ABSTRACT

Title of Document: BIG FIVE PERSONALITY AND PARENTING BEHAVIOR IN MOTHERS OF CHILDREN WITH ADHD

Tana L. Clarke, M.A., 2006

Directed By: Assistant Professor Andrea M. Chronis, Department of Psychology

The present study explored the relationship between Big Five personality dimensions and both observed and self-reported parenting behavior in mothers of children with ADHD. Sixty-nine mothers of children with ADHD completed measures of personality and parenting behavior; fifty-seven of these mother-child dyads were included in analyses of parenting during a parent-child interaction task. Findings indicated that maternal Neuroticism was positively related to self-reported inconsistent discipline. Maternal Conscientiousness was negatively related to poor monitoring/supervision and positively related to involvement and positive parenting. In terms of observed parenting, maternal personality did not predict overall responsiveness, however, the sub-dimensions of responsiveness demonstrated consistent relationships to maternal Openness and Conscientiousness. Interactions between personality dimensions were explored, but did not contribute significantly to the overall model of maternal personality and parenting. Implications and future directions of these findings are discussed.

BIG FIVE PERSONALITY AND PARENTING BEHAVIOR IN MOTHERS OF CHILDREN WITH ADHD

By

Tana L. Clarke

Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Master of Arts
2006

Advisory Committee:
Assistant Professor Andrea M. Chronis, Chair
Associate Professor Carl W. Lejuz
Professor Nathan A. Fox

Table of Contents

List of Tables

Introduction

Perhaps more so than most, the parent of a child with Attention-Deficit/Hyperactivity Disorder (ADHD) faces unique challenges in the parental role. Children with ADHD are characterized by significant symptoms of inattention, hyperactivity and impulsivity. Therefore, children with ADHD often struggle in academics, have difficulty socializing with their peers, spend long nights working to finish their homework, and receive disciplinary action as a result of their impulsive behavior. Consequently, these problems place significant stress on the parents of these children (Fischer, 1990). In fact, existing literature points to significantly higher role-specific distress in mothers of children with ADHD as compared to mothers of control children (Podolski & Nigg, 2001).

Considering Parenting in Families of Children with ADHD

Related to the distress seen in parents of children with ADHD are the differences in parenting observed in this population. As compared to mothers of non-disordered children, mothers of children with ADHD exhibit more negative parenting behavior (DuPaul et al., 2001). Additionally, research indicates that a reduction in negative parenting behavior mediates the improvement seen in children's social skills and disruptive behavior during treatment (Hinshaw et al., 2000). This evidence lends itself to the idea that parenting is a malleable behavior that can be manipulated for child treatment purposes. Further, positive parenting in young children has demonstrated a predictive relationship for decreased conduct problems eight years later (Chronis et al., in press). So while parenting of children with ADHD is often more negative, positive parenting is protective in the development of co-occurring antisocial behavior. Taken together, these

data provide convincing evidence warranting further investigation into the causes and correlates of parenting behavior in parents of children with ADHD.

Parenting in mothers of children with ADHD differs from parenting in mothers of non-disordered children in several important ways. For example, in comparing mother-child interactions of hyperactive and normal boys, Mash and Johnston (1982) found that mothers of hyperactive children tended to be more directive and negative during observed play than mothers of controls. This is a finding that has been replicated several times over (Cunningham & Boyle, 2002). It is important to note here the bi-directional influence of child behavior with parent behavior. This is the concept that both child and parental factors influence disrupted parent-child interactions in an interactive and reciprocal fashion (Patterson, 1982). Specifically, parental factors (i.e., psychopathology, stress) may influence negative parenting (Lovejoy et al., 2000; Murray & Johnston, 2006), which can shape child behavior (Hinshaw et al., 2000). Likewise, child behavior can causally affect parental factors and parenting (Fischer, 1990). For example, child confederates displaying externalizing behavior were shown to exacerbate parental stress in interactions between parents and child confederates (Pelham et al., 1997). These negative interactions were also shown to trigger feelings of role inadequacy, depression, anxiety, and hostility in parents (Pelham et al., 1997). This negative family cycle should be taken into account when observing and interpreting parent-child interactions in families of children with ADHD.

Additionally, the complex nature of parenting should be acknowledged. Traditionally, observational parenting studies have examined parenting as discrete behaviors; however, recent work suggests that it may be more relevant to look at *patterns*

of caregiving rather than specific parenting behaviors (Rothbaum & Weisz, 1994). In other words, it is important to look at *quality* of parenting rather than just frequency or quantity. In a meta-analysis designed to clarify inconsistencies in the parenting literature, Rothbaum and Weisz (1994) found that the strongest parent-child associations occurred when observing parenting patterns or combinations of behavior as opposed to single parenting behaviors. One such parenting pattern is maternal responsiveness. The construct of responsiveness originated out of the recognition of the importance of looking at multidimensional parenting styles in addition to discrete parenting behavior. The theoretical origins of this construct also recognize the importance of the complex interplay between parent and child. One of the earliest definitions of responsiveness was conceptualized as the type and frequency of maternal responses to child bids for social interaction (Martin, Maccoby, & Jacklin, 1981) or the intensity with which a mother adjusts her behavior in response to the child's interactive intensity. This construct was borne out of developmental research examining maternal interactions with their infants and has been adapted for use in samples of school-age children. A responsive mother can be characterized as one who is observant and sensitive to her child's emotional, cognitive, developmental, and situational needs and uses problem solving and a non-directive style of parenting to aid her child in contextual demands. However, if the situation calls for a higher level of control, a responsive mother will adapt her parenting to these changes. Responsiveness has most recently been defined in terms of authoritative control, sensitivity, responsiveness, positive affect, acceptance of child, and involvement with child (Johnston et al., 2002).

