A Dissertation

entitled

The Role of Psychopathology in Parent Ratings of

Attention-Deficit Hyperactivity Disorder Symptoms

and Child Behavior Problems

by

Laili Radpour-Markert

Submitted as partial fulfillment of the requirement for
the Doctor of Philosophy Degree in
Psychology

David Ensing, PhD

Adviser: Dr. David Ensing

Heinz Bulmahn

Graduate School

The University of Toledo

December 1998

UMI Number: 9913109

An Abstract of

The Role of Psychopathology in Parent Ratings of Attention-Deficit Hyperactivity Disorder Symptoms and Child Behavior Problems

Laili Radpour-Markert

Submitted as partial fulfillment of the requirement for the Doctor of Philosophy Degree in Psychology

The University of Toledo

December 1998

Study data was obtained retrospectively from the case files of 66 children referred for behavioral evaluation at an ADHD clinic. MANOVAs were peformed between parental self-reported psychopathology and parent-teacher differences on the CBCL. Findings showed that mothers with elevated symptoms on the SCL-90-R (consisting of global distress (GSI), Obsessive-Compulsive, Hostility, Somatization, Paranoid Ideation, and Phobic Anxiety) had significantly different mother-teacher ratings for child internalizing and externalizing behavior problems than their non-distressed counterparts. Findings also showed that fathers with elevated symptoms (consisting of GSI, Anxiety, Interpersonal Sensitivity, Hostility, Psychoticism, Paranoid Ideation, and Depression) had significantly different father-teacher ratings for child internalizing and externalizing behavior problems, than their non-distressed counterparts. Findings also showed that adding

demographic variables to parental symptoms into the regression equation generally added little to the amount of variance accounted for. The last set of analyses investigated the relationship between parent, teacher, and clinician ratings of attention problems and diagnosis of ADHD after behavioral assessment. Findings showed that clinician ratings of Off Task behaviors and Fidgeting were the only variables significantly related to diagnosis. Parent, teacher, and other clinician variables were not significantly associated with ADHD diagnosis.

Acknowledgments

I would like to express my most sincere thanks to the chairman of my committee, Dr. David Ensing. His wisdom, support, and patience have been invaluable to me during the past several years, and I am grateful for the opportunity I have had to work with him. I would also like to express my appreciation to the other members of my committee, Dr. Jean Funk, Dr. Peg Hull Smith, Dr. Wesley Bullock, and Dr. Tom Karst, for their input, assistance, and encouragement.

Special thanks are also due to Dr. Bart Hodgens at the University of Alabama at Birmingham, who provided both an interesting research question and the data that was available to study it. Without his assistance, this project would have been impossible to complete, and I am extremely appreciative of his interest and support.

More thanks go to the Radpour and the Markert families, who have provided both the emotional encouragement necessary to sustain me through the difficult periods of my research, and the baby-sitting help that allowed me to work.

My deepest thanks go to my husband, Jim, for his love and prayers, his ability to laugh at the absurdity of life challenges, and his unwavering confidence in my ability to accomplish whatever task I set my mind toward. Finally, I thank my almost two year old daughter, Tahireh, who brings me indescribable joy, reminds me of the beauty of life, and keeps me humble. After coaching her for months that Mommy was finally going to be an official "feelings doctor," I heard her tell a friend that I was a "ceiling doctor." For this I went to graduate school!

Table of Contents

List of Tables

Chapter One

Introduction

Attention-Deficit Hyperactivity Disorder (ADHD) is currently one of the most commonly diagnosed child psychological disorders in this country (Barkley, 1997). These symptoms of inattention and/or hyperactivity-impulsivity are believed to account for a majority of child referrals to mental health clinics (Barkley, 1991; Olfson, 1992; Ross & Ross, 1982). Recent research suggests that ADHD currently affects three to five percent of the childhood population (American Psychiatric Association, 1994). Such percentages translate into a significant public health concern, impacting hundreds of thousands of American children (Arnold, 1996). School-aged boys have been found to be particularly at risk for developing these symptoms, being three times more likely than girls to be diagnosed with ADHD (Gaub & Carlson, 1997; Arnold, 1996). These rates appear to be even higher in clinic samples, where boys have been found to exhibit symptoms six to nine times more than girls (Gaub & Carlson, 1997).

Some researchers have suggested that the incidence of ADHD has been steadily increasing over the past few decades (Ross & Ross, 1982; Block, 1977). Barkley (1990) has reported that this may be due to an increased ability to detect symptoms rather than an actual increase in prevalence. Consequently, increasing numbers may be related to the combination of intensified research efforts, which allow clinicians to assess more accurately problematic behaviors, and increased public awareness about symptoms and their potential for treatment, which may make parents more interested in clinical assessment.

Other researchers have offered a range of explanations for this higher incidence of ADHD. One socio-cultural theory has posited that children's inability to attend to tasks and delay impulsivity may be related to current cultural norms, which are impacted by an increasingly fast-paced lifestyle in which sustained attention is not as socially valued today as it had been in the past (Ross & Ross, 1982). Another hypothesis is that increases in numbers of ADHD diagnosed children may be related to increases in child survival rates for premature, low-birthweight infants who often have physical, cognitive, and attentional deficits (Barkley, 1997; Barkley, 1990). Other explanations focus on the role of biological factors, such as exposure to environmental toxins, as well as sociological factors, such as increased exposure to real and/or televised violence (e.g., Schwab-Stone, Ayers, Kasprow, Voyce, Barone, Shriver, & Weissberg, 1995); all of which may limit a child's ability to attend and focus. Finally, some researchers have theorized that increases in child referrals for ADHD assessment do not reflect increases in actual child behavior problems, but rather are related to parental misperceptions which make parents identify normal child behaviors as pathological. These theories suggest that parental factors such as psychopathology and life stress may cause parents to feel overwhelmed with parenting demands and, subsequently, have a lower tolerance for developmentally appropriate child behaviors. Consequently, they may misidentify normal child behaviors as pathological, thereby over-reporting these problems on self-report measures (e.g., Barkley, 1990; Modele & Hodgens, 1997; Webster-Stratton, 1988).

While all of these factors likely play some role in the large numbers of children being referred for ADHD assessment and treatment, research that has been generated over the past fifteen years provides some support for the theory that parental psychological symptoms may be related to their misperceptions of normal child behaviors as abnormal and problematic (Modele & Hodgens, 1997; Barkley, 1990).

Such findings have been widely replicated in clinic-referred samples for assessment of general psychological symptoms. These reports have primarily concentrated on depressive symptoms in women, and they suggest that depressed mothers over-report child behavior problems more often than their non-depressed counterparts, even when criterion observers report no behavior differences in the children of both groups of women (e.g., Webster-Stratton & Hammond, 1988; Friedlander, Weiss, & Traylor, 1986; Jensen, Traylor, Xenakis, & Davis, 1988; Dumas & Skeretich, 1994). Furthermore, this research has suggested that depression accounts for a significant portion of the variance between maternal and teacher/observer criterion reports (e.g., Webster-Stratton & Hammond, 1988; Jensen et al., 1988).

If these findings hold true for populations of ADHD children, as some researchers have suggested (Barkley, 1990; Modele & Hodgens, 1997), they have important clinical relevance since they suggest that the validity of parent reports may be compromised. This is particularly important in the assessment of ADHD because parent reports of their children's behaviors are heavily relied upon by clinicians as an integral part of current diagnostic criteria for the disorder (Dulcan & Benson, 1997; Landau & Burcham, 1995; Culberson & Krull, 1995).

Because few studies have investigated the relationship between parental psychopathology and parent's reports of ADHD symptoms in their children, relatively little is known about whether parent symptoms influence exaggerated reports of child problems in ADHD referred samples.

Additionally, because the studies that have investigated these issues have only included mothers as the subject of their exploration, there is a paucity of information about the role that fathers' symptoms play in their reporting behaviors. The present study is intended to investigate these issues.

The remainder of this review will outline what has, thus far, been discovered about parent symptoms and reports of child behavior problems. First, attention will be given to a description of the symptoms of ADHD and the current diagnostic criteria. Then, the review will summarize the studies that have reported significant relationships between parents and exaggerated reports of child problems, particularly focusing on the two studies that have utilized ADHD samples. This discussion will first present data concerning mothers, as this accounts for the majority of current studies. It will then outline the several studies that have examined father symptoms. Next, the review will address methodological concerns which have hampered research in the past and suggest alternative interpretations for previously reported findings. Finally, the review will suggest reasons why continued attention should be given to this avenue of research.

ADHD Assessment and Diagnostic Criteria.

Attempts to assess and diagnose the constellation of symptoms that are currently conceptualized as ADHD have existed since the early twentieth century (Barkley, 1981; Barkley, 1990). Child symptoms of impulsivity, attentional problems, hyperactivity, defiance, and resistance to discipline were reported as early as 1902 (Still, 1902). Children manifesting these symptoms were believed to have "defect[s] in moral control" (Still, 1902) which resulted in their being unable to regulate socially inappropriate impulses. Such symptoms were characterized as having neurological etiology, resulting from congenital brain defects, viral brain infections such as encephalitis, and/or other brain injury. Because ADHD-like symptoms were considered to have medical etiology, children with such symptoms were diagnosed by physicians, who performed their assessments by considering data from neurological examination results, in addition to measurements of physical characteristics such as head circumference, which were thought to differentiate between symptomatic children and their normal counterparts (Barkley, 1990).

Through the years, as ADHD symptoms have been further researched and better understood, these problematic child behaviors have come to be conceptualized as a disorder related to developmentally inappropriate attention problems, which may or may not occur concomitantly with hyperactivity and impulsivity. These symptoms have been operationalized in the Diagnostic and Statistical Manual - Fourth Edition (DSM-IV; American Psychiatric Association, 1994), and are outlined below:

1) Symptoms of inattention include: having difficulty sustaining close attention to details on work or play activities, having problems with completing required tasks, being easily distracted by irrelevant stimuli, having problems with not listening, being forgetful, loosing things, being disorganized, and/or finding tasks that require sustained attention as unpleasant.

2) Symptoms of hyperactivity consist of: fidgeting, excessive talking, inability to sit still or engage in quiet play, and/or being always "on the go."

3) Finally, impulsive symptoms have been described as including: interrupting, having problems with waiting one's turn, and being unable to wait until a question has been fully asked before answering.

Diagnoses that are included in the DSM-IV conceptualization of ADHD include: ADHD, Predominantly Inattentive Type; ADHD, Predominantly Hyperactive-Impulsive Type; and ADHD, Combined Type. The latter two of these diagnoses, ADHD, Predominantly Hyperactive-Impulsive Type and ADHD, Combined Type, are generally characteristic of children with excessive fidgetiness who often described by parents and teachers as if they are "driven by a motor, incessantly in motion, always on the go, and unable to wait for events to occur" (Barkley, 1997). Because these behaviors are so externalized and tend to have a negative impact on others, particularly family members and classmates, they are often easily recognized by parents and teachers. Additionally, the fact that these behaviors are excessive and irritating, leads many parents to seek assessment and treatment for them (Barkeley, 1997). In contrast, ADHD, Predominantly Inattentive Type, does not have the same externalized behavior component, so that children with this disorder may have problems that are less often noticed by parents, teachers, and other caregivers. Children with this diagnosis are characterized by attention problems, concentration difficulties, general sluggishness, and distractibility; however, they do not show the same kind of motor disturbance that is seen with children diagnosed with other forms of ADHD (Barkley, 1997).

It should be noted that recent ADHD research has suggested that the child problems related to aggression, defiance, and resistance to discipline, which were described by Still (1902) and others in the early part of this century are symptoms related to two separate disorders which manifest themselves differently from ADHD, but which may co-exist with ADHD in child and adolescent populations (e.g., Wolraich, Hannah, Pinnock, Baumgaertel, & Brown, 1997; Paternite, Loney, & Roberts, 1995). Consequently, symptoms related to aggression toward people and animals, destruction of property, deceitfulness and/or theft, and chronic violation of rules are considered to be part of a Conduct Disorder, rather than ADHD, diagnosis. Likewise, symptoms related to arguing with authority figures, refusing to comply with rules, deliberately provoking others, blaming others for the child's own misbehavior, and being easily irritated, angry, and/or vindictive are considered to be part of an Oppositional Defiant Disorder diagnosis (American Psychiatric Association, 1994).

Finally, an integral part of the current ADHD diagnostic criteria includes utilizing standardized measures that assess parent and teacher ratings of the child's behavior problems relative to other children their age (e.g., Dulcan & Benson, 1997). These measures assist clinicians by determining if the reported symptoms occur across time and situation, which is important because diagnostic criteria indicate that the symptoms must impair the child's level of functioning in at least two different settings. Additionally, these measures identify the severity of the reported symptoms in relation to other same-age children, and generally operationalize deviance as being two standard deviations above the mean of normal child behaviors.

Because today's diagnostic criteria for ADHD has been broadened to take into account the child's psychological functioning as well as his/her family, educational, and social environment, clinicians who diagnose ADHD currently rely heavily on parent and teacher reports. These generally are synthesized with a number of other data sources such as: physical/neurological and/or neuropsychological examination; child performance on standardized measures of inattention, impulsivity, and hyperactivity; child behavioral observations at the treatment site; and child and parent interviews (Landau & Burcham, 1995).

Maternal Symptoms and Reports of Child Behavior Problems

The Role of Maternal Reports in Assessment. Typically, when assessing ADHD symptoms, the clinician's first source of information concerning behavior problems is the child's mother (Barkley, 1990). Maternal reports are advantageous to clinicians in several ways. First, because mothers generally assume the majority of child-rearing responsibility, even when working outside of the home (Lampert & Friedman, 1992; Ozer, 1995), they are often more familiar with their children's behaviors than other family members, and can recount typical behaviors within a range of settings. Additionally, because mothers often accompany their children for evaluations of both their physical and emotional health (Garry, 1991), they are in a position to supply critical behavioral information to caregivers that is necessary for thorough child assessment. Consequently, mothers' physical presence at clinical assessment sites provides researchers and mental health professionals with a convenient source of immediate data on child psychopathology.

Depression and Maternal Report in Children with General Psychological Issues. Mothers, like all evaluators of children's behavior, have personal characteristics that are likely to influence their perceptions of child behavior problems. For a number of years, however, many researchers assumed that the benefits of using maternal reports outweighed the potential costs of these biases, because maternal reports often provided more child data than other informants' reports, even when they included possible sources of variability. Additionally, maternal reports were assumed to be more valid than those of other family members because mothers typically spent more time with their children than did others (Barkley, 1990); consequently, they had a unique vantage point by which to observe their children in different environments and watch their interactions with different people. Finally, because other informants also carried their own biases, it was believed that the variability in maternal reports would not be greater than those of other informants, so maternal reports were presumed to be generally accurate assessments of child behavior (Richters, 1992).

This assumption did not appear to be problematic until relatively recently, when a number of studies raised concerns about the accuracy of these reports, particularly as they relate to depressed mothers (e.g., Breslau, Davis, & Prabucki, 1988; Jensen, et. al., 1988; Webster-Stratton, 1988; Panaccione & Wahler, 1986; Webster-Stratton & Hammond, 1988; Dumas & Serketich, 1994; Sanger, MacLean, & Van Slyke, 1992; Friedlander, et. al., 1986). These questions were initially raised by observations that depressed mothers who brought their children in for psychological assessment often appeared to over-pathologize normal child behaviors (e.g., Rickard, Forehand, Wells, Griest, & McMahon, 1981). Such observations appear to have been supported by the research literature, which shows well-replicated findings that mothers who are depressed tend to report more child behavior problems than non-depressed mothers, even when criterion observers (such as teachers, home observers, etc.) report no differences in the behavior of the children of both groups of women (Webster-Stratton & Hammond, 1988; Jensen, et al., 1988; Webster-Stratton, 1988; Dumas & Serketich, 1994).

While a number of methodological concerns have been raised about some of the studies reporting these findings, particularly those done in the early years of this research (Richters, 1992), more recent, methodologically rigorous studies show similar results. For example, Webster-Stratton and Hammond (1988) studied the mothers of clinic-referred children who reported depressive symptoms, and then compared maternal ratings of their children's behavior to criterion ratings from home observations. These authors found significant differences between maternal reports and home observation ratings on measures of children's general internalizing symptoms, externalizing symptoms, and depression. Mother-criterion differences were found to be significantly related to maternal self-report ratings of depression, as measured by the Beck Depression Inventory (Beck, 1983).

In a similar finding, Dumas and Serketich (1994) reported that mothers with self-reported depressive symptoms rated their children as being more pathological on both internalizing and externalizing scales than did home observers, and that these differences were significantly correlated with maternal depression. These authors additionally found that financial disadvantage played a significant relationship to these associations. However, even after controlling for the role of financial disadvantage, depression appeared to account for a significant part of maternal/observer differences.

