banks-Villegas, B.A. (Researcher)  
Department of Psychology, University of Calgary  
Telephone: (403) 220-3159

Dr. Eric Mash, Ph.D., C. Psych. (Research Supervisor)  
Department of Psychology, University of Calgary  
Telephone: (403) 220-4959

This consent form is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more details about something mentioned here, or information not included here, please ask. Please take time to read this form carefully and to understand any accompanying information.

We are conducting a study to examine marital relationships, and parenting styles of women with and without attention problems. This research may provide a better understanding of family-related problems faced by women with attention problems, including Attention Deficit-Hyperactivity Disorder. The findings will be helpful to both professionals and parents by identifying aspects of family life that are difficult for women with attention problems, which in the future, may lead to the development of interventions aimed at helping these women.

Your participation in this study involves two phases. The first phase, which you have already completed, consisted of a telephone interview. The second phase will involve filling out a packet of questionnaires, which should take no more than 75 minutes to complete. The packet contains a form concerning background family information, followed by 5 questionnaires. The questionnaires will ask for your views about your relationship with your partner, your parenting styles, thoughts about parenting, and your personal life (i.e., areas where you may be experiencing difficulties, such as memory, organization, concentration, sadness, nervousness). There are no right or wrong answers to any of these questions, your answers describe how you feel. Please complete the questionnaires in the order in which they appear in your packet. When you have finished, please seal the completed set of questionnaires in the envelope provided, and deposit in a postal box within two weeks of receiving the packet.



Some of the items in the attached questionnaires deal with relationship and family issues, there is a slight possibility that some items may make you feel uncomfortable. You are free to not answer any questions or to discontinue filling out the questionnaires at any time if you wish, and you are free not to return them if you change your mind about participating in this study. If you have any questions concerning the questionnaires while you are completing them you may contact the researcher at the above number. Should any distress arise as a result of completing the questionnaires, you are invited to contact a psychologist, Dr. Candace Konnert, C. Psych., for assistance. Dr. Konnert can be reached at 220-4976.

Your responses will be completely anonymous. You will not be asked to provide any identifying information on any of the forms you return. All results will be reported on a group basis. No individual information will be included. If you wish to request a summary of the results of the study or a packet containing resources and information on attention deficit hyperactivity disorder, you may supply your name and mailing address on a form provided and enclose in a separate envelope with your packet.

All of the completed questionnaires will be stored in a locked filing cabinet in the Researcher's office at the University of Calgary and will only be accessible to the researcher and her supervisor. The raw data will be destroyed two years after the researcher successfully defends her Master's Thesis for which this study is being conducted.

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Your decision to complete and return this questionnaire packet will be interpreted as an indication of your consent to participate. If you have additional questions concerning this research, you should feel free to ask by contacting Tracy Banks-Villegas at the telephone number given above.

If you have any questions concerning your participation in this project, you may also contact the Office of the Vice-President (Research), University of Calgary, and ask for Karen McDermid.

**PLEASE KEEP THIS INFORMATION FORM FOR YOUR RECORDS AND REFERENCE.**

**THANK YOU. YOUR PARTICIPATION IS VERY MUCH APPRECIATED.**

**APPENDIX M**

**REQUEST FOR RESULTS/CONTACT FOR FUTURE RESEARCH**

**Request for Summary of Results/Information on ADHD**

To: Ms. Tracy Banks-Villegas and Dr. Eric Mash, Researchers

I was a participant in your study which examined family relationships and parenting styles of women with and without attention difficulties. I would be interested in receiving a summary of the results once they become available and/or information and resources on Attention Deficit Hyperactivity Disorder.

Please send me (check one or both):

\_\_\_\_\_ a summary of the results

\_\_\_\_\_ information on Attention Deficit Hyperactivity Disorder

Name: \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_

NOTE: Please enclose this form in the envelope labeled "request for results/information" and seal it. Once the envelope is sealed you may enclose it with the questionnaire packet to be returned. Upon receipt of the packet, the envelope with the request form will be removed immediately from the envelope and placed in a separate location. The envelopes with the request form will not be opened until the results are ready to be distributed.

-----cut along this line-----

**Request to be Contacted for Future Research**

To: Ms. Tracy Banks-Villegas and Dr. Eric Mash, Researchers

I was a participant in your study which examined family relationships and parenting styles of women with and without attention difficulties. I would be interested in being contacted about possible participation in future research on Attention Deficit Hyperactivity Disorder in adults.

First Name and Phone #: \_\_\_\_\_

NOTE: Please enclose this form in the envelope labeled "request for contact for future research" and seal it. Once the envelope is sealed you may enclose it with the questionnaire packet to be returned. Upon receipt of the packet, the envelope with the request form will be removed immediately from the envelope and placed in a separate location. The envelopes with the request form will not be opened until after the current study is completed. 111