Rothbaum and Weisz developed an overall acceptance-responsiveness dimension through a meta-analysis of cross-sectional data which incorporated several parenting patterns. This dimension was found to be highly related to child externalizing behavior (Rothbaum & Weisz, 1994). Recent evidence clarifies this relationship with findings that global parenting constructs such as maternal responsiveness are uniquely associated with conduct problems in children with ADHD (Seipp & Johnston, 2005; Wakschlag and Hans; 1999; Lindahl; 1998; Johnston et al., 2002). Therefore responsiveness is quite relevant in the population of children with ADHD who are at risk for the development of additional conduct problems.

Mash and Johnston (1982) found mothers of hyperactive children to be less responsive to child-initiated interactions. These mothers of hyperactive children were also less interactive and approving, even when the observers judged the children to be acting appropriately. Mothers of hyperactive children also rated their children as having marked behavioral disturbance; however, independent observers did not rate the child as having such severe behavior problems. This raises questions as to the role of individual differences in mothers' reactions to or perceptions of their child's behavior. Perhaps characteristics external to the child's behavior, such as maternal personality or psychopathology, may play a role in the parenting observed during these interactions.

Correlates of Parenting Behavior: Examining Maternal Psychopathology vs. Personality

We know that parents of children with ADHD experience more stress and engage in more negative parenting behavior than parents of non-disordered children (for a review, see Johnston & Mash, 2001). While recognizing the bi-directional influence of

child behavior and parenting, part of the reason for this difference in parenting is likely due to individual differences in parents themselves. Individual differences in parenting among mothers of children with ADHD have traditionally been studied in terms of maternal psychopathology (e.g., maternal depression). Indeed, psychological disorders exist at higher levels in parents of children with ADHD (Chronis et al., 2003; Nigg & Hinshaw, 1998), thus adding to an already complex and difficult family situation. The relationship between parental psychopathology and child behavior problems is, at least in part, accounted for by genetic heritability (Sprich et al., 2000; Faraone et al., 1999). However, there is some evidence to suggest that this relationship may be partially mediated by maladaptive parenting behavior (Johnston et al., 2001; Rhule, McMahon, & Spieker, 2004). So in asking the question of why parenting differs in families of children with ADHD, an important first step is examining the psychological characteristics of these parents.

The increase in parental psychopathology evident in parents of children with ADHD is particularly pronounced in parents of children with comorbid Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD; Chronis et al., 2003). Comorbidity rates indicate that many children with ADHD have comorbid ODD or CD (Jensen, Martin & Cantwell, 1997), and rates can be as high as 93% (Bird et al., 1993). This increased risk for psychological disorders in parents may be due to genetic heritability or may be due to the increased stress often experienced by parents of children with externalizing behavior problems. In terms of specific psychological disorders, parents of children with ADHD alone exhibit higher levels of ADHD themselves, while mood and anxiety disorders present more in parents of children with ADHD plus comorbid

ODD/CD (Chronis et al., 2003). Furthermore, Faraone and Biederman (1997) explain that there is an elevated risk of depression in ADHD families and this link becomes stronger when antisocial disorders also are present. These studies suggest that it is important to consider the role of parental depression, ADHD, and personality disorders when researching parenting in families of children with ADHD.

Whereas psychopathology in parents of ADHD children is relatively higher than in parents of normal children, researchers should remain cognizant of the fact that there still exist many, and perhaps a majority, of parents of children with ADHD who do not exhibit clinical levels of psychopathology (Chronis et al., 2003, Nigg & Hinshaw, 1998). For example, Chronis and colleagues (2003) found that 13.4 % of mothers of children with ADHD-only had current anxiety or depression, and 20.9 % of mothers of children with ADHD plus ODD/CD had current anxiety or depression. While these numbers do not take into account other forms of parental psychopathology, there still exists a substantial portion of mothers of children with the most severe behavior problems that do not meet diagnostic criteria for clinical disorders. Since the rate of clinical psychopathology exists in only a minority of parents of children with ADHD, rather than restricting analyses to categorical diagnoses that are found only in extreme populations, a dimensional model of personality allows for a more inclusive analysis of the correlates of parenting behavior.