Similar results concerning depression and over-reporting behavior problems were also found in a study (Webster-Stratton, 1988) which compared mothers' and fathers' reports to teacher criterion ratings for conduct-disordered children. This study is one of the few that included fathers in its analysis. These authors found that again, mothers' ratings were significantly different from teacher ratings on measures of children's internalizing, externalizing, and depressive symptoms, as well as attentional problems (as measured by the Child Behavior Checklist; Achenbach & Edelbrock, 1983). Maternal depression in this study also accounted for a significant portion of the variance in maternal-teacher differences. Interestingly, in this study, father reports were not significantly different from those of teachers', and father symptoms of depression did not correlate with elevated reports of child behavior problems.

Results concerning maternal depression also have been reported in the findings of Sanger and her colleagues (1992) who studied the mothers of 110 children referred for treatment for a range of behavioral concerns. These researchers also used father reports, but these were utilized as criterion measures only (i.e., father psychological symptoms were not studied). These authors found similar results to previous studies, in that maternal psychological distress accounted for a significant amount of the variance in differences between maternal and paternal ratings of child behavior.

Finally, Fergusson, Lynskey, and Horwood (1993) also examined whether maternal depression significantly impacted the over-reporting of child problems. These authors used structural equation modeling to test three theories, consisting of the following: 1) maternal depression causally impacts distortions and exaggerated reports of symptoms, (2) depressed mothers accurately report child behavior problems and do not over-pathologize their children, and (3) that spurious third factors such as marital distress, family problems, etc. influence elevations in both maternal and child symptoms. These authors studied 768 mothers and children in a community sample to determine which model best fit maternal-criterion differences in child behavior ratings. Their results suggested support for "depression-distortion" theories, such that maternal depression was found to be significantly related to differences in behavior problems reports. However, they reported that while these findings were significant, maternal depression explained only about seven percent of the variance in maternal-criterion differences leaving open possibilities that other factors are at work in this relationship. Additionally, these authors reported that they found small associations which suggested that as maternal depression increased, so did criterion reports of problematic child behaviors, particularly with regard to conduct disorder and attention deficit symptoms. Such results suggest that although depressed mothers tend to over-report psychopathology that is not confirmed by criterion-raters, there may also be actual child symptoms that appear more frequently when maternal depression increases.

Other Symptoms of Psychological Distress and Overreporting of Behavior Problems Studies. Several studies have extended this avenue of research by investigating if other symptoms of parents' psychopathology are related to over-reporting of child behavior problems. Jensen et al. (1988) studied a community sample of 100 parents and compared mother and father ratings to each other, their children's self-reports of behavior problems, and teacher criterion ratings. These authors found that maternal symptoms, particularly those related to depression (but also including somatic complaints, obsessive-compulsive behaviors, interpersonal sensitivity, anxiety, and hostility) were significantly related to differences between mother-teacher ratings, mother-father ratings, and mother-child ratings. Furthermore, these differences appeared to be more pronounced in mothers' ratings of their sons rather than their daughters. In contrast, paternal symptoms, particularly those of hostility and obsessive-compulsive behaviors, were found to be significantly related to differences between father-teacher ratings, father-mother ratings, and father-child ratings. In fact, paternal symptoms were found to account for 45% of the variance in father-teacher reporting differences. Interestingly, these symptoms were found to be more pronounced in paternal ratings of their daughters rather than their sons.

These results suggest that parents' reports of their children's behavior problems may be affected by the parents' gender, the child's gender, and the parents' symptoms. While symptoms of depression significantly appeared to affect maternal report, symptoms such as hostility and obsessive-compulsive behaviors appeared to play a role in paternal report. Additionally, this data suggests that mothers and fathers may be affected differently by their symptoms so that their distorted perceptions of child problems are also influenced by the gender of their children, particularly between mother/son and father/daughter dyads.

Studies Investigating ADHD Clinic Samples. Only two of the studies reviewed for this paper utilized ADHD samples to assess the potential impact of maternal depression on over-reporting behavior problems. Neither of these studies investigated the impact of paternal symptoms on such reports. In the first study, Barkley (1990) examined the relationship between maternal self-reported depression (based on elevations on the Beck Depression Inventory; Beck, 1983) and mothers' ratings of behavior problems in a mixed sample of 156 ADHD and normal adolescents. Like other researchers, he found a significant relationship between maternal depression and exaggerated reports of child behavior problems (when compared to criterion behavioral observations), particularly with regard to perceptions of adolescent aggression. Interestingly, Barkley also incorporated measures of marital distress to his study. Here, he found that mothers who self-reported two sources of psychological stress, consisting of both marital distress and depression, were most likely to over-report adolescent behavior problems when compared to criterion observers. Mothers who self-reported significant depressive symptoms with no elevations in marital distress were also found to be more likely to over-report behavior problems in their children than their non-distressed counterparts. However, they did not appear to do this to such a severe extent as the depressed/maritally distressed mothers in this sample.

Additionally, to assess the impact of the quality of the mother-child relationship to these ratings, Barkley compared maternal depression/marital distress ratings to observer ratings of mother-child behavioral interactions.

He found that self-reported elevations of depression and marital distress symptoms were related to actual, observed negative interactions from mothers to their children, and from children to their mothers. However, even when these observed behaviors were accounted for, depression alone and depression with marital distress were related to a significant portion of the variance in exaggerated reports of behavior problems. Barkley concluded that even when depressed or depressed/marital distressed mothers had observable negative relationships with their children that were manifested in their children's negative behaviors, both groups of women still over-reported behavior problems when compared to behavioral observer ratings. Consequently, he concluded that factors such as depression and marital distress appear to play a role in mothers' misperceptions of normal child misconduct, which may cause them to over-report these behavior problems.

Modele and Hodgens (1997) also investigated the relationship between maternal symptoms and reports of behavior problems in a sample of 100 ADHD referred children. Like Jensen et al. (1988), these authors extended their analyses to include a range of self-reported maternal symptoms (based on the Symptom Checklist-90-Revised; Derogatis, 1983), not just depression. Here, the authors found significant differences between mother-teacher ratings for scales measuring children's internalizing and externalizing problems, which were accounted for by a number of maternal symptoms. These included depression, anxiety, hostility, somatization, interpersonal sensitivity, and phobias. While these authors did not replicate the findings of Jensen et al. (1988) with regard to the association between mothers' and children's gender, they did find that maternal self-reports of hostility were correlated with over-reporting children's externalizing behaviors, and that maternal elevations on scales of interpersonal sensitivity were correlated with over-reporting children's internalizing behaviors. Consequently, these authors concluded that when mothers' endorsed symptom elevations in themselves, they reported similar symptom elevations in their children. Therefore, hostile mothers reported more aggression and acting out in their children, and emotionally sensitive mothers reported more depression and anxiety in their children, even though these ratings differed dramatically from the reports of teachers.

These two studies add to the findings in the literature concerning maternal psychological symptoms and their relationship to reports of child symptoms. Additionally, they provide some insight into factors which may play a role in ADHD populations specifically. In particular, they suggest that symptoms related to marital distress, hostility, and emotional sensitivity should be evaluated in addition to depression, in order to assess their contributions to negative perceptions of child problems.

Studies Investigating ADHD Symptoms of Inattention. Finally, as to whether maternal factors are related to elevated reports of specific ADHD symptoms such as inattention, a review of the literature suggests that this is an avenue that warrants continued research. Only two studies have explored questions of inattention/hyperactivity specifically, and these reported conflicting findings. Modele and Hodgens (1997) found that maternal symptoms were not significantly related to mother-teacher perceptions of attention problems in a sample of 100 ADHD-referred children. In contrast, Webster-Stratton (1988) found that in sample of 120 conduct-disordered children, maternal reports did differ from teacher reports when assessing attention problems, and that maternal depression was significantly related to these differences. Whether these differences reflect differences in the samples that were studied, or are merely anomalies in the research is not yet known. These questions will have to be answered in future studies.

Clinical Implications of the Relationship between Psychopathology and Overreporting

The above described findings, in both general clinical samples and ADHD samples, have important relevance for clinicians and researchers. First, they challenge the assumption that maternal characteristics do not dramatically affect child behavior ratings, and highlight the clinical utility of using multiple informants to assess accurately child behavior problems (Richters, 1992). While this may not impact clinicians who perform comprehensive assessment, and who routinely evaluate parental symptoms and stressors that may bias their reporting behaviors, it may be of particular concern to researchers who use only single-informant assessment tools to identify child psychopathology. It may also significantly affect clinicians in large outpatient treatment settings who rely on maternal report to screen children for behaviors problems that are of concern (e.g., primary care settings in which pediatricians are asked to prescribe Ritalin for hyperactivity, etc.). Second, these results are a reminder to clinicians to assess parent psychopathology in general, but to pay particularly close attention to symptoms of maternal depression and psychological distress when they are making decisions about child diagnoses. To underscore this point with regard to assessing depressive symptoms, several researchers have even suggested that "any interview or rating scale method of clinical assessment that fails to assess maternal depression would appear to run the unacceptable risk of mislabeling some child clients with externalizing behavior problems" (Schaughency & Lahey, 1985).

Paternal Symptoms and Reports of Child Behavior Problems

Interestingly, few studies have explored the role of paternal symptoms in the reporting of child behavior problems. This may be partially related to the logistical difficulties in obtaining father reports, because children who come for psychological evaluation are often accompanied by mothers rather than fathers (Garry, 1991). Additionally, a substantial number of children who are evaluated at psychological clinics come from one-parent homes, in which the mother is the primary caretaker and the father's report is unavailable. However, lack of father data is probably also related to assumptions that children in intact families have a more intense emotional relationship with their mothers than their fathers, such that they are more negatively impacted by maternal rather than paternal psychopathology (Gelfand & Teti, 1990). Such assumptions have contributed to a tendency for researchers to place much of the burden of children's maladjustment onto maternal deficiencies, creating a "mother-bashing" quality in the research concerning depressed mothers (Downey & Coyne, 1990).

Studies in developmental psychology, however, challenge the assumption that child behavior is primarily impacted by mothers, pointing to the fact that fathers play a significant and important role in their children's adjustment. For example, well-adjusted fathers have been shown to have infants and toddlers that are more secure and show better cognitive development than poorly-adjusted fathers (Belsky, 1996; Belsky, Crnic, & Woodworth, 1995; Yogman, Kindlon, & Earls, 1994). Additionally, positive father-child relationships have been found to be associated with improved adjustment for both school-aged children and adolescents (Parke, 1995). Conversely, poor father-child relationships have been found to be associated with a range of child and adolescent problems (Parke, 1995; King, Segal, Naylor, & Evans, 1993; Mann & MacKenzie, 1996). This also appears to be the case for fathers exhibiting psychological symptoms, whose children have been shown to have significantly more behavioral problems than the children of non-distressed fathers (Moss, Mezzich, Yao, Gavaler, & Martin, 1995; Lahey, Placentini, McBurnett, Stone, Hartdagen, & Hind, 1988).

Because researchers have just started examining the role that fathers play in their children's adjustment, it is not surprising that few studies have examined father symptoms in relation to potential distortions in reporting child behavior problems. Only two studies reviewed for this paper investigated this issue, and these have reported inconsistent findings so that conclusions are difficult to make (Webster-Stratton, 1988; Jensen et. al., 1988). The details of these studies were described earlier in this paper. However, in summary, they suggest that unlike for mothers, depression does not appear to affect exaggerated father reports of behavior problems (Webster-Stratton, 1988). Such parent differences may reflect differences in the ways that depression affects mothers' and fathers' perceptions of their children, differences in the interactions between children and their depressed parents based on parent gender or role, and/or differences in the some aspect of the relationship between parents (particularly mothers) and children that is impacted by the child's symptoms specifically. In contrast, Jensen et al.'s (1988) findings showing associations between a range of symptoms and over-reporting for both mothers and fathers, suggests that symptoms related to anger and rigidity may have particular relevance for fathers. Furthermore, these symptoms appear to be particularly related to perceptions of pathological behaviors in their daughters rather than their sons.

Another of the other studies that utilized father data did not compare father symptoms to father reports of problems, but rather have used father reports as the criterion by which mother reports are evaluated (Sanger, et. al., 1992). This practice engenders a host of methodological concerns because it assumes that father perceptions are more accurate than mothers by virtue of gender and/or role, which appears to be a risky if not fallacious assumption.

Finally, none of the studies in this area have used father data in an ADHD sample; consequently, little is known about whether father psychopathology plays a role in elevated perceptions of ADHD symptoms or behavior problems. Additionally, the fact that few studies currently exist, which have reported disparate findings, suggests that little can be gleaned about the role that father symptoms play in this regard. The current consensus concerning father symptoms, child adjustment, and the validity of fathers' perceptions about such adjustment is that more research is needed to better understand these relationships (Jensen et al, 1988; Richters, 1992; Downey & Coyne, 1990). In particular, further studies are needed to analyze whether theories concerning the contribution that parental symptoms make to distorted perceptions of child behavior hold true for fathers as well as mothers.

Explaining the Relationship Between Maternal/ Parental Symptoms and Overreporting of Behavior Problems

Current research efforts suggest that depressed mothers over-report their children's behavior problems relative to criterion observers. Why this happens has been the subject of a great deal of speculation. Much of the research that has been conducted in this field has suggested that depressed mothers make errors in assessing normal child behavior because of perceptual disturbances and cognitive distortions that result from their depressive symptoms. This theory suggests that in the same way that depression influences negative cognitions about an individual's environment, it also influences mothers' perceptions about their children's behavior (Richters, 1992).

However, there are a number of other reasons why depressed mothers may report these problems more often than their non-depressed counterparts. Richters (1992) has been the most vocal critic of the above-described "depression-distortion" theories. This researcher has suggested that over-reporting child behavior problems may be reflective of depressed mothers being more attuned to their children's adjustment problems than both non-depressed mothers and criterion observers. Consequently, these mothers may be better able to detect legitimate child behavior problems and, therefore, may actually be more accurate reporters of this pathology than non-depressed mothers.

Additionally, because cross-informant reliability regarding child behavior problems has been shown to be relatively low by conventional standards (Achenbach, et. al., 1987), Richters has pointed out that there may be a number of factors other than parent symptoms that play a role in the variability between rating scores.

Critiques of the Existing Literature. In a systematic review of this literature, Richters (1992) has argued that such maternal over-reporting may not be over-reporting at all, but rather may be accurate ratings reflecting true behaviors that mothers have been privy to over time and across situations - advantages which criterion observers often do not have. Additionally, Richters has suggested that since depressed parents often have children with adjustment problems (Downey & Coyne, 1990), depressed mothers' reports may be related to their children's exhibiting more behavior problems than their non-depressed counterparts, even though these problems may have been difficult to assess in previous studies.

Furthermore, Richters identified several significant methodological difficulties that made it difficult to evaluate studies supporting depression-child behavior distortion theories. These problems, which were seen most often in earlier studies in this literature, included utilizing measures that had not been shown to be empirically reliable and valid, and occasionally making assumptions that differences between depressed and non-depressed mothers reports were indicative of maternal distortions without offering standard criterion observations to support this claim.

When evaluating the more recent studies which showed better methodological rigor and did make use of criterion observations as comparisons, Richters has reported that studies must satisfy several sets of criteria to support depression-related distortion claims. These criteria include: (1) studies must show that differences between mothers and criterion ratings of child behavior are significantly related to maternal depression and (2) studies must provide evidence that criterion raters are more accurate raters of child behavior problems than parents. While several studies have provided support for the role of depression in distorted perceptions of child behavior problems, few studies have been able to show that criterion raters are more accurate than parents, particularly since parents and criterion raters generally have not evaluated behaviorally or situationally concordant child behaviors.

The question of criterion ratings is crucial in evaluating depression-distortion theories, since these ratings are often the standard by which parental ratings are judged. A number of studies, Richters has noted, have simply assumed that criterion ratings (such as home observers, teacher ratings, etc.) were superior to parental ratings, so that parent-criterion differences were believed to be examples of problems with parental under or over-reporting. However, such differences might just as easily have been explained by problems with criterion under or over-reporting. In this regard, Richters noted that criterion ratings which take place in home observations may be limited in value since they evaluate only a small sample of behavior which, additionally, might be impacted in one way or another by the presence of the home observer. In this scenario, differences between parent and criterion ratings may be due to the fact that criterion raters are only viewing a time-limited set of behaviors. Likewise, teacher evaluations might be problematic since they assess only school specific behaviors, and are thereby situationally discordant with parental ratings. Consequently, comparisons between these reports are difficult to interpret.

While Richters has noted that no definitive "gold standard" exists by which to judge criterion ratings; he has suggested that careful attention to methodology can make comparisons between criterion and parent ratings more meaningful, so that future studies can better assess the role of depression in child behavior distortions. Towards this end, Richters has made several recommendations. First, measures assessing parent and criterion ratings should ask questions about the same sets of behaviors in order to provide more meaningful comparisons. Second, parent-criterion differences should be evaluated for both mothers who score high on measures of putative distorting characteristics (such as depression or other symptoms of psychopathology) and mothers who score low (or do not show any elevations), so that comparisons can be made between both groups of women's disagreements with criterion observers in order to determine more systematically if actual differences do exist.