Even in the absence of diagnosable psychological disorders, many parents still seem to have difficulties managing the task of parenting a child with ADHD (Johnston & Mash, 2001). While disruptive child behavior indeed contributes to parental challenges, individual differences in response to a difficult child may help explain the parenting

difficulties evidenced in parents of children with ADHD. While evidence is accumulating regarding the relationship between parental psychopathology and parenting, constructs such as parental personality may contribute uniquely to parenting behavior. Consistent with this idea, Nigg and Hinshaw (1998) found that parental personality and psychopathology contributed differentially to the prediction of child behavior. It follows that parental personality constructs may make distinctive contributions to parenting behavior as well.

Before we ask how parent personality is related to parenting behavior, we must ask why these constructs may be related. One of the first theorists to begin to answer this question was Belsky (1984) when, although he acknowledged that parenting is multiply determined, he proposed a model whereby the psychological resources of the parent were the most influential in buffering the parent-child relationship from stress. Under this model, contextual sources of stress and social support have a direct influence on parenting; however, parent personality traits are related to the type of contextual support that is available to the parent. Personality may also influence how individuals utilized this support and respond and adapt to stressful situations. Therefore parent personality not only has a unique and direct influence on parenting behavior, but it also shapes external familial factors such as the marital relationship, financial situation, and social support network. Parent personality may also affect how a parent responds to stressful situations such as having a child with behavior problems.

Measurement Issues

Traditionally, personality research has suffered from inadequate and inconsistent measurement of personality constructs. In recent years, investigators have moved toward

relying consistently on the comprehensive five factor model of personality (FFM; Costa & McCrae, 1995). Empirical support for the FFM is extensive, including convergent and discriminant validation across self, peer, and spouse ratings (Costa & McCrae 1988) and temporal stability across 7-10 years (Costa & McCrae, 1994). Although there exist a variety of different models of personality, ranging from three factors (Eysenck & Eysenck, 1975), five factors (Digman, 1990), seven factors (Coniger, Svrakic, Bayon, & Przybeck, 1999), to 16 factors (Cattell et al., 1970), the FFM model has emerged with general expert consensus. Originally derived from lexical research of the words in the English language best suited to describe personality functioning, the Big Five model is a simple, yet comprehensive model consisting of the five traits of Surgency, Agreeableness, Conscientiousness, Emotional Stability, and Intellect. Costa and McCrae (1995) then developed contextual theories of heritability and biology from the Big Five and delineated the FFM, which consists of the personality factors of Neuroticism (i.e., anxious, hostile, depressed), Extraversion (i.e., warm, active, assertive), Openness to Experience (i.e., artistic, imaginative, curious), Agreeableness (i.e., trusting, altruistic, modest), and Conscientiousness (i.e., orderly, self- disciplined, achievement-oriented) (McCrae & John, 1992). Although the Big Five model and the FFM are conceptually distinct, the FFM originated from the Big Five and therefore the terms are often used interchangeably. Due to the considerable empirical support for the model, and because of the more extensive evidence linking this model to psychopathology, the following review will focus on the FFM. However, it is important to note that research looking at the construct of parenting has suffered from similar measurement problems.

It is often the case that investigators conceptualize parenting differently, leaving it difficult to synthesize findings across different measurement modalities. Some developmental research in non-clinical populations has focused on maternal report of parenting style (Metsapelto & Pulkkinen, 2003), while others examine the observed relationship of mother and child (Kochanska, Friesenborg, Lange, & Martel, 2004), and still others look at observed parenting patterns such as responsiveness (Clark, Kochanska, & Ready, 2000). Most importantly, investigators in the developmental literature have varied in their use of self-report and observational measures of parenting. Different advantages exist to obtaining self-report and observed parenting measures. While self-report parenting scales provide information about parenting that occurs outside of the contrived research setting, investigators must be aware of the potential biases that may be present when reporting parenting behavior. Observational measures can give rich objective data and should be combined with self-report measures whenever possible to obtain multifaceted information regarding parenting practices. A multi-method approach, using both self-report and observed parenting to collecting parenting data enables a more complete interpretation of the constructs of interest.

What Do We Know About Parenting?

Research looking at parental psychological correlates of parenting can be divided into two literatures: psychopathology and personality. Convention in the literature looking at parenting in child clinical populations is to explore the role of parental psychopathology, while research in non-clinical populations of children has explored parental personality as well. Recent evidence suggesting that clinical disorders such as depression, ADHD, and Antisocial Personality Disorder (APD) may represent extreme

ends of a normal continuum of personality traits (Harkness et al., 2002; Nigg et al., 2002; Lynam & Widiger, 2001) can provide a link between studies in clinical and non-clinical populations by allowing us to look at both populations along a continuum. This line of investigation in personality research has focused on the FFM. Because of research linking the FFM to clinical disorders, these traits provide a useful construct from which to extrapolate evidence between parenting and both psychopathology and personality. Associations between parental psychopathology and parenting can provide a context for developing hypotheses of relationships between personality and parenting in mothers of children with ADHD.