The Children of Depressed Parents. Richters (1992) concern that depression-distortion results may result from depressed mothers having children with more behavior problems than their non-distressed counterparts appears to be supported by the depression literature. This research is summarized below.

To evaluate whether the reports of psychologically distressed parents are accurate descriptions of their children's behavior problems, it is important to have an understanding of the child symptoms that have been shown to be associated empirically with parental psychopathology. The most researched psychological disorder within this area has been depression, and most of the findings exploring the relationship between depression and child symptoms have been limited to maternal rather than paternal symptoms (Gelfand & Teti, 1990).

The body of literature chronicling the psychological problems of children whose parents suffer from depression began, interestingly enough, from studies that were designed to study the children of individuals with schizophrenia. In a review of the literature, Downey and Coyne (1990) reported that early studies of parents with schizophrenia used depressed parents as controls, and serendipitously found that the children of both of these groups had similar psychological adjustment problems. This finding spurred interest identifying the psychological problems that appear to be associated with being the child of a parent with a debilitating, often chronic illness.

Research concentrating on the psychological functioning of the children of depressed parents has shown well-replicated findings that these children often suffer from a range of observable emotional and behavioral problems, when compared to the children of non-depressed parents. Infants and toddlers with depressed mothers have been shown to exhibit symptoms of depression and anti-social behavior, both of which appear to continue throughout childhood (Zahn-Waxler, Mayfield, Radke-Yarrow, McKnew, Cytryn, & Davenport, 1988; Downey & Coyne, 1990). Older, school-aged children also have been found to exhibit more externalizing and internalizing symptoms as well as attentional problems, and are particularly at risk for developing affective diagnoses (Lavori, Keller, Beardsleee, & Dorer, 1988; Weissman, Prusoff, Gammon, Merikangas, Leckman, & Kidd, 1984). These children also have higher levels of social and academic problems than their matched counterparts (e.g., Hammen, Adrian, Gordon, Burge, Jaenicke, & Hiroto, 1987; Richers & Pelligrini, 1989; Billings & Moos, 1983; Weissman, Gammon, Merikangas, Warner, Prusoff, & Sholomskas, 1987).

Some researchers have theorized that the reason why children of depressed parents appear to exhibit such a wide range of symptoms is that maternal depression acts as a stressor that increases the chances of a child showing symptoms that are prominent in children of their age (Hops, Sherman, & Biglan, 1987). Consequently, the adolescent sons of depressed mothers may show externalizing symptoms such as conduct disorder (which is often diagnosed in distressed children in this cohort), while the daughters of these mothers may exhibit internalizing symptoms such as depression (which likewise is often diagnosed in distressed children in this cohort) (Gelfand & Teti, 1990). However, further research is required to better understand the association between maternal symptoms and types of child symptoms.

Downey and Coyne (1990) have reported that the apparent associations between maternal depression and findings concerning child psychopathology can be interpreted in several ways. These include: (1) mothers and children may share a genetic predisposition toward psychological disturbance which is reflected in a range of child psychopathologies, (2) parent and child symptoms may be related to a third factor that influences both of them and contributes to symptom elevations, and (3) depressed mothers have negative parenting styles that contribute to child symptoms.

In analyzing the support for these perspectives, Downey and Coyne (1991) have reported that the literature particularly appears to support the last two models. With regard to a third factor that influences both maternal and child symptoms, variables such as chronic stressors, financial disadvantage, and marital problems have all been found to contribute substantially to a range of parent and child symptoms. In particular, marital discord has been found to be an important factor in child adjustment; so much so that one group of researchers reported that "the relationship between having a [depressed parent] and children's disturbed behavior is largely accounted for by concomitant marital discord" (Emery, Weintraub, & Neale, 1982).

However, Downey and Coyne (1992) have suggested that the preponderance of research concerning depression and children's adjustment also has focused on disturbed parenting styles as being a significant factor in the development of child psychopathology. This literature suggests that the parenting styles of depressed parents is markedly different from their non-depressed counterparts. Depressed mothers, for example, have been shown to respond negatively to their children and often exhibit heightened levels of hostility toward them. Additionally, because they are often psychomotorically slow, these mothers respond less frequently and more slowly to their children. Finally, depressed mothers appear to manage their children through somewhat rigid methods of over-control rather than with flexibility and negotiation. All of these have been shown to influence the parenting behavior of depressed mothers, which may impact the development of their children's symptoms.

While a number of variables have been offered to explain the relationship between maternal depression and child symptoms, it is likely that this complex relationship is affected by many of these factors, which in turn influence each other. Evidence of this complex relationship has been shown in a number of recent studies which suggest that parent symptoms impact child symptoms in a series of reciprocal interactions, by which symptomatic parents relate to their symptomatic children in negative ways, and vice versa (e.g., Hammen et al., 1987). Such results highlight the need to further explore parent-child interpersonal relationships to assess their contribution to adult and child psychopathology.

The Parents of ADHD Children. The literature examining the relationship between the interactions and relationships between ADHD diagnosed children and their parents shows similar negative reciprocal relationship findings to the above described depression literature. Additionally, this research (e.g. Barkley, 1990; Tallmadge & Barkley, 1983) has suggested that ADHD children relate differently to each of their parents. In this regard, these children appear to have more positive relationships with their fathers than their mothers. They also appear to respond more readily to father commands than to those from mothers.

Barkley (1990) has reported that some of these results may be due to the fact that when mothers are the primary caretakers, they are more likely than fathers to ask their children to perform aversive tasks, such as homework and chores. Consequently, mothers may develop a relationship with their children that is emotionally strained by continued demands to perform. An additional explanation may be related to the fact that mothers and fathers appear to respond differently to their children's misbehaviors (Barkley, 1990; Johnson, 1997). Barkley (1990) has reported that mothers tend to use reasoning, repeated demands, and affection as enticements to motivate their children toward performing required tasks. In contrast, fathers appear to use less reasoning, do not repeat instructions to perform, and tend to use punishment for non-compliance more often than mothers, all of which may be more effective in motivating children to perform the demanded task. While the direction of these effects is likely interactional in nature (Webster-Stratton, 1988; Dumas & Skertich, 1994; Barkley, 1990), such that children respond to their parents according to how their parents relate to them and vice versa, these studies do suggest that mothers and fathers may have different experiences of their children based on observable interactions between each parent's gender and role.

Summary

A review of the literature suggests that even though the children of depressed parents have been shown to exhibit more psychological adjustment problems than the children of non-depressed parents, when depressed parents (particularly mothers) are asked to rate their children's behavior problems against criterion observation ratings, they tend to over-report psychopathology. Several models, which parallel those described by Downey and Coyne (1992) have been offered to explain this relationship. These have been described by Sanger, MacLean, and Van Slyke (1992) as: (1) mothers experiencing psychological distress have a perceptual bias that includes a lower tolerance for normal child behaviors, making them mis-identify normal behaviors as pathological, (2) another factor (such as marital discord, financial disadvantage, etc.) negatively impacts both mothers and children so that maternal reports of child behavior problems are accurate reflections of their children's adjustment to this factor, (3) mothers and children share a genetic predisposition toward symptoms, so that maternal reports of child pathology are accurate reflections of this genetic risk toward illness, and (4) maternal symptoms and child symptoms work in a reciprocal manner to negatively influence each other, such that maternal over-reports of behavior problems are reflective of this disturbed relationship.

Generally, these models suggest that mothers either over-report problems due to perceptual biases, or that they report accurately, despite differences with criterion raters, because of spurious third factors, genetic risk factors, or negative reciprocal relationships that may affect both mothers and children.

The current study is intended to investigate whether the psychological symptoms-distortion theories hold true for mothers and fathers of ADHD children. This question has important clinical relevance because parental reports are integral to the diagnostic criteria for ADHD. As Barkley (1990) has noted, disagreements between informant ratings on ADHD scales are common and may reflect a range of issues concerning informant variability. However, since previous research suggests that parent symptoms may be related to parent-criterion differences on a variety of child behavior problems, it would be interesting to assess whether this also occurs for ADHD problems specifically, and to identify the degree to which symptoms play a part in such differences.

Certainly, the parents of children with ADHD have been shown to endorse higher levels of psychological distress than the parents of normal controls (Mash & Johnston, 1983). These parents also have been found to be more likely to experience more psychiatric disturbance, including symptoms of ADHD, antisocial behavior, alcoholism, affective disorder, and learning disability (Barkley, 1990). Consequently, the parents of ADHD children may be affected be a range of psychological factors which may influence differences between their ratings and those of teachers and clinicians.

Statement of the Problem

The purpose of the present study was to assess the role that parental psychopathology plays in accounting for the differences between parent and teacher ratings of ADHD symptoms and children's behavior problems in an ADHD-referred sample. This research was also intended to investigate empirically the role that parent and teacher ratings of attention problems play in the assessment and diagnosis of ADHD.

A review of the literature shows that much of the recent work in this area has concentrated on the impact of maternal depression on ratings of problematic child behavior. The literature shows that mothers who are depressed tend to report more child behavior problems, when compared to criterion ratings, than non-depressed mothers (e.g., Webster-Stratton & Hammond, 1988; Dumas & Serketich, 1994). Several studies have suggested that parental symptoms other than depression, such as hostility, emotional sensitivity, and obsessive-compulsive behavior may also play a role in these differences. Finally, studies examining the relationship between mother and father symptoms and differences to criterion reports have not yielded consistent findings.

Researchers who are critical of depression-distortion findings have recommended that future studies which investigate this relationship be more methodologically vigorous so that results can be more meaningful. These recommendations focus upon providing evidence that parents with high levels of symptoms show greater parent-criterion differences than those with low/no levels of symptoms, as well as for testing whether assumptions that criterion reports are more accurate assessments than parents' reports are indeed true.

This study was intended both to replicate previous research findings concerning the part that parent symptoms play in parent-teacher differences within an ADHD sample and to extend previous research efforts in several ways. First, it instituted some of Richter's (1991) recommendations for better methodology in which to study this issue, as these types of analyses had not yet been performed in the literature.

Next, the present study compared parent and teacher reports to standardized behavioral observation ratings of ADHD symptoms which were performed by clinicians. Researchers in the field have suggested that utilizing such observations can provide a standard by which to compare other behavioral reports (Arnold, 1996). It was hoped that these comparisons would shed some light on how consistent other raters, particularly teachers, were with clinical observations from psychologists trained to assess and diagnosis ADHD.

Additionally, this study added to current knowledge by investigating the specific role that paternal psychopathology plays in father-teacher and father-clinician differences. This is an area which has received some attention in general child clinical samples but has not yet been studied in the ADHD literature. Because parent symptoms of depression, hostility, interpersonal sensitivity, and obsessive-compulsive behaviors have been reported in the literature for general child psychological disorders as being related to such parent-criterion differences, this study attempted to assess whether these and other symptoms are relevant to the fathers of ADHD-referred children.

Finally, since the literature concerning parent symptoms and over-reporting behaviors has been particularly concerned with how these ratings may impact diagnoses of child disorders, this study attempted to assess the contribution of parent reports to the diagnosis of ADHD. It was hoped that the results of this analysis would contribute to the literature by quantifying how much parent report is relied upon. This would additionally enable findings related to parent symptoms and reporting discrepancies to be evaluated in the context of the overall impact of parent report to diagnosis.

Questions of particular interest for the present study were:

1. Do mothers who report symptoms of depression, hostility, and interpersonal sensitivity differ significantly from teachers on ratings of child behavior problems (on scales of internalizing , externalizing symptoms, and attention problems) as has been demonstrated previously in the literature (Webster-Stratton, 1988; Modele & Hodgens, 1997)? Additonally, do these symptoms significantly contribute to the variance in mother-teacher rating differences on internalizing, externalizing, and attentional child behavior problem subscales?

2. Do fathers who report symptoms of hostility and obsessive-compulsive behavior problems, but not depression, differ significantly from teachers on ratings of child behavior problems (on scales of internalizing , externalizing symptoms, and attention problems), as has been demonstrated previously in the literature (as demonstrated by Jensen et. al., 1988)? Additonally, do these symptoms significantly contribute to the variance in father-teacher rating differences on internalizing, externalizing, and attentional child behavior problem subscales?

3. Do findings concerning parental depressive symptoms hold true when mothers and fathers who have high self-reported ratings on these symptoms are compared to mothers and fathers who are low on these symptoms?

4. Do potential third factor variables such as economic disadvantage and marital status significantly contribute to the variance in mother-teacher and father-teacher rating differences on internalizing, externalizing, and attentional child behavior problem subscales as found by Dumas & Serketich, 1994; Barkley, 1990; Emery et al., 1982)?

5. Are parent and teacher ratings of attention problems significantly correlated with clinic-based behavioral observations that are rated by a psychologist specializing in ADHD assessment?

6. Finally, what are the contributions of parent, teacher, and clinician ratings toward a diagnosis of ADHD?

Chapter Two

Method

Participants

Study data was obtained retrospectively from the case files of children referred for behavioral evaluation over the past four years at an ADHD clinic of a university medical center. Because the hypotheses concerned comparisons between mothers' and fathers' reports of child problems, participants consisted only of the children whose data files included both mother and father report information. Children who had maternal reports but not father reports were excluded from the analyses.

Participant data was obtained from the case files of 66 children who had been referred for assessment. Sixty of these children were eventually assessed for ADHD. The other six children did not attend their scheduled assessments, but were included in some of the analyses because some of the data relevant to them had been mailed to the clinic prior to their assessment appointments (Symptom Checklist-90-Revised data, demographic information, and parent and teacher Child Behavior Checklist data).

Child Participants. The participants ranged in age from four to 17, with a mean age of 7.97 years (SD=2.68). The sample consisted of 15 (22.7%) girls and 51 (77.3%) boys, whose ethnic background included 52 (78.8%) European-Americans, 11 (16.7%) African-Americans, 1 (1.5%) child whose ethnicity was classified as other, and 2 (3.0%) children whose ethnicity was unknown.

__Child Diagnosis__. With regard to overall diagnosis, the data showed that 60 children out of the total 66 were assessed for ADHD and received some diagnosis for their presenting problem. The remaining six children did not arrive for their scheduled assessment appointments, and consequently received no diagnosis. Analyses of the diagnoses generated from the sample of children who were clinically assessed suggested that 35 (58.3%) of the children assessed were diagnosed with ADHD. Twenty-five (41.7%) of the children were given diagnoses other than ADHD, which included: Post-traumatic Stress Disorder (PTSD), anxiety disorders, depressive disorders, mental retardation, learning disability, conduct disorder, and oppositional defiant disorder.

Of the 35 children who were diagnosed with ADHD, 23 (65.7%) were given diagnoses of ADHD only (i.e., without any comorbid psychological disorder) and 12 (34.3%) were given diagnoses of ADHD with a concomitant psychological disorder.

__Mother and Father Participants__. The parents of the children who participated (66 mothers and 66 fathers) consisted of a heterogeneous group of individuals. The sample included parents who had a varied amount of education and income levels; however, the majority of the sample consisted of mothers and fathers who either had some high school education or completed high school, and who had income levels less than or equal to $30,000. The sample was more homogeneous with regard to parental relationship, as most parents were the biological parents of the children who were seen for assessment. Additionally, the majority of the parents were married. This data is represented in Table 1.

Procedure

Since this study was of a retrospective nature, participant data was obtained from the case files of children who were assessed for ADHD after obtaining consent from the university treatment center. Data collection was performed by the author through a review of the clinic charts. To ensure child confidentiality, data sheets were assigned a random number that did not correspond with the child's medical chart number. Additional steps to protect confidentiality was that child identifying data was not utilized (such as birthdate, medical number, etc.), and that results were reported for groups only and not for individual children.

Children who were assessed for ADHD in this sample typically were referred by their pediatricians or by one of their parents because of concerns of hyperactivity, inattention, and/or behavioral problems. According to treatment center policy, before each child could be evaluated for assessment, his/her parent was required to send back information concerning the mother's pregnancy and delivery, the child's developmental milestones, demographic data, child behavior measures (rated by both mothers and fathers when available), and self-report measures of potential parent symptoms (to be completed by each parent). Standardized child behavior measures were also sent to the child's teacher so that data could be obtained about the child's behavior in school. After these materials were received, children were scheduled for assessment. Assessments generally were scheduled for a time in the morning and lasted approximately three hours.

Data gathered during the assessment included: a parent and child interview, a physical examination, a behavioral observation while performing academic tasks, and the child's completion of other standardized tests which might provide data on relevant symptoms. Data concerning mother, father, and teacher reports of child symptoms existed for all of the children who were studied. Maternal and paternal self-reports of psychopathology also existed for all of the children studied.