Depression and Parenting. Children with ADHD often exhibit challenging behavior making parenting a difficult task. The combination of disruptive behavior on the part of the child and increased rates of maternal depression among mothers of children with ADHD creates an environment where higher negative parenting strategies may be used in mother-child interactions. Chi and Hinshaw (2002) found that maternal depressive symptoms were associated with self-reports of negative discipline strategies in mothers of children with ADHD. This association remained even after controlling for child behavior.

In a meta-analysis of literature examining maternal depression and observed parenting behavior in non-clinical populations, Lovejoy et al. (2000) found that maternal depression was most strongly associated with negative parenting behavior and to a lesser degree, disengagement with her child. The relationships of depression with these types of parenting behaviors were largest for mothers with current depression relative to mothers with prior episodes. However, associations between prior episodes of depression and

current parenting in this meta-analysis point to possible residual effects of past depression on parenting. There is considerable literature looking at current depression and parenting, however less is known about mothers who are in remission or who may develop depression later on. Constructs such as personality dimensions are more enduring (Costa & McCrae, 1994) and are also related to remitted depression and risk for future depression (Angst & Clayton, 1986; Maier et al., 1992). Therefore, personality may be one way to explore parenting correlates in mothers who exhibit sub-clinical levels of psychopathology or a propensity for psychopathology.

One of the strongest links between personality factors and psychopathology is the link between Neuroticism and depression. Neuroticism has been shown to have a pathogenic effect on depression (Angst & Clayton, 1986) and is also elevated in remitted depressives (Maier et al., 1992). Elevations in Neuroticism are also related to a poor-long term outcome of depressed patients (Reich & Vasile, 1993). Despite criticisms that Neuroticism and depression are related because of shared factors, research indicates that Neuroticism contains components above and beyond those related to depressive symptomatology (Duggan et al., 2003). Similarly, depression has demonstrated a positive relationship with Neuroticism and a negative relationship with Extraversion, suggesting that it may be the combination of these two traits that is most related to depression (Chioqueta & Stiles, 2005).

One of the most consistent findings in this literature is that high levels of Neuroticism are related to less adaptive parenting practices as a whole (Belsky, Crnic, & Woodworth, 1995; Metsapelto & Pulkkinen, 2003; Spinath & O'Connor, 2003). In fact, in a non-clinical sample Metsapelto and Pulkkinen found that parents high in Neuroticism

were lower in reported parental nurturance and knowledge about their child's activities. In non-clinical samples, elevated Neuroticism has also been associated with self-reported parental rejection of their child (Spinath & O'Connor, 2003), lower observed sensitivity and cognitive stimulation, higher observed negative affect and intrusiveness with infants (Belsky et al., 1995), increased observed power assertion, and lower responsiveness with infants (Clark et al., 2000). However, not all of the dimensions of personality are as consistently associated with parenting.

While Neuroticism is often considered to be representative of negative emotionality, Extraversion has been likened to positive emotionality. Belsky, Crnic, and Woodworth (1995) found that more extraverted mothers were observed to display more positive affect, sensitivity, and cognitive stimulation during interactions with their young, non-disordered sons. Similarly, Metsapelto and Pulkkinen (2003) found Extraversion measured at parental age 33 to be strongly associated with reported parental nurturance at age 36. However, other studies found no relationship between Extraversion and parenting measures (Clark, Kochanska, and Ready, 2000; Spinath & O'Connor, 2003; Kochanska, Friesenborg, Lange, & Martel, 2004). However, these findings were looking at parent-infant relationships, as opposed to parental interactions with older children. Because of differences in conceptualizing and measuring parenting in these studies, it is difficult to determine the source of this variation in findings. Although Extraversion is usually associated with adaptive parenting behaviors, this factor has in some studies demonstrated a positive relationship with observed parental power assertion with infants and toddlers (Kochanska, Clark, & Goldman, 1997, Clark, Kochanska, & Ready, 2000). Interestingly, Extraversion is a multifaceted measure containing both aspects of warmth

and assertiveness. It is perhaps the aspect of assertiveness evident in this trait that is reflected in more assertive behavior found on the part of a parent (Clark et al., 2000). The relationship between personality and psychopathology may shed light on these inconsistencies as well. As noted above, depression is related to both high levels of Neuroticism and low levels of Extraversion (Chioqueta & Stiles, 2005). It may be that the interaction between these two personality traits may produce the strongest and most consistent relationships to parenting.

Preliminary evidence suggests that Openness to Experience is also related to depression. Wolfenstein and Trull (1997) found that Openness to Experience contributed additional variance to depression scores, above and beyond the contribution of Neuroticism and Extraversion. One of the most neglected traits in research looking at parenting is Openness to Experience, but recent evidence relates this factor to self-report measures of parenting. Mothers of non-disordered children who reported low levels of Openness were high in over-protectiveness (Spinath & O-Connor, 2003). Along these same lines, in a non-clinical population, Openness was negatively related to restrictiveness and positively related to parental nurturance in a study by Metsapelto and Pulkkinen (2003).