Measures

The Child Behavior Checklist (CBCL). Child psychopathology was assessed using the CBCL's Internalizing, Externalizing, and Attention Problems subscales (Achenbach, 1983). The CBCL is a paper and pencil instrument in which parents (CBCL-parent form) and teachers (CBCL-teacher report form) rate the child on 113 statements concerning common behavior problems. Items can be rated from 0-2, identifying behaviors as: Not True, Very True, or Often True. CBCL results are grouped into eight empirically-derived subscales, which are then grouped into several higher order broad-band scores consisting of: Externalizing Behaviors, Internalizing Behaviors, and the Total score. The Externalizing Behaviors broad-band score is made up of the Delinquent Behavior and Aggressive Behavior subscales. The Internalizing Behaviors broad-band score is made up of the Social Withdrawal, Somatic Complaints, and Anxious/Depressed subscales. Finally, the Total score is comprised of all Externalizing and Internalizing behavior subscales in addition to the Attention Problems, Social Problems and Thought Problems subscales.

CBCL scores are converted into age and gender normed T scores, with a mean of 50 and standard deviation of 10. Scores are considered clinically elevated if they are two standard deviations above the mean ($T \geq 70$). Higher T scores indicate greater degrees of rater-perceived child psychopathology.

The CBCL is a commonly used clinical instrument that has demonstrated validity and reliability. It has been found to differentiate between children who have clinically significant behavior problems and their normal counterparts (Achenbach, 1991). It has also been shown to differentiate between children with clinical diagnoses of ADHD from their matched counterparts (Barkley, 1990). This instrument has been empirically shown to correlate with other widely utilized child behavior instruments, such as the Conners Parent Questionnaire and the Diagnostic Interview Schedule for Children (e.g., Kazdin & Heidish, 1984; Costello & Edelbrock, 1985). Achenbach (1991) has reported that the CBCL has good test-retest reliability (ranging from r = .89 - .75 for parent reports at one week to one year, and from r = .75 to .66 for teacher reports at fifteen days to four months). Inter-rater reliability has been reported to range from r = .65 - .75 (between parents) and r = .54 (between teachers). Cross-informant agreement between parents and teachers have been reported to be relatively low by conventional standards; typical correlations are r = .50 (Achenbach, McConaughy, & Howell, 1987).

Additionally, while the parent and teacher forms of the CBCL differ slightly from each other in that they are asked to rate home and school behaviors, respectively (a concern reported by Richters, 1992), the content of these questions is generally similar. Consequently, the parent form may ask if the child "destroys things belonging to his/her family" while the teacher version of this question is whether the child "destroys property belonging to others." Because many of these items inquire about similar behaviors, and because the CBCL has demonstrated reliability and validity based on all of the items in the questionnaire, it was believed that this measure could provide important information about problematic behaviors even if they are slightly situationally discordant.

The Symptom Checklist-90-Revised (SCL-90-R). Parental psychological symptoms was assessed with the SCL-90-R (Derogatis, 1983), which is a commonly used measure of adult psychopathology. While this measure can not be used solely to diagnose an adult with a psychological disorder, it does provide important information about the individual's perceived level of distress within a number of different symptoms constellations. This 90 item self-report questionnaire is one in which respondents rate the degree to which they recently have been distressed by each symptom on a five-point Likert scale, ranging from Not At All to Extremely. SCL-90-R results are grouped into a total score (the Global Severity Index) and nine subscales which consist of the following: Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism.

SCL-90-R scores are converted into gender and clinical status (i.e., non-patient, psychiatric outpatient, psychiatric inpatient, and adolescent outpatient) normed T scores, with a mean of 50 and standard deviation of 10. T scores that are greater than or equal to 60 place an individual in the 84% of the normative sample; T scores that are greater than or equal to 70 place an individual in the 98% percentile. Derogatis (1992) has identified T scores that are greater than or equal to 63 as showing "caseness;" that is, a score sufficiently high to represent a positive case for a subscale constellation of symptoms.

The SCL-90-R is a commonly used clinical instrument that has demonstrated validity and reliability. It has been found to differentiate between psychologically distressed adults and their non-distressed counterparts (Derogatis, 1992). Additionally, while all of the SCL-90-R subscales have been shown to identify types and degrees of psychopathology, the Depression subscale has been shown to be a markedly sensitive measure of depressive symptomatology (e.g., Weissman, Stobetz, Brusoff, Mezritz, &

Howard, 1976; Brown, Schwartz, & Sweeny, 1978; and Weissman, Pottenger, Kleber, Rubin, Williams, & Thompson, 1977). Finally, the SCL-90-R has been shown to have good reliability. It has been reported to correlate well with other adult self-report instruments, such as the MMPI (Derogatis, Rickels, & Rock, 1976). It also has been reported to have good test-retest reliability, ranging from r = .78 to .90 for one week intervals (Derogatis, 1992) .

Clinician-Rated Behavioral Observation. Clinician based assessment of child inattention, hyperactivity, and impulsivity was obtained through a behavioral observation. This procedure consisted of watching a child complete a simple, age-appropriate, academic task (such as doing arithmetic problems or copying numbers and letters) for 15 minutes. Children's behavior was observed through a one-way mirror and then rated according to the occurrence of four observed behaviors during 30 second intervals. These behaviors included the following: off-task behaviors, fidgets, out of seat occurrences, and playing with objects. Child behaviors were rated by a Ph.D. level clinical psychologist who is experienced in ADHD assessment. This coding scheme has been described in the ADHD literature and has been found to be useful in identifying children with ADHD (Barkley, 1990).

While this measure does not have empirically validated norms, clinician assessments of whether the child shows pathological disturbance on this task are believed to provide a useful clinical comparison to parent and teacher reports (Barkley, 1990). Scores on this task may range from 0 to 100%, with greater percentages being indicative of greater degrees of problems with attending to the task. Significant elevations on this task have been identified as scores that are greater than 30% for elementary school-aged children and greater than 20% for adolescents (Hodgens, 1998).

<u>Variables</u>

The variables that were measured in this study are listed below.

a) Reports of child behavior problems were assessed with the CBCL (for children ages four to eighteen), using the Internalizing and Externalizing broad band scales and the Attention Problems subscale. Comparisons were made from data obtained by mother, father, and teacher report.

b) Parental self-reported symptoms of psychopathology were obtained from the nine subscales of the SCL-90-R and the total global measure of distress. Subscale scores ranged from 30 to 80. Higher scores on this measure also were indicative of greater degrees of self-reported psychopathology. Subscales were identified as elevated if the T scores were greater than or equal to 63 (as recommended by Derogatis, 1983). Subscales were identified as non-elevated if they were less than 63.

c) Demographic information, including the child's age, gender, and ethnicity, parental marital status, parental biological relationship to the child, and family income was obtained from clinic demographic questionnaires in each case file. This information was generally completed by mothers before the child was seen for assessment.

d) Clinical assessment of the child's behavior was obtained from clinician ratings of inattention, hyperactivity, and impulsivity during a 15 minute behavioral observation, as described previously.

e) Diagnosis of ADHD generally was made by consensus between the team's clinical psychologist, developmental pediatrician, and psychiatry residents and psychology interns who worked on the child's case. Data sources that went into this diagnosis included: parent and child interview, child performance on measures of inattention/hyperactivity, parent and teacher rating scales, and cognitive assessment when applicable. Diagnoses included the range of DSM-IV disorders that apply to children.

Chapter Three
Results

Preliminary Analyses of Parent Variables

Mother and Father Self-Reported Psychopathology. Descriptive analyses suggested that the individuals studied were a heterogeneous group with respect to parental self-reported psychopathology. This data is presented for both mothers and fathers in Table 2.

These results showed that mothers reported variable global psychological distress levels. Maternal T scores on the Global Symptom Index (GSI) of the SCL-90-R, which measures general psychological distress, ranged from 30 to 80 with a mean score of 58.18 (SD = 12.48). Similarly, mothers' other psychological symptoms fell along a continuum from no self-reported distress to extremely elevated scores. Likewise, fathers in this sample reported a variety of GSI scores, ranging from no distress to elevated distress, and had an overall mean score of 56.05 (SD = 13.97). Fathers' other symptoms also showed wide ranges reflecting variability in their distress levels.

Mother-Father Symptom Differences. Since it was possible that mothers and fathers might have endorsed levels of symptoms that were quite different from each other, thereby complicating comparisons between parents, analyses of their self-reported symptoms seemed warranted. For these analyses, t-tests were conducted between mother and father self-reported symptoms; these are presented in Table 2.

The results suggested that mothers and fathers reported SCL-90R subscale scores that were not significantly different. Mother and father ratings on the Interpersonal Sensitivity scale approached significance ($t=-1.78$, $p <$ .08), but none of the other scales showed significant differences between parent ratings. These results suggest that in the present sample, mothers and fathers endorsed relatively similar degrees and types of psychopathology.

Correlations between SCL-90-R Subscales. Finally, analyses concerning correlations between each of the SCL-90-R subscales were conducted separately for mothers and fathers to determine the degree to which these scores were related to each other. This data is presented in Table 3.

These results suggested that the maternal subscales were highly correlated with each other. Maternal correlation coefficients ranged from 0.48 (between scales of Phobic Anxiety and Somatization) to 0.83 (between measures of Depression and Anxiety). As expected, subscale scores were also highly correlated with overall GSI scores. These correlation coefficients ranged from .64 (between Phobic Anxiety and GSI) to .90 (between Obsessive-Compulsive symptoms and GSI).

Paternal symptoms also appeared to be highly correlated. Paternal correlation coefficients ranged from 0.52 (between measures of Phobic Anxiety and Hostility) to 0.87 (between measures of Depression and the Obsessive-Compulsive symptoms). Likewise, paternal subscale scores were highly correlated with overall GSI scores; these ranged from .65 (between Phobic Anxiety and GSI) and .93 (between Depression and the GSI).

Preliminary Analyses of Child Variables

Parent and Teacher Ratings of Problematic Child Behavior. As can be seen in Table 4, descriptive analyses comparing mother, father, and teacher reports of child behavior problems suggested that mothers rated children as having more overall disturbance than did fathers and teachers.

Examination of the mean scores shows that maternal reports for internalizing, externalizing, and attention problems scores were slightly higher than those of fathers and teachers. Father mean scores on these measures were lower than mothers. Likewise, teacher mean scores were lower than either mothers and fathers, except for scales measuring externalizing problems, in which teachers' ratings fell between those of mothers and fathers. Not surprisingly, in this sample, ratings of attention problems had higher mean scores than externalizing and internalizing symptoms. This was true for mother, father, and teacher reports.

Finally, a multiple analysis of variance (MANOVA) was conducted to determine whether mother, father, and teacher CBCL scores were significantly different from each other. These results suggested that mother, father and teacher scores did not significantly differ on CBCL measures of internalizing, externalizing, and attention problems (Wilks' Lambda (6, 384) = 0.97, $p < .43$).

Hypothesis Testing

Maternal Symptoms and Mother-Teacher CBCL Differences. The first question of interest in the present study concerned whether mothers who reported high levels of psychological symptoms differed significantly from mothers who reported low levels of distress with regard to mother-teacher differences on ratings of child behavior problems (on scales of internalizing, externalizing symptoms, and attention problems) as had been demonstrated previously in the literature (Webster-Stratton, 1988; Modele & Hodgens, 1997). For these analyses, a series of MANOVAs were performed. When MANOVAs were found to be significant, these analyses were followed by univariate analyses of variance (ANOVAs) to determine the main effects. Means and standard deviations for mother and teacher CBCL ratings, as well as mother-teacher CBCL differences are presented in Table 5. These scores are categorized according to maternal symptoms, either elevated or non-elevated, to show comparisons between raters.

SCL-90-R GSI Scores. In the first MANOVA, the independent variable was the measure of global distress (GSI) on the SCL-90-R, which was divided into two groups based on clinical criteria for scale elevations: high (scores greater than or equal to 63; n=28) and low (scores less than 63; n=38). The dependent variables were the differences between teachers' and mothers' ratings on the CBCL scales (as measured by the difference between T scores; teacher minus mother scores) for internalizing symptoms, externalizing symptoms, and attention problems. These results, which are presented in Table 6, showed that maternal GSI scores were significantly related to mother-teacher differences on the three CBCL subscale scores (Wilks' Lambda (3, 62) = 0.86, $p < .05$).

Next, three ANOVAs were performed to analyze the association of the GSI to each of the CBCL subscales. The results of these analyses are presented in Table 7. These analyses showed main effects which were significantly related to two of the CBCL subscales: internalizing (F (1, 64) =9.02, $p < .01$) and externalizing (F (1, 64) =6.61, $p < .01$) problems. Maternal GSI was not significantly associated with mother-teacher differences on measures of attention problems (F (1, 64) =2.70, $p < .11$).

Finally, Pearson correlations were computed to quantify the strength of the relationship between global maternal distress and the above reported mother-teacher CBCL differences. These analyses showed that GSI scores significantly contributed to approximately 16.0% ($r= -.40$, $p < .001$) of the variance between mother-teacher differences on internalizing scales and 9.0% ($r = -.30$, $p < .05$) of the variance for externalizing scales. GSI scores did not significantly contribute to the variance for attention problems, and they only accounted for 2.0% ($r = -.15$, $p < .22$) of this variance. These results confirm that while maternal symptoms contributed a significant amount to internalizing and externalizing differences (but not attention problems), their contribution accounted for a relatively small part of the variance between mother-teacher differences.

<u>SCL-90-R Subscale Scores</u>. Next, to assess the role of each type of maternal psychopathology with mother-teacher differences, a series of subsequent MANOVAs were performed, the results of which are represented in Table 6. For these analyses, each SCL-90-R subscale was the independent variable, and mother-teacher differences on the three CBCL subscales were the dependent variables. Similarly, as with the previous MANOVA, each independent variable was divided into high and low groups based on whether the scores met clinical elevations. These results showed that several of the SCL-90-R subscale scores were significantly associated with mother-teacher CBCL differences. These included the following scales: Obsessive-Compulsive, Hostility, Somatization, Paranoid Ideation, and Phobic Anxiety. Scales measuring Depression, Anxiety, Psychoticism, and Interpersonal Sensitivity were not significantly related to mother-teacher differences.

These analyses were followed by a series of ANOVAs, which were performed to analyze the association of the maternal symptoms scales to each of the CBCL subscales. The results of these analyses are presented in Table 7.

The results of these analyses suggested that main effects were most often found for mother-teacher differences on externalizing and internalizing problems, but not attention problems. The scale measuring Obsessive-

Compulsive symptoms was the only maternal symptom which was found to be significantly related to all three CBCL scales. Hostility was related to externalizing and internalizing symptoms and approached significance with regard to attention problems. Somatization and Paranoid Ideation were only significantly related to externalizing and internalizing symptoms. Finally, Phobic Anxiety was significantly related only to mother-teacher differences on externalizing problems.

These results suggest that a number of maternal self-reported symptoms were associated with mother-teacher rating differences on the CBCL subscales studied. These symptoms appeared to be related to maternal over-reporting behavior problems, for both internalizing and externalizing problems, in comparison to teacher reports. Additionally, the results suggest that maternal symptoms were generally not related to mother-teacher rating differences for attention problems.

Paternal Symptoms and Father-Teacher CBCL Differences. The next question of interest concerned whether significant findings that were associated with mothers would hold true for fathers who reported elevated levels of psychological distress as compared to fathers with low levels of distress.

Means and standard deviations for father and teacher CBCL ratings, as well as father-teacher CBCL differences are presented in Table 8. These scores are categorized according to paternal symptoms to show comparisons between raters.

SCL-90-R GSI Score. Like the analyses concerning mothers, these analyses consisted of a series of MANOVAs which were performed first for the GSI and then for each subscale score of the SCL-90-R. The independent variable in the first set of analyses was the GSI, which was divided into high (greater than or equal to 63; n=21) and low (less than 63; n=45) groups. The dependent variables were the differences between teachers' and fathers' ratings on the CBCL scales (as measured by the difference between T scores) for internalizing symptoms, externalizing symptoms, and attention problems.

As can be seen in Table 9, the first MANOVA that was performed showed that overall global reports of psychological distress (GSI scores) were significantly related to father-teacher differences on the CBCL subscales (Wilks' Lambda (3, 62) = 0.84, $p < .01$). These results mirrored findings with the group of mothers.

Then, three ANOVAs were performed to identify main effects concerning the association between the paternal GSI score to each of the CBCL subscales. In these analyses, the independent variable was the GSI score and the dependent variables were father-teacher differences on each CBCL subscale (internalizing, externalizing, and attention problems). These results, which are presented in Table 10, suggest that paternal GSI scores were significantly related to father-teacher differences on internalizing ($F\ (1, 64) = 10.41$, $p < .01$) and externalizing ($F\ (1, 64) = 7.40$, $p < .01$) problems. However, these only approached significance when related to differences concerning attention problems ($F\ (1, 64) = 3.34$, $p < .07$).

Finally, Pearson correlations were computed to quantify the strength of the relationship between global paternal distress and the above reported father-teacher CBCL differences. These analyses showed that GSI scores contributed to approximately 13.0% ($r = -.36$, $p < .01$) of the variance between father-teacher differences on internalizing scales and 7.0% ($r = -.27$, $p < .05$) of the variance for externalizing scales. GSI scores did not significantly contribute to the variance for attention problems, and accounted for only 0.004% ($r = -.02$, $p < .90$) of this variance. These results suggest that while paternal symptoms contributed a significant amount to internalizing and externalizing differences (but not attention problems), their contribution accounted for a relatively small part of the variance between father-teacher differences.

SCL-90-R Subscale Scores. Next, a series of subsequent MANOVAs were performed to analyze the relationship between each SCL-90-R subscale and its association with father-teacher CBCL differences.

As can be seen in Table 9, these results showed that a number of father symptom subscales were related to father-teacher differences. These included: Anxiety, Interpersonal Sensitivity, Hostility, Psychoticism, Paranoid Ideation, and Depression. Scales measuring Obsessive-Compulsive symptoms, Somatization, and Phobic Anxiety were found not to be significantly related to father-teacher differences.

Finally, these analyses were followed by a series of ANOVAs, which were performed to analyze the main effects for significant paternal symptoms and their relationship to each of the CBCL subscales. In these analyses, the independent variables were each of the SCL-90-R subscales and the dependent variables were father-teacher differences on each CBCL subscale (internalizing, externalizing, and attention problems). The results of these ANOVAs are presented in Table 10.

These results suggested that, as with mothers, father symptoms generally were related to father-teacher differences on internalizing and externalizing scales, but not attention problems. All of the scales that were significant, Anxiety, Interpersonal Sensitivity, Hostility, Psychoticism, Paranoid Ideation, and Depression, were related to internalizing differences. All of the scales (i.e., Anxiety, Hostility, Psychoticism, Paranoid Ideation) except Depression and Interpersonal Sensitivity were related to externalizing differences; those scales only approached significance. With regard to attention problems, Psychoticism and Interpersonal Sensitivity approached a significant relationship; but none of the other symptoms showed significant association to attention problem differences.

These results suggest that a range of paternal symptoms were related to father-teacher rating differences. Anxiety, Interpersonal Sensitivity, Hostility, Psychoticism, Paranoid Ideation, and Depression were significantly associated with fathers' reports of elevated behavior problems in their children when compared to teacher reports. However, these symptoms appeared to generally be related to internalizing and externalizing symptoms only. None of the symptoms were significantly related to rating differences regarding attention problems.

The Role of Parental Symptoms and Demographic Variables in Parent-Teacher Differences. Because parent symptoms were found to account for a significant, albeit relatively small, part of the variance of mother and father-teacher differences, further analyses were conducted to investigate whether adding demographic variables to parent symptoms would increase the amount of variance accounted for.

These analyses assessed the role of parental symptoms in conjunction with demographic variables in mother-teacher/father-teacher differences through stepwise multiple regression analyses. For these analyses, GSI scores and demographic variables were made available to the regression equation to investigate the variables that were the most significant. The predictor variables in these analyses were maternal/paternal GSI scores and demographic variables consisting of: parental income, parent relationship (e.g., biological parent, adoptive parent, step-parent, etc.) to the child, parent education, marital status, child age, child gender, and child ethnicity. The criterion variables were the differences between mother-teacher and father-teacher CBCL scores on internalizing, externalizing, and attention problems scales.

Mothers and Internalizing Symptom Ratings. The first stepwise multiple regression analysis suggested that maternal GSI score ($R^2 = .14$; $F(1, 40) = 6.14$, $p < .05$) was the only variable significantly related to mother-teacher differences for internalizing symptoms, accounting for approximately 14.0% of the variance. None of the other variables significantly added to the variance between mother-teacher differences for internalizing symptoms.

Mothers and Externalizing Symptom Ratings. The next stepwise multiple regression analysis suggested that maternal symptoms (partial $R^2 = .21$; $F(1, 40) = 10.45$, $p < .01$) was the only variable significantly related to externalizing symptom ratings. Maternal relationship to the child (partial $R^2 = .07$; $F(1, 40) = 3.95$, $p < .06$) approached significance; but none of the other variables significantly added to the relationship between mother-teacher differences for externalizing symptom ratings.

In order to explain findings related to maternal relationship, a post-hoc t-test was conducted between the two classes of maternal relationship (biological mothers and non-biological mothers; for this analysis, adoptive, foster, and step-mothers were collapsed into a single category) and mother-teacher differences for externalizing problems. This analysis showed that non-biological mothers were more likely to over-report externalizing problems than their biological counterparts ($t= -1.80$, $p <.05$). The means for mother-teacher internalizing differences (teacher minus mother scores) were -7.00 (SD=7.33) and -0.53 (SD=13.60) for non-biological and biological mothers, respectively.

Consequently, these results suggest that maternal symptoms account for the most part of the variance when compared with other variables. When maternal symptoms were added to the variable measuring maternal relationship to the child (i.e., being the non-biological mother) these variables accounted for 28.6% of the variance in mother-teacher externalizing differences.

<u>**Mothers and Attention Problems Ratings**</u>. Lastly, none of the variables were found to be related to mother-teacher differences for attention problems. Income was entered into the regression equation at step one, but only approached significance ($R^2 = .07$; $F(1, 40) = 2.76$, $p < .11$)

In sum, these results suggest that of the variables studied, maternal symptoms account for the largest percentage of the variance in mother-teacher differences. However, these symptoms appear to be limited to the relationship between mother-teacher rating differences for internalizing and externalizing problems, but not attention problems.

<u>**Fathers and Internalizing Symptom Ratings**</u>. The next set of analyses were conducted to assess the relationship between paternal demographic variables and paternal GSI scores and father-teacher differences. For these analyses, GSI scores and demographic variables were made available to the regression equation to investigate the variables that were the most significant predictors.

The first stepwise multiple regression analysis suggested that two variables were significantly related to father-teacher differences for internalizing symptoms. These consisted of father symptoms (partial $R^2 = .14$; $F(2,36) = 5.73$, $p < .05$) and paternal relationship to the child (partial $R^2 = .13$; $F(2,36) = 5.88$, $p < .05$), which together accounted for 27% of the variance.

None of the other variables significantly added to the relationship between father-teacher differences for internalizing symptoms.

In order to explain findings related to the variable identifying father relationship, a post-hoc t-test was conducted between the two classes of paternal relationship (biological fathers and non-biological fathers; for this analysis, adoptive, foster, and step-fathers were collapsed into a single category) and father-teacher differences for internalizing problems. This analysis showed that non-biological fathers approached significance with regard to their being more likely to over-report internalizing problems than their biological counterparts ($t = -1.93$, $p < .06$). The means for father-teacher internalizing differences were -4.10 (SD=11.65) and 2.50 (SD=12.54) for non-biological and biological fathers, respectively. Consequently, these results suggest that when paternal symptoms were added to the variable measuring paternal relationship to the child (i.e., being the non-biological mother) these variables accounted for 27% of the variance in father-teacher internalizing differences.

Fathers and Externalizing Symptom Ratings. The next stepwise multiple regression analysis suggested that father relationship (partial $R^2 = .12$; $F(2,36) = 4.93$, $p < .05$) was the only variable significantly related to father-teacher externalizing differences. Father symptoms were added to the regression equation at step two, but only approached significance (partial $R^2 = .08$; $F(2,36) = 1.76$, $p < .08$). When father relationship was added to father symptoms, these variables accounted for approximately 20.3% of the variance in father-teacher externalizing differences.

In order to explain findings related to the variable identifying father relationship, a post-hoc t-test was conducted between the two classes of paternal relationship (biological fathers and non-biological fathers) and father-teacher differences for externalizing problems. This analysis showed that non-biological fathers were significantly more likely to over-report externalizing problems than their biological counterparts (t= -2.49, $p < .05$). The means for father-teacher differences were -5.35 (SD=9.66) and 2.81 (SD=12.74) for non-biological and biological fathers, respectively. Consequently, these results suggest that when paternal symptoms were added to the variable measuring paternal relationship to the child (i.e., being the non-biological mother) these variables accounted for 20.3% of the variance in father-teacher internalizing differences.

Lastly, none of the variables that were entered into the analysis concerning father-teacher attention problem differences were found to be significant contributors to the variance.

In sum, these results suggest that for fathers, the father's relationship to the child (specifically being the non-biological father) and father symptoms were the only variables that were significantly related to father-teacher differences, primarily for internalizing and externalizing problems. The other demographic variables did not appear to be related significantly to father-teacher rating differences.

The Relationship Between Parent and Teacher Ratings of Attention Problems with Clinician Behavioral Observations. The next question of interest concerned how parent and teacher ratings of attention problems correlated with clinic-based behavioral observations, that were rated by a psychologist specializing in ADHD assessment. For this analyses, parent and teacher CBCL scores of attention problems, and clinician behavioral observation ratings were all converted to standard scores for comparison. Then, Pearson correlations were conducted to determine the relationship between these variables.

As shown in Table 11. the results indicated that mother and father ratings of attention problems were significantly related to each other ($r=.71$, $p < .001$). They also showed that teacher ratings and clinician Off Task ratings approached a significant relationship with each other ($r=.25$, $p < .06$). Interestingly, none of the clinician or teacher variables were significantly correlated with mother or father ratings.

Clinician measures of Off Task behaviors were significantly correlated with the other clinician measures, consisting of Fidgets, Out of Seat occurrences, and Plays With Objects ($r=.77$, $p < .001$; $r=.64$, $p < .001$; $r=.53$, $p < .001$, respectively). Not surprisingly, these measures also had significant associations with each other (between Plays With Objects and Fidgets, and Plays With Objects and Out of Seat, etc.).

The Relationship Between Parent, Teacher, and Clinician Ratings of Attention Problems in Diagnosis of ADHD. Finally, the last question of interest concerned how parent, teacher, and clinician ratings of attention problems were associated with an eventual diagnosis of ADHD. To answer this question, a logistical regression/odds ratio analysis was performed. This analyses was intended to investigate how likely a child was to be diagnosed with ADHD based on each rater's scores.

For this analysis, parent, teacher, and clinician measures were all converted to standard scores for comparison. Additionally, rater scores were converted into binomials which classified whether the score was significantly elevated or not. Thus, mother, father, and teacher scores were classified as elevated if they were greater than or equal to 70, according to clinical cut-offs (Achenbach, 1983). Clinician ratings were classified as elevated when they were greater than or equal to either 20 or 30 depending on the child's age (based on clinically determined elevations; Hodgens, 1998). Lastly, the diagnosis was also classified as a binomial, identifying either a diagnosis of ADHD or no ADHD (i.e., having another diagnosis than ADHD).

The odds ratio results suggested that clinician ratings of Off Task behaviors and Fidgets were the only variables most likely to be associated with a diagnosis of ADHD after clinical assessment. When clinician Off Task ratings were identified as elevated based on the child's age, the child was 12.2 times more likely to be diagnosed with ADHD than with another diagnosis ($p < .05$). Similarly, when clinicians rated children as having significant elevations on Fidgets, the child was 8.1 times more likely to be diagnosed with ADHD ($p < .05$). Odds ratios for teacher, father, and mother ratings, in addition to clinician ratings of Out of Seat, and Plays with Objects were not significantly related to a child's being diagnosed with ADHD.

The results of these analyses suggest that in this sample, clinician Off Task and Fidgets ratings were significantly related to a child's eventual diagnosis of ADHD, rather than other diagnoses. In contrast, teacher, mother, father, and other clinician behavioral observation ratings appeared to be not significantly related to such diagnoses.

Chapter Four

Discussion

One of the most consistent findings reported in this study is the way that mother and father symptoms appear to be alike in their associations with parent-teacher rating differences. Mothers and fathers who report elevated symptoms appear to over-report problems concerning internalizing and externalizing symptoms, relative to mothers and fathers who report low levels of distress, when compared to teacher reports. Attention problems, however, appear to be relatively unaffected by parent symptoms.

This data is in contrast to several other studies which have reported that mothers and fathers differ rather dramatically with regard to the relationship between their symptoms and their perceptions of child problems (Webster-Stratton, 1988; Jensen et al., 1988). The remainder of the discussion will explore the ways that the findings in the present study, concerning both mothers and fathers, relate to other studies.

Maternal Symptoms and Mother-Teacher Rating Differences

In the present study, maternal symptoms consisting of: global distress, Obsessive-Compulsive, Hostility, Somatization, Paranoid Ideation, and Phobic Anxiety were found to be significantly associated with maternal over-reporting child behavior problems relative to teachers' reports. These symptoms were found to be primarily related to differences on internalizing and externalizing scales rather than attention problems.

These findings are generally consistent with the findings of several other researchers (e.g., Jensen et al., 1988; Modele and Hodgens, 1997), who have suggested that a range of maternal symptoms are related to mother-teacher differences. Jensen et al. (1988) found that maternal symptoms consisting of: depression, somatic complaints, obsessive-compulsive behaviors, interpersonal sensitivity, anxiety, and hostility were significantly related to differences between mother-teacher ratings. Modele and Hodgens (1997) found that maternal depression, anxiety, hostility, somatization, interpersonal sensitivity, and phobias were related to mother-teacher differences, also primarily for internalizing and externalizing behavior problems rather than attention problems.

The fact that the present study also found that a range of symptoms were related to mother-teacher differences makes it consistent with previous research. However, the fact that such a large number of disparate symptoms were associated with mother-teacher differences is somewhat difficult to interpret. The symptoms found to be significant here do not share general, underlying characteristics which are consistent with theoretical distortion hypotheses per se. However, analyses showing correlations between the symptoms scales may shed some light on this issue. These results showed that mothers who endorsed elevated symptoms on one scale, generally also endorsed elevated symptoms on other scales. Therefore, these results may suggest that maternal distress in general plays a role in biasing maternal perceptions of child behavior. Certainly, this makes logical sense given that an individual's psychological state is likely to contribute to her assessment of other people's behavior and possibly also bias that perception.

An interesting caveat, however, is the fact that maternal symptoms were found to be related to mother-teacher differences for internalizing and externalizing symptoms, but not attention problems. This was true for the majority of symptoms scales investigated, except Obsessive-Compulsive symptoms, which were related to mother-teacher differences on all three CBCL subscales.

There may be several explanations for the fact that most symptoms were related only to elevated internalizing and externalizing reports. First, it is possible that increases in mothers' psychological distress causes them to be more sensitive to their children's acting out/behavioral problems as well as their internalized symptoms, such as depression and anxiety. While the literature in this field generally has not identified a range of symptoms to have this effect, the depression literature certainly suggests that mothers who are depressed are more likely to rate their children as having more externalizing problems than home observers (e.g., Webster-Stratton, 1988). This literature also suggests that mothers who are depressed are often more sensitive to identifying affective disorders in their children than other family members (e.g., Downey & Coyne, 1991). Consequently, it is possible that mothers who are affected by psychological symptoms themselves are more likely to be more sensitive to such symptoms in their children, thereby over-rating their children as having more internalizing and externalizing psychological problems than criterion observers, who are less familiar with the child.

The fact that attention problems are generally not elevated when compared to teacher reports may be explained in several ways. It is possible that maternal symptoms are less likely to bias ratings concerning attention problems than other child problems; however, it is difficult to explain why this may occur for one set of symptoms but not for others. Another possibility may be related to the fact that parents and teachers often have the opportunity to talk about attention problems in their regular school contacts, through parent-teacher meetings, for example. These contacts may give mothers a professional opinion by which to measure their concerns about such problems, thereby allowing them to re-evaluate their concerns according to the teacher's perception of whether the behavior is age-inappropriate. If this is the case, then maternal ratings of attention problems specifically might be less likely to be biased by maternal symptoms.

Another, perhaps more plausible, explanation is that mothers in the present sample, who were taking their children in for psychological assessment of attention problems, took particular effort to make their ratings less biased by personal factors. This scenario may be more likely to occur in treatment settings where evaluation will take place, since parents are aware that their ratings of their children's problems will be further assessed by clinicians with extensive understanding of both child pathology and parental functioning. Consequently, simply knowing that one's ratings of child attention problems will be evaluated in person by a clinician specializing in ADHD assessment, may make mothers more careful to not bias their ratings by personal factors.

A final interpretation of these findings is related to a possible ceiling effect, such that when mothers and teachers both rated children as having high levels of attention problems, these scores were relatively high and left little room for differences to manifest themselves.

Maternal Depression. Interestingly, in the present study, maternal depression was found to have no significant relationship to mother-teacher differences. These results contrast dramatically with the literature reporting relatively consistent findings in this regard (e.g., Dumas and Serketich, 1994;

Fergusson et al., 1993; Webster-Stratton and Hammond, 1988; Webster-Stratton, 1988).

One explanation for this difference may be related to the measures used to evaluate depressive symptoms. This study utilized the SCL-90-R which, while correlating with clinical diagnoses of depression (e.g., Derogatis, 1983), cannot be used to diagnose an individual with a depressive disorder. Other studies (e.g., Webster-Stratton and Hammond, 1988; Webster-Stratton, 1988) have used more sensitive measures of depression that specifically measure symptoms which can be used for a clinical diagnosis (such as the Beck Depression Inventory, Beck, 1983). Consequently, it is possible that by utilizing a higher standard of depressive symptoms (i.e., a diagnosable depressive disorder), those studies were using a more severely depressed samples of mothers than the sample in the present study.