ADHD and Parenting. With the recent research efforts directed at understanding adult ADHD, investigators have turned their attention to the effect this disorder has on the tasks of parenting. Given that estimates of the heritability of ADHD are around 75% (Spencer et al., 2002), we can expect a high rate of ADHD in parents of children with ADHD. In fact, Chronis and colleagues found that mothers of children with pure ADHD (i.e., in the absence of ODD/CD) were 24 times more likely to have had childhood

ADHD themselves (2003). In a study by Biederman and colleagues (1995), 57% of parents with ADHD had children with ADHD, indicating that parental ADHD alone is associated with increased behavior problems in children.

It has been suggested that the aspects of inattention and mood lability in ADHD may have an important influence on parenting (Weiss et al., 2000). For example, parents may find it difficult or boring to monitor their child because of their inattention and distractibility. Parents may also react emotionally to their child's misbehavior in turn escalating the situation rather than soothing the child (Weiss et al., 2000). In fact, Murray and Johnston (2006) found that mothers of children with ADHD who had ADHD themselves were poorer at monitoring their child's activities and were less consistent in their discipline practices. In a case study, Evans, Vallano, and Pelham (1994) discuss how a mother's ADHD symptoms made it difficult for her to monitor and manage her son's ADHD.

Furthermore, literature suggests that ADHD symptoms can be conceptualized as normal personality traits that become pathological at relatively high levels (Marsh & Williams, 2004), and controversies exist regarding the appropriateness of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; APA, 2000) ADHD criteria for adults (McGough & Barkley, 2004). Therefore, using a dimensional model of personality may provide useful information as to the relationship between ADHD characteristics and parenting. Indeed, the FFM personality dimensions have demonstrated consistent relationships to ADHD symptoms in adults (Nigg et al., 2002; Parker, Majeski, & Collin, 2004). These data indicate an inverse relationship between Agreeableness and hyperactive/impulsive ADHD symptoms, and between Conscientiousness and ADHD

inattentive symptomatology. Neuroticism is also positively related to both inattentive and hyperactive/impulsive ADHD symptoms.

Kochanska et al. (2004) found that maternal Conscientiousness predicted the observed "executive aspect of parenting" with infants, meaning a consistent and sustained manner of monitoring the child. Conscientiousness was also found above all other personality traits to be predictive of observed maternal responsiveness toward their infants (Clark, Kochanska, and Ready, 2000). Given the relationship between Conscientiousness and ADHD, is likely that mothers low in Conscientiousness may be less consistent in their parenting and have greater difficulty monitoring their child, and this relationship may be enhanced when Neuroticism is high as well. While the literature relating Conscientiousness to parenting is limited, the previously reviewed research looking at ADHD and parenting may enhance this rarely researched area.

Antisocial Behavior and Parenting. While less is known about the relationship between personality disorders and parenting, recent work has been intriguing. In a study looking at mothers' antisocial behavior, parenting, and behavior problems in their sons, Ehrensaft and colleagues (2003) found that maternal APD was associated with self-reported lower monitoring of the child. Interestingly, when the authors controlled for current parenting behavior, the effects of maternal APD on the worsening of boys' behavior were negligible. These results implicate the importance of the relationship between maternal personality disorder on parenting behavior and provide further evidence of the mediating effect of parenting behavior between child and maternal characteristics. In a similar project, Rhule, McMachon and Spieker (2004) examined maternal antisocial behavior (ASB) and observed parenting in relation to child

developmental outcomes over the course of several years. Results also provide evidence for the fact that maternal ASB is directly related to negative parenting, and that maladaptive parenting strongly mediates the relationship between maternal ASB and child externalizing behavior.

Research looking at ASB or APD in parents of children with ADHD is sparse and there is even less work looking at parenting in these families. Perhaps this is due to the relatively low base rates of these psychological conditions in parents, particularly mothers. What we do know is that families in which antisocial disorders such as CD or APD are present in either parent or child tend to have higher rates of children with ADHD (Faraone et al., 1995). Furthermore, children with ADHD and comorbid ODD/CD tend to have higher familial rates of antisocial disorders (Johnston & Mash, 2001). DSM-IV APD tends to exist at clinical levels in only a minority of mothers of children with ADHD (Chronis et al., 2003) and consequently it may be more beneficial to look at a range of parental personality traits that are associated with APD to further understand the role of antisocial traits in parenting behavior.

Evidence linking personality dimensions to personality disorders is quite strong. In fact, emerging research suggests that the language of the FFM can provide the necessary descriptions for most personality disorders, and are similar to expert diagnostic consensus rating a prototypical personality disorder on dimensions of the FFM (Lynam & Widiger, 2001; Miller, Reynolds, & Pilkonis, 2004; Miller, Lynam, Widiger, & Leukefeld, 2001). In these studies APD has consistently emerged as producing reliable agreement between expert consensus and FFM descriptions. Of the five overall personality dimensions, data suggest that low Agreeableness and low Conscientiousness

are considered characteristics of APD (Lynam & Widiger, 2001). These data point to a conceptualization of APD as extreme variants of a normal continuum of personality dimensions.

As mentioned above, Conscientiousness is related to the executive aspects of parenting, as well as responsiveness (Kochanska et al., 2004; Clark, Kochanska, and Ready, 2000). In terms of Agreeableness, evidence is limited but Agreeableness did exhibit a trend towards predicting responsiveness in one study (Clark, Kochanska, and Ready, 2000). Also, Belsky and colleagues reported that mothers high in Agreeableness were observed to be more positive in affect, sensitive, and cognitively stimulating, and less detached toward their children (1995).

Longitudinal studies in the developmental literature have revealed that maternal personality traits are predictive of later observed parenting behavior (Clark, Kochanska, & Ready, 2000). The prospective methodology of this study highlights the strength of these relationships, but much of the research on personality and parenting has inefficiently examined a diverse range of personality models, thereby muddying our understanding of the associations. In recent years this area has progressively moved toward consistently looking at the FFM. However, despite focusing only on research looking at Big Five personality traits in this review, there still remain inconsistencies in results, which can be explained by a number of factors. Perhaps single personality dimensions are not enough to generate consistent associations with parenting behavior. Individuals are a composite of scores on the five personality dimensions, and perhaps these dimensions interact with one another to more reliably produce human behaviors. Another possible root of these inconsistencies is that “parenting” is defined as a multitude

of constructs, and it is measured using both observed and self-report methodology. Thereby the question remains whether the inconsistencies we see in these data are due to differences in the definition of the parenting construct or in varying methodologies used to measure parenting. Taking a multi-method approach to the measurement of parenting by collecting observed and self-reported data may help clarify the associations between personality and parenting behavior.

Present Study

Significance: The almost-exclusive focus on parental psychopathology in understanding individual differences in parents of children with ADHD has left an unfortunate gap in the ADHD literature. This project seeks to fill that gap through the exploration of the normal range of parental personality factors and their relationship to parenting behavior in mothers of children with ADHD. Furthermore, this study takes a preliminary look at combinations of personality traits, or personality styles, that may work together to generate parenting behaviors. In conceptualizing psychopathology as extreme ends of a personality continuum, we can look at clinical and non-clinical populations of parents along the same personality measure. In doing so, the results of these analyses are generalizable to a greater range of mothers of children with ADHD, irrespective of their own level of diagnosable psychopathology.

This study will be the first to explore the relationship between the parenting dimension of responsiveness in families of children with ADHD, while considering parental personality. This will advance our understanding of the correlates of a pattern of parenting that is related to antisocial behavior in children with ADHD. Also, while much

of the existing literature looks either at observed and self-reported parenting behavior, the present study takes a multi-method approach to defining the construct of parenting.

In light of the fact that Neuroticism is related to negative parenting strategies in general (Belsky, Crnic, & Woodworth, 1995; Metsapelto & Pulkkinen, 2003; Spinath & O'Connor, 2003) it is hypothesized that Neuroticism will positively predict self-reported corporal punishment and inconsistent discipline, and will negatively predict observed responsiveness. Conscientiousness is hypothesized to inversely predict self-reported poor monitoring and supervision and positively predict responsiveness. This hypothesis follows from preliminary evidence that Conscientiousness has been found to be related to the executive aspect of parenting (Kochanska et al., 2004) as well as responsive parenting (Clark, Kochanska, and Ready, 2000). This study will extend previous findings by exploring these relationships in a *clinical* population of *older, school-age* children.

It is also expected that the combinations of personality traits that are related to psychopathology will predict parenting behavior over and above the contribution of individual personality dimensions and parenting behavior. Specifically, it is hypothesized that the interaction of Conscientiousness and Neuroticism, two personality factors related to ADHD, will predict self-reported poor monitoring/supervision over and above the relationship of these individual dimensions of personality and parenting behavior. That is, we expect that the combination of low Conscientiousness and high Neuroticism will be related to higher poor monitoring/supervision.

It is further hypothesized that there will be an interaction between Neuroticism and Extraversion in predicting parenting, as these two dimensions of personality

demonstrate the most consistent relationships to depression. It is hypothesized that the Neuroticism x Extraversion interaction will predict maternal-reported inconsistent discipline and observed maternal responsiveness. Therefore, the combination of high Neuroticism and low Extraversion will be related to higher inconsistent discipline and lower responsiveness.

Finally, the Agreeableness x Conscientiousness interaction is hypothesized to significantly predict self- reported positive parenting over and above the contribution of the individual personality dimensions. Because the combination of low Agreeableness and low Conscientiousness would be closely related to the APD symptoms (Lynam & Widiger, 2001), the interaction of these dimensions are thought to contribute more definitively to parenting than each of these dimensions measured separately. Specifically it is hypothesized that the combination of low Agreeableness and low Conscientiousness will be related to lower positive parenting.

The unique contributions of personality to parenting will be explored while controlling for continuous measures of psychopathology. Specifically, the contribution of Conscientiousness to monitoring and supervision will be tested while controlling for maternal ADHD symptoms. Additionally, the relationship between neuroticism and inconsistent discipline will be tested while controlling for the related construct of depression. These analyses will help determine whether personality differentially contributes additional variance to parenting when continuous measures of psychopathology are taken into account.