Paternal Symptoms and Father-Teacher Rating Differences

Similar to the findings reported with mothers, analyses investigating the relationship between paternal symptoms and father-teacher differences on CBCL subscales suggested that a number of scales were significantly related to father-teacher rating differences. These consisted of general paternal psychological distress, Anxiety, Interpersonal Sensitivity, Hostility, Psychoticism, Paranoid Ideation, and Depression; all of which were found to be related to fathers' being more likely to over-pathologize their children's behavior problems, relative to teachers.

These findings are in contrast to previous studies that have explored father symptoms and their relationship to reporting child behavior problems. For example, while Jensen et al. (1988) found that paternal symptoms were related to father-teacher differences, the only symptoms which were reported as significant were obsessive-compulsive behaviors and hostility. In contrast, the symptoms found to be related to this relationship in this study were more numerous than those reported by those authors. This may be due to the fact that the present study used a clinical sample, and those authors used a sample of non-clinic families. These results are also in contrast to Webster-Hammon (1988) who found that father symptoms of depression and other parenting stressors were not related to father-teacher differences. That author speculated that it was possible that fathers were somehow less affected by symptoms and other stressors than mothers, because of either inherent differences in the ways that psychological stress impacted them or because of the differences in their family roles. Consequently, that author speculated that clinicians who required a less biased account of children's behavior problems might wish to make more use of father report rather than mother-report.

However, the results of this study suggests that fathers' perceptions of child behavior problems are remarkably similar to those of mothers, such that they are more sensitive to both internalizing and externalizing problems in their children, relative to teachers. Thus, these results lend credence to the idea that psychological distress affects fathers in many of the same ways as mothers, and therefore may also be related to the cognitive distortions that have generally been reported for mothers.

Paternal Depression. In contrast to the findings reported for maternal depression, paternal depression was found to be significantly related to father-teacher differences. This finding is consistent with the literature concerning mothers. However, it is unique in that it is the first of the studies reviewed for this paper that supports the link between paternal depression and father-teacher rating differences. These results suggest that depressive symptoms may affect fathers and mothers in similar ways, thereby affecting their perceptions of problematic child behaviors. Such results support the work of a number of researchers who have argued that father variables (such as psychological symptoms, style of interpersonal relating, etc.) have a significant impact on their parenting (Parke, 1995; Moss et al., 1995; Lahey et al., 1988) as well as their interpretation of significant child problems (Jensen et. al., 1988). Additionally, these results have clinical import in that they may serve to remind clinicians to assess both maternal and paternal distress when they are evaluating parents' assessments of their children's problems.

The Role of Symptoms and Demographic Variables in Parent-Teacher Differences

The results in this study suggest that clinicians and others who evaluate problematic child behavior should take parental symptoms into consideration as a factor in the variability of parent report. However, analyses that quantified the strength of this relationship highlight the fact that parent symptoms actually represent a relatively small amount of the variance (no more than 16%) in parent-teacher differences. Consistent with other findings, the relationship between parent symptoms and parent-teacher differences appeared to be most pronounced in perceptions of child internalizing problems rather than externalizing problems, while attention problems appeared to be generally uninfluenced by parent symptoms. These findings are also consistent with the body of literature concerning mothers who are depressed and their sensitivity to their children's internalizing problems (e.g., Downey & Coyne, 1991).

Interestingly, however, adding demographic variables to the regression equation did not make a large difference in accounting for the variance in parent-teacher report. Parental relationship to the child was the only variable which appeared to significantly add to the variance. These results suggested that non-biological parents were more likely to over-report externalizing problems and/or internalizing problems than their biological counterparts. This data might suggest that non-biological parents have a lower threshold for child behavior problems than biological parents. This could be a reflection of the fact that non-biological parents (particularly foster parents whose involvement in the child's life is often more transient than biological parents) have less time in which to develop a relationship with the child, share fewer experiences with the child, and may be eventually less acclimated and less understanding of the child's behavior and temperament. In contrast, biological parents may recognize some of their own personality characteristics which have become manifested in their children, and therefore may be more sympathetic to them and less likely to identify such behaviors as seriously problematic.

The fact that factors related to or highly correlated with financial disadvantage, such as income and ethnicity, were not significantly related is interesting, since it seems intuitive that factors related to poverty would be associated with a biased perception of child behavior. So, one might expect to find that financially disadvantaged children and/or children in ethnic minorities would be rated as having more externalizing problems than their middle-class, ethnic majority counterparts, as was found in a previous study (Dumas & Serketich, 1994). However, the fact that these results were not found may be a reflection of a lack of variability in income levels and ethnicity in the sample to adequately study this effect. Additionally, the income variable in the present study only classified total family income and did not take into consideration factors such as the number of children in the family, which would have provided more information concerning financial disadvantage. Consequently, in the way that the data was collected, a family whose income was reported as $ 20,000 that had five children would not have been classified as financially different from a family with the same income and only one child.

It also should be noted that marital status was found to not be significantly associated with parent-teacher differences. This is probably due to the fact that the marital status variable in this study only identified whether the child's parents were married at the point when the demographic information was completed prior to the assessment. The data that was available did not shed any light on the parent's marital distress or dissatisfaction, which is the specific factor that has been identified as important to parent perceptions of child problems in a number of other studies (Barkley, 1991; Emery et al., 1988).

In sum, the evidence from this study suggests that other factors may be more important contributors to parent-teacher differences than the ones studied. One of these factors may be related to situational differences in evaluating the child's behavior. A number of researchers have pointed out (e.g., Richters, 1992) that parents and teachers are often asked to rate situationally discordant behaviors, and that these actual situational differences may make up a large portion of the variance in parent-teacher differences. However, as few of the studies in the literature have asked parents and teachers to rate the same set of observable behaviors (Richters, 1992), these questions will have to be answered in future studies.

Clinician, Mother, Father, and Teacher Measures of Attention Problems

Analyses of mother, father, teacher, and clinician ratings showed that mother and father ratings of attention problems had the highest correlations of all of the raters. This is interesting, since several authors (e.g., Barkley, 1981; Barkley, 1990) have suggested that the fact that fathers often spend less time with their children, may influence them to have different perceptions than mothers concerning their children's difficulty with attending to tasks. However, these correlations may be due to the likelihood that mothers and fathers consulted with each other about their ratings to assess each others' concerns before their children were seen for assessment. They also may be related to the fact that mothers and fathers were observing home environment behaviors that they had both observed and talked about prior to their ratings.

In this regard, the fact that teachers had significant correlations with clinician off task ratings is also not surprising, since clinician-rated tasks were similar to tasks that children are asked to perform in school. However, it is interestingly that correlations between fathers, teachers, and clinician ratings varied widely. Such results, though, mirror the findings reported by Achenbach et. al. (1987) who have shown that inter-rater agreement for child behavior problems is relatively low and likely includes a number of sources of variability.

Diagnosis of ADHD

The results concerning the logistical regression/odds ratio for diagnosing a child with ADHD provided compelling data. These results suggested that when clinician ratings of Off-Task behaviors and Fidgets were elevated based on the child's age, that child was significantly more likely to be diagnosed with ADHD than with another diagnosis. Other clinician ratings concerning Out of Seat occurrences and Plays with Objects did not have significant relationships to diagnosis. Additionally, mother, father, and teacher elevated ratings had no significant relationship to diagnosis.

These results make intuitive sense. Children are most often diagnosed with ADHD when clinicians perceive their attention problems to be excessive and age-inappropriate. Additionally, having problems with being off-task and fidgeting are certainly hallmarks of the attention problems that characterize ADHD. However, this data also suggests that children's problems with excessive getting out of their seats and playing with objects while trying to complete a task are not significantly related to diagnosis. This is probably related to the fact that, while these behaviors provide important information about children's level of hyperactivity and distractibility, they are not as important for a diagnosis of ADHD as children's inability to stay internally focused and behavioral manifestations of attention problems such as fidgeting.

The fact that only clinician ratings, rather than parent or teacher ratings, were related to diagnosis of ADHD is also not surprising since clinicians, by virtue of their better understanding of normal child development and child psychopathology, would be in positions to value their own perceptions of clinical problems rather than parents and teachers, and diagnose accordingly. Additionally, it is not surprising that clinician ratings are the best predictor of diagnosis, since one would expect that their understanding of the diagnosis of ADHD and the pathologies associated with it would lead them to accurately diagnose.

Data concerning the lack of significant association between parent and teacher ratings and ADHD diagnosis is also interesting. These results suggested that in the present sample, when parents and teachers perceived children as having excessive problems with attention, their ratings had no significant relationship to diagnosis. Again, this finding makes intuitive sense. Parents and teachers would not generally have the clinical expertise to recognize that attention problems have a number of possible etiologies, thereby being symptomatic of a number of different diagnoses (including

PTSD, depression, anxiety, and learning disabilities) . Thus, it is less likely that parents and teachers would recognize the fact that children with elevated ratings on attention problem measures may have other diagnoses that explain their problems better than ADHD.

An important caveat in these results is that these findings occurred in a treatment setting which obtained behavioral observation data as a standard part of ADHD assessment. While this practice has been recommended by ADHD researchers, it does not occur in a number of treatment centers where ADHD assessments are performed (Barkley, 1990). Consequently, these findings may not generalize to all treatment centers that provide ADHD assessment. However, this data does suggests that when clinicians had behavioral observation information available to them in their assessments, they relied more on this data than on parent and teacher report.

These results may have several explanations. First, they may be an indication that clinicians rely more on their data than on other reports, choosing to disregard perceptions about child behavior problems that are not consistent with their own observations. However, an alternative possibility is that clinicians who observed children's behaviors and then made diagnoses about ADHD, interpreted parent and teacher perceptions of elevated attention problems with some caution. This may be due to the fact that clinicians intuitively understand that parent and teacher ratings have the potential for being biased by a number of sources of variability, and therefore, carefully evaluate their concerns about attention problems .

If this is the case, and if this data can be generalized to other samples, there may be some important clinical implications. First, concerns about the association between parent symptoms and elevated ratings of a range of behavior problems may be unfounded when it comes to diagnosing a child with ADHD. Consequently, even if a psychologically distressed parent reports significant child behavior problems which clearly conflict with the teacher report, the clinician may be more likely to pay greater attention to the behavior that s/he has seen during the assessment rather than the parent or teacher report when making a diagnosis of ADHD.

Second, these results put the cautions issued by previous researchers in this field, to be sure to carefully assess parent symptoms when also assessing child behavior problems, into context. While this caution is certainly well advised, and while clinicians should be sensitive to the variability in all kinds of informant reports of child behavior problems, it appears that clinicians who systematically observe and assess a child's behavior in the treatment clinic setting, might already do this in their comprehensive child assessments. if this is the case, it is reassuring as it suggests that child clinicians gather data from multiple sources and evaluate the clinical usefulness of that data before utilizing it to make a diagnosis, as they should.

This critical evaluation of the source of the data is particularly crucial in the diagnosis of a disorder such as ADHD, which requires evidence of the disturbed behavior to exist across situations, thereby necessitating the use of multiple informants. Thus, these results suggest that clinicians who make use of multiple informants generally rely most on their own clinical observations. Parents and teachers, while an important source of information about child behaviors, may be viewed more critically and assessed more carefully to determine if their perceptions are accurate descriptions of their children's behaviors or inflated ratings which are biased by personal factors.

Limitations

There were a number of limitations to the present study. The first was the retrospective design of the research. While this design allowed for access to several years of archival records, it did not allow for data to be collected in a manner that would have answered more specific research questions. For example, the behaviors that were rated by teachers and parents in this study were situationally discordant. If these raters could have observed the same sets of behaviors (through videotaped segments of the child's behavior, for example), then associations between parental symptoms and parent-teacher rating differences could have been more reliably related to potential parental distortions. The data that was available did not shed light onto whether parents' over-reporting behavior problems were related to potential distortions based on parent symptoms or whether parents were actually just more sensitive and more accurate than teacher or clinician criterion observers. Additionally, the manner in which the data was collected in the present study makes it possible that the reported associations between parent psychological distress and parent-teacher rating differences actually were the result of children acting differently in their home environment than in their school environment. If this were the case, then parent-teacher differences could be attributed to the differences in situational task demands.

Similarly, the retrospective design of this study did not allow for the inclusion of other data which would have been clinically useful. For example, data concerning teacher symptoms and teacher demographic information, specifically ethnicity and socio-economic status, did not exist which could have provided useful information about some of the variability related to teacher perceptions of child behavior.

Another limitation was that the sample studied consisted of a select group of families. Children who were included in the study had two parents who completed paperwork concerning their children's problems. Since many children come from single parent homes, the results of this study may be limited in generalizability to either intact families or families which are not intact, but in which parents have enough contact with each other to ask that child data be completed and sent in to the treatment center. Additionally, the parents that were included showed a significant amount of motivation, since they were required to send initial data into the clinic and had to follow up with teachers to ensure that they sent this information in as well. Parents who did not send in this information were not scheduled for assessment, and likewise were not included in the present study. Consequently, it is possible that the results found in this study were related to a selection bias which created a clinical sample of parents who had the motivation and sufficient organization to follow-through with the initial demands of assessment. This sample may be qualitatively different from other clinical samples as well as non-clinical samples, and therefore might have limited generalizability.

Finally, another limitation was that the present study utilized behavioral observation data in the assessment process, a practice which certainly is not done in all treatment centers. Consequently, it may be that the results reported are found only in treatment settings in which clinicians do their own behavioral observations. Settings which do not use this technique may rely more heavily on parent and teacher report, and may be more likely to rely on these potentially biased sources of information when making their assessments of ADHD.

Clinical Implications

The results of this study provide some important clinical recommendations which can be used to improve assessment of child behavior problems. First, these results seem to confirm the recommendations of researchers who argue for making parental assessment go hand in hand with child assessment, so that child symptoms can be put in the context of the family functioning. This study suggests that parent symptoms contribute to some of the variability in parent-teacher differences. Such results can be used to remind clinicians to assess parent psychological well-being when evaluating child problems.

However, the results of this study also suggest that the amount of the variability that is related to parental psychological distress may actually be quite limited, and that other variables might play a larger role in parent-teacher differences. Findings concerning parental relationship, for example, which could serve to bias an informant's perception of the child's behavior problems, might suggest that clinicians become sensitive to other factors which could affect rater perceptions of pathology.

Finally, these results provide important information about how much clinicians rely upon other informant's perceptions of attention problems, when making a diagnosis of ADHD. They suggest that clinicians may be critically evaluating the clinical utility of informant data when making a diagnosis of ADHD, and that clinicians rely most heavily on their own observations of pathology, when they are available, rather than on teacher and parent reports. While such findings make intuitive sense, this data provides quantitative information about the degree to which rater perceptions are related to eventual diagnosis of ADHD.

Conclusions

The results of this study provide some important contributions to the research literature concerning assessment of problematic child behavior. First, they suggest that psychological distress appears to be associated with mothers' and fathers' perceptions of elevated child problems relative to teachers. These are important findings since the majority of studies have only looked at maternal disturbance in relation to such differences. These findings add to the literature concerning fathers, parenting, and fathers' perceptions of their children's behavior problems.

Second, this study showed that several demographic variables were not significantly related to parent-teacher differences, leaving open the possibility of other such variables being studied in future research.

Third, these results provide some empirical support concerning the importance of various sources of data that are involved in making a diagnosis of ADHD. They show that clinicians generally rely upon their own observations more than other informant perceptions of children's behaviors, and suggest that parental perceptions, whether biased by their own psychopathology or not, are not significantly related to overall diagnosis. Such results add to both the body of parental symptoms-distortion research as well as research concerning assessment and diagnosis of ADHD.

Finally, in keeping with the recommendations of ADHD researchers, it is important to note that the results of this study apply to a specific sample of ADHD referred children and their parents who were required substantial degrees of motivation to comply with the assessment requirements. Whether such results can generalize to the larger populations of ADHD referred, general clinic referred, or non-clinic referred children and parents is a question that will require further study.