Method

Participants

Participants in this study included 69 biological mothers of children diagnosed with ADHD (see Table 1 and 2 for child and mother characteristics, respectively). Mothers included in this sample must have had children who met the following criteria: (1) meet full DSM-IV criteria for ADHD according to parent and teacher reports and structured diagnostic interviews; (2) have an estimated IQ above 70; (3) be between the ages of 6 and 10; and (4) live with their biological mother. Mothers of children who met criteria for any pervasive developmental disorder were excluded. In addition, mothers who met current criteria for any DSM-IV Axis I psychopathology were excluded from this sample (with the exception of adult ADHD). A total of 81 participants were assessed and 70 were eligible. One participant was excluded due to an error in completing the personality inventory, three were excluded because the child did not meet criteria for DSM-IV ADHD, three were excluded because the mother met criteria for current Axis I psychopathology, one child was excluded because of possible pervasive developmental disorder diagnosis, and four participants were excluded because the child IQ was below 70. Children who were taking stimulant or non-stimulant ADHD medication as well as children who were not medicated participated in this study. For the medicated children, all assessments (including parent-child interactions) were conducted on days when the child had not taken his/her medication, or when their medication was no longer active. Likewise, all rating forms were completed while the child was off medication. Since ratings of child behavior are most accurate for making a diagnosis of ADHD when the child is off medication, participants were excluded if they were unable to go off of their medication. The only exception to this exclusion is if both the parent and teacher were able to clearly recall the child's behavior when he/she was not taking medication and

could accurately report the child's behavior as such. Data on these participants was collected as part of a larger NIH-funded research study examining the relationship between parental ADHD and parenting behaviors in mothers of children with ADHD (NIMH R03MH070666-1).

Analyses looking at observed parenting were conducted on a subset of this sample. Eleven (13.6%) parent-child interactions were unable to be coded due to various technical difficulties in recording the interactions. With respect to the remaining 58 participants, all but one was either African American or Caucasian. For simplicity in the data analysis, this participant was thrown out so that maternal race could be analyzed in a more efficient manner that would conserve power. Thus, 57 mother-child dyads were used in the analyses of observed responsiveness. This subset did not differ from the full sample on any measure of personality or self-reported parenting.

Procedure

Upon determining eligibility through a screening telephone call to the Maryland ADHD Program, participants were sent a packet of measures to complete, including a measure of parenting and a personality inventory for the mother. Participants then completed an assessment protocol at the University of Maryland Psychology Clinic. At the beginning of this assessment, children were administered the block design and vocabulary subtests of the Weschler Intelligence Scale for Children, 3rd Ed. (Weschler, 1991) to screen for eligibility. Mothers then completed a semi-structured diagnostic interview for their child and also for themselves. After completing the clinical interview, mothers and children completed a 25-minute parent-child interaction task consisting of both structured and unstructured activities. These activities included: (1) a 5-minute clean

up task, (2) a 5-minute free play period, (3) a 10-minute "homework" task in which the child completed math problems while the mother provided assistance as needed, (4) a 5-minute teaching task where the mother taught the child to make a Lego model without using hand's-on assistance (Rubin, Cheah, & Fox, 2001). These tasks were videotaped through a one-way mirror and were coded for parenting behavior. Details of the coding procedures will be discussed below. The assessments were conducted by students in the doctoral program in clinical psychology at the University of Maryland under the supervision of Andrea Chronis, Ph.D.

Materials

Measures of Child Diagnosis: A diagnosis of ADHD was made according to DSM-IV criteria (APA, 2000). The Disruptive Behavior Disorder (DBD) symptom checklist (Pelham et al., 1992) was completed by the child's mother as well as the child's teacher. The DBD includes all DSM-IV symptoms of ADHD, ODD, and CD. Symptoms endorsed as occurring "pretty much" or "very much" in either the school setting or at home were considered clinically significant and were included in the symptom count. In prior studies, the DBD has demonstrated internal consistency of .96, .96, and .81 for the ADHD, ODD, and CD subscales respectively (Pelham et al., 1992).

In addition to the DBD, mothers were interviewed using the Schedule for Affective Disorders for School-Aged Children, Fifth Version (K-SADS; Orvaschel & Puig-Antich, 1995). The K-SADS is a semi-structured clinical interview assessing DSM-IV child symptomatology for Separation Anxiety Disorder, ODD, CD, ADHD, Post-Traumatic Stress Disorder, Major Depression, Dysthymia, and Adjustment Disorder. Each symptom is rated on a four-point scale, ranging from "not present" to "severe."

Symptoms were counted as clinically significant on this measure if the clinician rated it as "moderate" or "severe." Twenty percent of these interviews were double coded for reliability and kappa values for ADHD, ODD, and CD diagnoses were 0.86, 1.0, and 1.0, respectively.