Table 1
Child and Family Demographic Information

	n	%
Child Gender		
Girls	15	22.7
Boys	51	77.3
Child Ethnicity		
Caucasian	52	78.8
African American	11	16.7
Other	1	1.5
Unknown	2	3.0
Family Income		
less than $ 10,000	15	22.7
$ 11,000-20,000	12	18.2
$ 21,000-30,000	10	15.2
$ 31,000-40,000	7	10.6
$ 41,000-50,000	2	3.0
$ 51,000-60,000	5	7.6
Unknown	15	22.7
Parent Current Marital Status		
Single	7	10.6
Married	51	77.3
Unknown	8	12.1
Maternal Education		
Did Not Complete High School	15	22.7
Completed High School	16	24.2
Some College	10	15.2
Completed College	6	9.1
Some Graduate School	1	1.5
Completed Graduate School	1	1.5
Unknown	17	25.8
Paternal Education		
Did Not Complete High School	14	21.2
Completed High School	14	21.2
Some College	9	13.6
Completed College	7	10.6
Some Graduate School	1	1.5
Completed Graduate School	2	3.0
Unknown	19	28.8

Table 1
continued

Child and Family Demographic Information

Maternal Relationship to the Child		
Biological Mother	45	68.2
Adoptive Mother	5	7.6
Foster Mother/Legal Guardian	9	13.6
Step-Mother	0	0
Unknown	7	10.6
Paternal Relationship to the Child		
Biological Father	36	54.5
Adoptive Father	7	10.6
Foster Father/Legal Guardian	5	7.6
Step-Father	7	10.6
Unknown	11	16.7

Table 2
Means, Standard Deviations, and t-test Differences for Parental Self-Reported Psychological Distress on the SCL-90-R

	Mothers	Fathers	t score	p<
Total T Score (GSI)	58.18 (12.48)	56.05 (13.97)	-0.93	.36
Somatization	57.09 (9.11)	55.79 (11.55)	-0.72	.47
Obsessive-Compulsive	58.11 (13.22)	55.62 (13.77)	-1.06	.29
Interpersonal Sensitivity	56.92 (12.60)	55.11 (12.67)	-1.78	.08
Depression	59.56 (11.07)	57.23 (12.30)	-1.15	.25
Anxiety	56.26 (10.50)	54.73 (12.82)	-0.75	.45
Hostility	57.29 (10.84)	55.91 (12.27)	-0.68	.50
Phobic Anxiety	52.45 (10.25)	53.15 (9.82)	0.40	.69
Paranoid Ideation	55.62 (12.35)	56.09 (12.24)	0.22	.83
Psychoticism	55.20 (12.22)	52.59 (10.47)	-1.32	.19

Table 3

Correlations between SCL-90-R Subscale Scores for Mothers and Fathers

	GSI	Obs	Hos	Som	Para	Pho	Dep	Psy	Anx	Int
GSI Score	1.0**	.90**	.79**	.77**	.83**	.64**	.88**	.76**	.80**	.81**
Obsessive-Compulsive	.92**	1.0**	.72**	.60**	.71**	.57**	.82**	.70**	.74**	.76**
Hostility	.89**	.81**	1.0**	.55**	.73**	.51**	.72**	.58**	.61**	.67**
Somatization	.75**	.62**	.61**	1.0**	.64**	.48**	.65**	.55**	.62**	.53**
Paranoid Ideation	.87**	.78**	.82**	.58**	1.0**	.64**	.72**	.74**	.71**	.74**
Phobic Anxiety	.65**	.61**	.52**	.53**	.60**	1.0**	.62**	.53**	.60**	.61**
Depression	.93**	.87**	.84**	.62**	.85**	.67**	1.0**	.68**	.83**	.80**
Psychoticism	.83**	.77**	.78**	.64**	.73**	.66**	.77**	1.0**	.63**	.67**
Anxiety	.89**	.84**	.80**	.71**	.74**	.56**	.83**	.75**	1.0**	.77**
Interpersonal Sensitivity	.87**	.85**	.75**	.65**	.78**	.69**	.80**	.82**	.73**	1.0**

note: correlations for mothers are above the diagonal and correlations for fathers are below the diagonal
* = $p < .01$
** = $p < .001$

Table 4

Child Behavior Measures

	Mean	SD
Mother CBCL T Scores		
Internalizing	63.12	12.36
Externalizing	65.29	11.15
Attention Problems	74.47	9.96
Father CBCL T Scores		
Internalizing	59.37	11.78
Externalizing	63.30	11.49
Attention Problems	71.97	10.41
Teacher CBCL T Scores		
Internalizing	59.61	10.09
Externalizing	63.55	11.22
Attention Problems	70.77	11.78

Table 5

CBCL Means and Standard Deviations for Mothers, Teachers, and Mother-Teacher Rating Differences by Mother Symptoms (low vs. high)

	Internalizing			Externalizing			Attention		
	M	T	T-M	M	T	T-M	M	T	T-M
GSI									
Low	58.16 (12.14)	58.87 (10.06)	0.71 (14.42)	62.13 (10.54)	63.63 (11.78)	1.50 (13.36)	71.12 (9.66)	69.84 (11.71)	-1.32(14.84)
High	69.86 (9.16)	60.61 (10.22)	-9.25 (11.63)	69.57 (10.67)	63.43 (10.64)	-6.14 (9.63)	78.96 (8.65)	72.04 (11.96)	-6.93 (12.02)
Obsessive-Compulsive									
Low	57.88 (11.79)	59.71 (10.10)	1.83 (13.50)	62.17 (11.47)	64.17 (10.79)	2.00 (12.53)	71.44 (9.39)	71.61 (11.69)	0.17 (13.20)
High	71.72 (7.59)	59.44 (10.29)	-12.28(10.33)	70.40 (8.56)	62.52 (12.01)	-7.88 (9.69)	79.44 (8.96)	69.40 (12.04)	-10.04 (12.84)
Hostility									
Low	59.50(12.19)	58.75 (9.99)	-0.75 (14.99)	61.48 (10.76)	62.98 (11.37)	1.50 (12.65)	71.52 (8.96)	69.89 (11.63)	-1.64 (14.40)
High	70.36 (9.26)	61.32 (10.31)	-9.05 (10.41)	72.91 (9.26)	64.68 (11.10)	-8.23 (9.23)	80.36 (9.40)	72.55 (12.13)	-7.82 (12.09)
Somatization									
Low	58.41 (11.07)	58.22 (9.69)	-0.20 14.47)	63.22 (11.92)	63.65 (11.78)	0.43 (12.96)	72.17 (9.00)	69.85 (11.61)	-2.33 (13.85)
High	73.95 (7.40)	62.80 (10.51)	-11.15 (9.85)	70.05 (7.35)	63.30 (10.10)	-6.75 (9.68)	79.75(10.27)	72.90 (12.18)	-6.75 (9.68)
Paranoid Ideation									
Low	59.57 (12.24)	59.06 (10.05)	-0.51 (14.12)	63.13 (11.35)	63.36 (11.40)	0.23 (12.91)	72.45 (9.53)	69.79 (11.31)	-2.66 (14.41)
High	71.89 (7.38)	60.95 (10.34)	-10.95(11.15)	70.63 (8.80)	64.00 (11.06)	-6.63 (9.86)	79.47(9.44)	73.21 (12.86)	-6.26 (12.53)

* note: M indicates mother report, T indicates teacher report, and T-M indicates teacher scores minus mother scores

Table 5
continued

	Internalizing			Externalizing			Attention		
	M	T	T-M	M	T	T-M	M	T	T-M
Phobic Anxiety									
Low	60.92 (12.11)	58.82(9.86)	-2.10 (14.84)	64.06 (11.82)	64.39 (11.31)	0.33 (12.12)	73.16 (9.81)	69.73 (12.08)	-3.43 (15.01)
High	70.60 (10.37)	62.27(10.76)	-8.33 (10.87)	69.47 (7.30)	60.67(10.81)	-8.80 (10.87)	78.93 (9.46)	74.33 (10.26)	-4.60 (9.49)
Depression									
Low	58.85 (11.69)	58.46 (9.99)	-0.38 (14.26)	62.77 (10.80)	63.74 (12.42)	0.94 (13.22)	71.90 (9.86)	70.26(12.42)	-1.64 (15.20)
High	69.30 (10.72)	61.23 (10.19)	-8.04 (12.83)	68.93 (10.81)	63.26 (9.46)	-5.67 (10.21)	78.19 (9.05)	71.52 (10.98)	-6.67 (11.37)
Psychoticism									
Low	59.67 (12.26)	58.58(10.09)	-1.09 (15.22)	63.36 (11.72)	63.64 (11.39)	0.29 (13.31)	72.58 (9.63)	70.00 (11.51)	-2.58 (14.35)
High	70.52 (9.00)	61.81 (9.97)	-8.71 (9.79)	69.43 (8.68)	63.33 (11.13)	-6.10 (9.16)	78.52 (9.66)	72.43 (12.44)	-6.10 (12.86)
Anxiety									
Low	59.54 (11.05)	57.98 (9.87)	-1.57 (14.49)	63.67 (10.36)	63.74 (11.51)	0.07 (12.55)	73.09 (10.25)	69.91 (12.25)	-3.17 (15.37)
High	71.35 (11.43)	63.35 (9.83)	-8.00 (12.41)	69.00 (12.25)	63.10(10.82)	-5.90 (11.41)	77.65 (8.70)	72.75 (10.65)	-4.90 (9.93)
Interpersonal Sensitivity									
Low	59.98 (12.09)	57.35 (10.06)	-2.63 (15.25)	63.35 (10.31)	63.78 (11.32)	0.43 (12.80)	71.93 (10.55)	68.55 (10.86)	-3.38 (15.06)
High	67.96 (11.34)	63.08 (9.23)	-4.88(12.32)	68.27 (11.91)	63.19(11.29)	-5.08 (11.30)	78.38 (7.63)	74.19 (12.52)	- 4.19 (12.15)

* note: M indicates mother report, T indicates teacher report, and T-M indicates teacher scores minus mother scores

Table 6

MANOVA Results for Mother Symptoms and Mother-Teacher CBCL Differences

	n (low)	n (high)	Wilks' Lambda	p <
GSI Score	38	28	3.29	.05
Subscale Scores:				
Obsessive-Compulsive	41	25	7.22	.001
Hostility	44	22	3.43	.05
Somatization	46	20	3.30	.05
Paranoid Ideation	47	19	2.99	.05
Phobic Anxiety	51	15	2.87	.05
Depression	39	27	2.00	.12
Psychoticism	45	21	1.78	.16
Anxiety	46	20	1.55	.21
Interpersonal Sensitivity	40	26	1.31	.28

Table 7

ANOVA Results for Mother Symptoms and Mother-Teacher CBCL Differences

SCL-90-R Subscale	Internalizing	Externalizing	Attention
GSI	$F=9.02$, $p<.01$	$F=6.61$, $p<.01$	$F=2.70$, $p<.11$
Obsessive-Compulsive	$F = 20.08$, $p < .001$	$F = 11.36$, $p < .001$	$F = 9.48$, $p<.01$
Hostility	$F= 5.41$, $p<.05$	$F = 10.25$, $p<.01$	$F = 2.99$, $p<.09$
Somatization	$F = 9.5$, $p<.01$	$F = 4.93$, $p<.05$	$F = 1.49$, $p<.23$
Paranoid Ideation	$F = 8.22$, $p<.01$	$F = 4.33$, $p<.05$	$F = 0.91$, $p<.34$
Phobic Anxiety	$F = 2.31$, $p<.13$	$F = 6.81$, $p<.01$	$F = 0.08$, $p<.78$

Table 8

CBCL Means and Standard Deviations for Fathers, Teachers, and Father-Teacher Rating Differences by Father Symptoms (low vs. high)

	Internalizing			Externalizing			Attention		
	F	T	T-F	F	T	T-F	F	T	T-F
GSI									
Low	54.84 (9.66)	58.47 (10.39)	3.62 (13.42)	60.91 (10.38)	63.89 (10.72)	2.98 (12.77)	68.62 (9.78)	69.56 (11.30)	-0.93 (14.76)
High	69.10 (10.00)	62.05 (9.18)	-7.05 (10.24)	68.43 (12.31)	62.81 (12.48)	--5.62 (9.93)	79.14 (7.89)	73.38 (12.63)	-5.76 (11.63)
Anxiety									
Low	56.24 (10.44)	59.48 (10.48)	3.24 (12.92)	59.61 (9.98)	62.72 (11.22)	3.11 (12.23)	69.22 (10.23)	69.50 (11.57)	0.28 (14.88)
High	66.60 (11.74)	59.90 (9.37)	-6.70 (12.05)	71.80 (10.33)	65.45(11.28)	-6.35 (10.83)	78.30 (7.87)	73.70 (12.02)	-4.60 (11.78)
Interpersonal Sensitivity									
Low	55.71(10.08)	59.17 (9.84)	3.46 (11.95)	61.83 (10.68)	63.79 (10.43)	1.96 (12.69)	69.88 (10.35)	70.63 (10.91)	0.75 (13.41)
High	69.17(10.49)	60.78 (10.94)	-8.39 (13.48)	67.22 (12.93)	62.89 (13.43)	-4.33 (11.12)	77.56 (8.52)	71.17 (14..18)	-6.39 (14.98
Hostility									
Low	55.77 (10.39)	59.19(10.21)	3.41 (12.27)	59.63 (9.76)	62.58 (11.00)	2.95 (11.94)	70.51 (10.41)	69.98 (11.80)	-0.53 (14.59)
High	66.13 (11.43)	60.39 (10.03)	-5.74 (13.60)	70.17 (11.51)	65.35 (11.66)	- 4.83 (12.28)	74.70(10.05)	72.26 (11.84)	-2.43 (13.39))
Psychoticism									
Low	56.83 (10.90)	59.23 (10.36)	2.40 (13.58)	61.64 (10.56)	63.68 (10.60)	2.04 (12.41)	70.04 (10.07)	70.45 (11.09)	0.42 (13.91)
High	69.77 (9.51)	61.15 (9.10)	-8.62 (8.14)	70.08 (13.03)	63.00 (13.96)	-7.08 (10.55)	79.85 (7.98)	72.08 (14.69)	-7.77 (13.47)

* note: F indicates father report, T indicates teacher report, and T-F indicates teacher scores minus father scores

Table 8
continued

	Internalizing			Externalizing			Attention		
	F	T	T-F	F	T	T-F	F	T	T-F
Paranoid Ideation									
Low	56.15 (10.26)	59.13 (9.82)	2.98 (11.93)	61.11 (10.68)	62.55 (11.17)	1.45 (12.73)	70.13 (9.90)	69.66 (10.88)	-0.47 (14.74)
High	67.37 (11.72)	60.79 (10.92)	-6.58 (14.66)	68.74 (11.90)	66.00 (11.27)	-2.74 (11.83)	76.53 (10.48)	73.53 (13.69)	-3.00 (12.60)
Depression									
Low	55.36 (9.95)	58.60(10.37)	3.24 (13.09)	61.07(10.44)	63.20 (10.62)	2.13 (12.54)	68.82(9.73)	68.87(10.64)	0.04 (13.92)
High	68.00 (10.89)	61.76(9.34)	-6.24 (11.89)	68.10 (12.40)	64.29(12.67)	-3.81 (11.79)	78.71(8.58)	74.86 (13.27)	-3.86 (14.36)
Obsessive-Compulsive									
Low	55.50 (10.14)	57.77(10.26)	2.27 (13.68)	60.98 (10.15)	63.45 (10.73)	2.48 (12.45)	69.00 (10.04)	68.91 (11.32)	-0.09 (14.52)
High	67.14 (11.15)	63.27 (8.85)	-3.86 (12.05)	67.95 (12.79)	63.73 (12.42)	-4.23 (11.72)	77.91 (8.57)	74.50 (12.05)	-3.41 (13.30)
Somatization									
Low	57.67 (11.71)	59.04 (10.55)	1.38 (14.03)	61.71 (11.98)	63.56 (10.57)	1.85 (11.90)	70.27(9.79)	69.15 (11.48)	-1.13 (13.86)
High	63.94 (10.99)	61.11 (8.85)	-2.83 (11.30)	67.56 (9.04)	63.50 (13.13)	-4.06 (13.48)	76.50(10.92)	75.11 (11.77)	-1.39 (15.16)
Phobic Anxiety									
Low	57.08 (11.10)	58.96(10.28)	1.88 (12.83)	62.24(11.69)	63.24 (11.27)	1.00 (13.04)	69.98 (10.30)	69.08 (10.80)	-0.90 (13.90)
High	67.20 (10.93)	61.80 (9.41)	-5.40 (14.17)	66.93 (10.33)	64.60 (11.39)	-2.33 (10.63)	78.73 (7.77)	76.53 (13.47)	-2.20 (15.26)

* note: F indicates father report, T indicates teacher report, and T-F indicates teacher scores minus father scores

Table 9

MANOVA Results for Fathers' Symptoms and Father-Teacher CBCL Differences

	n (low)	n (high)	Wilks' Lambda	p <
GSI Score	45	21	3.85	.01
Subscale Scores:				
Anxiety	46	20	3.92	.01
Interpersonal Sensitivity	48	18	3.89	.01
Hostility	43	23	3.83	.01
Psychoticism	53	13	2.96	.05
Paranoid Ideation	47	19	2.73	.05
Depression	45	21	2.72	.05
Obsessive-Compulsive	44	22	1.68	.18
Somatization	48	18	1.40	.25
Phobic Anxiety	51	15	1.36	.26

Table 10

ANOVA Results for Father Symptoms and Father-Teacher CBCL Differences

SCL-90-R Subscale	Internalizing	Externalizing	Attention
GSI	$F=10.41$, $p<.01$	$F=7.40$, $p<.01$	$F=3.34$, $p<.07$
Anxiety	$F=8.58$, $p<.01$	$F=8.91$, $p<.05$	$F=1.69$, $p<.20$
Interpersonal Sensitivity	$F=11.98$, $p<.001$	$F=3.42$, $p<.07$	$F=3.48$, $p<.07$
Hostility	$F=7.74$, $p<.01$	$F=6.24$, $p<.05$	$F=0.27$, $p<.61$
Psychoticism	$F=7.80$, $p<.01$	$F=5.94$, $p<.05$	$F=3.66$, $p<.06$
Paranoid Ideation	$F=7.60$, $p<.01$	$F=1.52$, $p<.22$	$F=0.43$, $p<.51$
Depression	$F=7.95$, $p<.01$	$F=3.34$, $p<.07$	$F=1.10$, $p<.30$

Table 11

Correlations between Ratings of Attention Problems

	M	F	T	C:OT	C:F	C:OS	C:P
Mother	1.0	.71**	.19	.16	.16	-.02	-.08
Father	.71**	1.0	.20	.07	.08	-.13	.03
Teacher	.19	.20	1.0	.25	.15	.14	.11
Clinician: Off Task	.16	.07	.25	1.0	.77**	.64**	.53**
Clinician: Fidgets	.16	.08	.15	.77**	1.0	.38*	.35*
Clinician: Out of Seat	-.02	-.13	.14	.64**	.38*	1.0	.63**
Clinician: Plays with Objects	-.08	.03	.11	.53**	.35*	.63	1.0

note: M indicates Mother ratings
F indicates Father ratings
T indicates Teacher ratings
C:OT indicates Clinician: Off Task ratings
C:F indicates Clinician: Fidgets ratings
C:OS indicates Clinician: Out of Seat ratings
C:P indicates Clinician: Plays with Objects ratings

* $p < .01$
** $p < .001$

References

Achenbach, T.M., & Edelbrock, C.S. (1983). Manual for the Child Behavior Checklist and Revised Behavior Profile. Burlington, VT: University of Vermont, Department of Psychiatry.

Achenbach, T.M., & Edelbrock, C.S. (1986). Manual for the Teacher's Report Form and Teacher Version of the Child Behavior Profile. Burlington, VT: University of Vermont, Department of Psychiatry.

Achenbach, T.M., McConaughy, S.H., & Howell, C.T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant for situational stability. Psychological Bulletin, 101, 213-232.

American Psychiatric Association. (1994). Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition. Washington, DC: American Psychiatric Association.

Arnold, L.E. (1996). Sex differences in ADHD: Conferences summary. Journal of Abnormal Child Psychology, 24(5), 555-567.

Barkley, R.A. (1997). ADHD and the nature of self-control. New York: Guilford Press.

Barkley, R.A. (1991). Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment. New York: Guilford Press.

Barkley, R.A. (1981). Hyperactive children: A handbook for diagnosis and treatment. New York: Guilford Press.

Beck (1983). The Beck Depression Inventory. Philadelphia, P.A.: Center for Cognitive Therapy.

Belsky, J. (1996). Parent, infant, and social-contextual antecedents of father-son attachment security. Developmental Psychology, 32(5), 905-913.

Belsky, J., Crnic, K., & Woodworth, S. (1995). Personality and parenting: Exploring the mediating role of transient mood and daily hassles. Journal of Personality, 63(4), 905-929.

Billings, A.G. & Moos, R.H. (1985). Children of parents with unipolar depression: A controlled 1 -year follow-up. Journal of Abnormal Child Psychology, 14(1), 149-166.

Block, G.H. (1977). Hyperactivity: A cultural perspective. Journal of Learning Disabilities, 110, 236-240.

Boleovsky, Z.& Horvath, M. (1974). The SCL-90 rating scale: First experience with the Czech version in healthy male scientific workers. Archives of the Nervous Super, 974(16), 115-116.

Breslau, N., Davis, G., & Prabucki, K. (1988). Depressed mothers as informants in family history research - Are they accurate? Psychiatry Research, 24, 345-359.

Brown, S.L., Schwartz, G.E., & Sweeny, G.R. (1978). Dissociation of self-reported and observed pleasure in depression. Psychosomatic Medicine, 40(7), 536-548.

Conrad, M. & Hammen, C. (1989). Role of maternal depression in perceptions of child maladjustment. Journal of Consulting and Clinical Psychology, 57(5), 663-667.

Costello, E.J., & Edelbrock, C.S. (1985). Detection of psychiatric disorders in pediatric primary care: A preliminary report. Journal of the American Academy of Child and Adolescent Psychiatry, 24(1), 771-774.

Culbertson & Krull. (1995). Attention deficit hyperactivity disorder. The Child Clinician's Handbook.

Derogatis, L.R. (1993). The Symptom Checklist-90-R. Minneapolis, MN: National Computer Systems.

Derogatis, L.R. (1992). SCL-90-R Administration, Scoring, and Procedure Manual. Towson, MD: Clinical Psychometric Research.

Derogatis, L.R., Rickels, K., & Rock, A. (1976). The SCL-90-R and the MMPI: A step in the validation of a new self-report scale. British Journal of Psychiatry, 128, 280-289.

Downey, G. & Coyne, J.C. (1990). Children of depressed parents: An integrative review. Psychological Bulletin, 108(1), 50-76.

Dulcan, M. & Benson, R.S. (1997). Summary of the practice parameters for the assessment and treatment of children, adolescents, and adults with ADHD. Journal of the American Academy of Child and Adolescent Psychiatry, 36(9), 1311-1317.

Dumas, J.E. & Serketich, W.J. (1994). Maternal depressive symptomatology and child maladjustment: A comparison of three process models. Behavior Therapy, 25, 161-181.

Emery, R., Weintraub, S., & Neale, J. (1982). Effects of marital discord and divorce. Psychological Bulletin, 92, 310-330.

Fergusson, D.M., Lynskey, M.T., & Horwood, L.J. (1993). The effect of maternal depression on maternal ratings of child behavior. Journal of Abnormal Child Psychology, 21(3), 245-269.

Friedlander, S., Weiss, D.S., & Traylor, J. (1986). Assessing the influence of maternal depression on the validity of the child behavior checklist. Journal of Abnormal Child Psychology, 14(1), 123-133.

Garry, L.L. (1991). The parent's part in the process. In Play Therapy: The Art of the Relationship. Bristol, PA: Excellerated Development Inc.

Gaub, M. & Carlson, C.L. (1997). Gender differences in ADHD: A meta-analysis and critical review. Journal of the American Academy of Child and Adolescent Psychiatry, 36(8), 1036-1045.

Gelfand, D.M. & Teti, D.M. (1990). The effects of maternal depression on children. Clinical Psychology Review, 10, 329-353.

Hammen, C., Adrian, C., Gordon, D. Burge, D., Jaenicke, C., & Hiroto, D. (1987). Children of depressed mothers: Marital strain and symptom predictors of dysfunction. Journal of Abnormal Psychology, 96(3), 190-198.

Hodgens, B. (1998). Personal communication. Norms obtained from a sample of 2000 children and adolescents in Birmingham, Alabama.

Hops, H., Sherman, L., & Biglan, A. (1987). Maternal depression, marital discord, and children's behavior. Paper presented at the meeting of the Society for Research in Child Development, Baltimore.

Ivens, C. & Rehm, L.P. (1988). Assessment of childhood depression: Correspondence between reports by child, mother, and father. Journal of the American Academy of Child and Adolescent Psychiatry, 27(6), 738-741.

Jensen, P.S., Traylor, J., Xenakis, S.N., & Davis, H. (1988). Child psychopathology rating scales and interrater agreement: I parents' gender and psychiatric symptoms. Journal of the American Academy of Child and Adolescent Psychiatry, 27(4), 407-417.

Johnson, C. (1997). Attributions for child behavior in parents of children without behavioral disorders and ADHD. Journal of Consulting and Clinical Psychology, 65(4), 636-645.

Kasdin, A.E. & Heidish, I.E. (1984). Convergence of clinically derived diagnoses and parent checklists among inpatient children. Journal of Abnormal Child Psychology, 12(3), 421-436.

Lahey, B.B., Piacentiti, J.C., McBurnett, Stone, P., Hardagen, S., & Hynd, G. (1987). Psychopathology in the parents of children with conduct disorder and hyperactivity. Journal of the American Academy of Child and Adolescent Psychiatry, 27(2), 163-170.

Lampert, A. & Friedman, A. (1992). Sex differences in vulnerability and maladjustment as a function of parental investment; An evolutionary approach. Social Biology, 39(1-2), 65-81.

Landau, S. & Burcham, B.G. (1995). Best practices in the assessment of children with attention disorders. In A. Thomas and J. Grimes (Eds.), Best Practices in School Psychology, III. Washington, D.C.: National Association of School Psychologists.

Lavori, P.W., Keller, M.B., Beardslee, W.R. & Dorer, D.J. (1988). Affective disorder in childhood: Separating the familial component of risk from individual characteristics of children. Journal of Affective Disorders, 15, 303-311.

Mann, B.J. & Mackenzie, E.P. (1996). Pathways among marital functioning, parental behaviors, and child behavior problems in school-age boys. Journal of Consulting and Clinical Psychology, 25(2), 183-191.

Mash, E.J. & Johnston, C. (1983). Parental perceptions of child behavior problems, parenting self-esteem, and mothers' reported stress in younger and older hyperactive children. Journal of Consulting and Clinical Psychology, 51(1), 86-99.

Modele, J. & Hodgens, B. (1997). Specificity of relationships between maternal psychopathology, maternal ratings of child behavior, and criterion ratings of child behavior. Unpublished Master's thesis.

Moss, H.B., Mezzich, A., Yao, J.K., Gavaler, J., & Martin, C.S. (1995). Aggressivity among sons of substance abusing fathers: Association with psychiatric disorder in the father and son, paternal personality, pubertal development, and socio-economic status. American Journal of Drug and Alcohol Abuse, 21(2), 195-208.

Olfson, M. (1992). Diagnosing mental disorders in office-based pediatric practice. Journal of Development and Behavioral Pediatrics, 13, 363-365.

Ozer, E. (1995). The impact of childcare responsibility and self-efficacy on the psychological health of professional working mothers. Psychology of Women Quarterly, 19(3), 315-335.

Panaccione, V.F., & Wahler, R.G. (1986). Child behavior, maternal depression, and social coercion as factors in the quality of child care. Journal of Abnormal Child Psychiatry, 14, 263-278.

Paternite, C.E., Loney, J., & Roberts, M.A. (1995). External validation of oppositional disorder and attention deficit disorder with hyperactivity. Journal of Abnormal Child Psychology, 23(4), 453-471.

Parke, R. (1995). Father and families. In M. Bornstein (Ed.), Handbook of Parenting (Vol. 3, pp.27-63). Hillsdale, NJ: Erlbaum.

Richters, J.E. (1992). Depressed mothers as informants about their children: A critical review of the evidence for distortion. Psychological Bulletin, 112(3), 485-499.

Richters, J.E. & Pellegrini, D. (1989). Depressed mothers' judgments about their children: An examination of the depression- distortion hypothesis. Child Development, 60, 1068-1075.

Rickard, K.M., Forehand, R., Wells, K.C., Griest, D.L., & McMahon, R.J. (1981). Behavior Research and Therapy, 19, 210-205.

Sanger, M.S., MacLean, W.E., & Van Slyke, D.A. (1992). Relations between maternal characteristics and child behavior ratings. Clinical Pediatrics, 31(8), 461-466.

Schaughency, E.A., & Lahey, B.B. (1985). Mothers and fathers perceptions of child deviance: Roles of child behavior, parental depression and marital satisfaction. Journal of Consulting and Clinical Psychology, 53, 718-723.

Still, G.F. (1902). Some abnormal physical conditions in children. Lancet, i, 1008-1012.

Webster-Stratton, C. (1988). Mothers' and fathers' perceptions of child deviance: roles of parent and child behaviors and parent adjustment. Journal of Consulting and Clinical Psychology, 56(6), 909-915.

Webster-Stratton, C. & Hammond, M. (1988). Maternal depression and its relationship to life stress, parenting behaviors, and child conduct problems. Journal of Abnormal Child Psychology, 16(3), 299-315.

Weissman, M.M., Gammon, D., Merikangas, K.R., Warner, K., Prusoff, B. & Sholomskas, D. (1987). Children of depressed parents. Archives of General Psychiatry, 44, 747-753.

Weissman, M.M., Pottenger, M., Kleber, H., Rubin, H., Williams, D., & Thompson, W.D. (1977). Symptom patterns in primary and secondary depression: A comparison of primary depressives with depression in opiate addicts, alcoholics, and schizophrenics. Archives of General Psychiatry, 34, 854-862.

Weissman, M.M., Prusoff, B.A., Gammon, D., Merikangas, K.R., Leckman, J.F., & Kidd, K.K. (1984). Psychopathology in the children (ages 6-18) of depressed and normal parents. Journal of the American Academy of Child and Adolescent Psychiatry, 23(1), 78-84.

Weissman, M.M., Stobetz, F., Prusoff, B., Mezritz, M., & Howard, P. (1976). Clinical depression among narcotic addicts maintained on methadone in the community. American Journal of Psychiatry, 133(12), 1434-1439.

Wolraich, M.L., Hannah, J.N., Pinnock, T.Y., Baumgaertel, A., & Brown, J. (1996). Comparison of diagnostic criteria for attention-deficit hyperactivity disorder in a county-wide sample. Journal of the American Academy of Child and Adolescent Psychiatry, 35(3), 319-324.

Yogman, M.W., Kindlon, D., & Earls, F. (1994). Father involvement and cognitive/behavioral outcomes of preterm infants. Journal of the American Academy of Child and Adolescent Psychiatry, 34(1), 58-66.

Zahn-Waxler, C., Mayfield, A., Radke-Yarrow, M., McKnew, D., Cytryn, L., & Davenport, Y. (1988). A follow-up investigation of offspring of parents with bipolar disorder. American Journal of Psychiatry, 145, 506-509.

Appendix A: Data Collection Sheet

Parental Symptoms and Child Behavior Problems Study
Data Collection Sheet

1. Data Sheet #: ____________

2. Child's Age: ____________years

3. Child's Gender:
   1. male
   2. female

4. Child's Ethnicity:
   1. Caucasian
   2. African-American
   3. Other

5. Parent's Marital Status:
   1. single/ not married
   2. married

6. Parent's Income:
   1. $ 0 - 10,000
   2. $ 11-20,000
   3. $ 21-30,000
   4. $ 31-40,000
   5. $ 41-50,000
   6. greater than $ 50,000

7. Maternal Education:
   1. some high school
   2. completed high school
   3. some college
   4. completed college
   5. some graduate school
   6. completed graduate school

8. Paternal Education:
   1. some high school
   2. completed high school
   3. some college
   4. completed college
   5. some graduate school
   6. completed graduate school

9. Maternal Relationship:
   1. biological mother
   2. adoptive mother
   3. foster mother/legal guardian
   4. step-mother
   5. other

10. Paternal Relationship:
    1. biological father
    2. adoptive father
    3. foster father/legal guardian
    4. step-father
    5. other

11. Maternal Perceptions of Behavior Problems (Mo-CBCL Subtest scores)
    1. Internalizing T Score: ____________
    2. Externalizing T Score: ____________
    3. Attention Problems T Score: ____________

12. Paternal Perceptions of Behavior Problems (Fa-CBCL Subtest scores)
    1. Internalizing T Score: ____________
    2. Externalizing T Score: ____________
    3. Attention Problems T Score: ____________

13. Teacher Perceptions of Behavior Problems (Teach-CBCL Subtest scores)
    1. Internalizing T Score: ____________
    2. Externalizing T Score: ____________
    3. Attention Problems T Score: ____________

14. Child Behavior Observation Scores:
    1. Off Task: ____________
    2. Fidgeting:: ____________
    3. Plays with objects ____________
    4. Out of Seat: ____________

15. Child Diagnosis:

    ____

16. Maternal Symptoms (Mo-SCL-90-R):
    1. Total T Score: ____________
    2. Somatization T Score: ____________
    3. Obsessive Compulsive T Score: ____________
    4. Interpersonal Sensitivity T Score: ____________
    5. Depression T Score: ____________
    6. Anxiety T Score: ____________
    7. Hostility T Score: ____________
    8. Phobic Anxiety T Score: ____________
    9. Paranoid Ideation T Score: ____________
    10. Psychotism T Score: ____________

17. Paternal Symptoms (Fa-SCL-90-R):
    1. Total T Score: ____________
    2. Somatization T Score: ____________
    3. Obsessive Compulsive T Score: ____________
    4. Interpersonal Sensitivity T Score: ____________
    5. Depression T Score: ____________
    6. Anxiety T Score: ____________
    7. Hostility T Score: ____________
    8. Phobic Anxiety T Score: ____________
    9. Paranoid Ideation T Score: ____________
    10. Psychotism T Score: ____________

IMAGE EVALUATION TEST TARGET (QA-3)

150mm

6"