The child ADHD diagnosis was made according to DSM-IV criteria, where signs of impairment exist in multiple settings (APA, 2000). To determine whether impairment does indeed exist in multiple settings, the Children's Impairment Rating Scale (CIRS; Fabiano et al., 2006) was completed by the child's mother and the child's teacher. The CIRS contains ratings of impairment on a 7-point scale across multiple domains. In addition, a symptom of ADHD was counted if it was rated as clinically significant on either the parent or teacher DBD or the K-SADS. If six or more symptoms were endorsed for a subtype domain, then the child met criteria for that subtype. If six or more symptoms were endorsed for both the inattentive and hyperactive/impulsive subtypes then the child met criteria for the combined subtype (Piacentini et al., 1992).

Maternal Personality Dimensions: Maternal personality traits were assessed using the NEO-Five Factor Inventory (Costa & McCrae, 1991). This is a 60-item self-report inventory measuring the five dimensions of Neuroticism (e.g., *I often feel tense and jittery, I often feel helpless and want someone else to solve my problems*), Extraversion (e.g., *My life is fast-paced, I often feel as if I am bursting with energy*), Openness to Experience (e.g., *I have a lot of intellectual curiosity, I am intrigued by the patterns I find in art and nature*), Agreeableness (e.g., *I generally try to be thoughtful and considerate, Most people I know like me*), and Conscientiousness (e.g., *I am a productive person who always gets the job done, I keep my belongings clean and neat*). Each scale includes 12

items on a 5-point scale ranging from “strongly disagree” to “strongly agree.” Two-week test-retest reliability of individual scales ranges from 0.86 to 0.90 (Robins, Fraley, Roberts, Trzesneiwski, 2001). Internal consistency of the five scales ranges from 0.68 to 0.86 (Costa & McCrae, 1992), indicating that this scale has adequate psychometric properties.

Maternal Psychopathology: During the assessment, mothers completed the Mood (Major Depression, Dysthymia, Bipolar), Anxiety (Generalized Anxiety Disorder), Substance Abuse (including alcoholism but not nicotine), and APD modules of the Structured Clinical Interview for the DSM-IV, Non-Patient Edition (SCID: First et al., 1996) to assess for any current Axis I psychopathology. They were excluded if they met criteria for any current Axis I disorder according to the SCID. It is a widely used semi-structured interview with interrater reliability between .69 and 1.0, and test-retest reliability ranging from .42 to 1.0 for individual diagnostic scales (Zanarini & Frankenburg, 2001).

Mothers also completed the Conners Adult ADHD Rating Scale (CAARS) as a dimensional measure of current ADHD symptoms. The CAARS is a 93-item, reliable and valid measure of ADHD symptoms that assesses the core features of ADHD while relating the symptoms in a manner more relevant to adult behavior (Conners et al., 1999; Erhardt et al., 1999). The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) is a 21-item self-report instrument that assesses depressive symptomatology continuously. A total score is obtained by summing over items, with greater scores indicating a greater degree of depression. Psychometric data indicate coefficient alphas of

.92 for an outpatient sample and .93 for a college sample, demonstrating high reliability (Beck et al., 1996).

Parenting Measures: Parenting was measured through both self-report and observed behavior. The Alabama Parenting Questionnaire (APQ; Shelton, Frick, & Wooton, 1996) is a 42-item measure that factors into five areas of parenting practices: Corporal Punishment, Inconsistent Discipline, Poor Monitoring/Supervision, Involvement, and Positive Parenting. Participants indicated on a 5-point scale ranging from 1 ("never") to 5 ("always") the frequency to which they engage in certain parenting practices. Internal consistency for all scales is moderate to high, ranging from .46 to .80 (Shelton et al., 1996), and test-retest reliability across a 3-year interval averages .65 (McMahon, Munson, & Spieker, 1997).

Observed parenting was coded on tapes of the parent-child interaction tasks completed during the initial assessment and rated with the responsiveness coding system developed by Johnston and colleagues (2002). The responsiveness coding system consists of a 7-point Likert-style measure of: authoritative control, sensitivity, responsiveness, positive affect, acceptance of child, and involvement with child. Authoritative control refers to the extent to which a mother uses an authoritative style of parenting, while sensitivity of control measures the appropriateness of a mothers attempts to set limits on the situation (i.e., whether limits are necessary at all considering the child's capabilities). Ratings were made on each of these dimensions at 1-minute intervals by coders that did not do the assessment of the mother-child dyad. Observers were trained until they reached 80% agreement (defined as ratings within 1-point of the other on the 7-point scale) prior to beginning coding (Johnston et al., 2002) and maintained this agreement

throughout the coding process. The developer of this system, Dr. Johnston, trained the coders at the University of Maryland, College Park, and was consulted numerous times throughout the training and coding process. Thirty percent of these tapes were double coded and interclass correlations averaged across each of the four tasks were .81 for responsiveness, .83 for authoritative control, .78 for sensitivity of control, .96 for positive affect, .96 for acceptance, and .80 for involvement.

Design Considerations

The decision to examine only the parenting of mothers and not fathers in this sample was determined for several reasons. Despite the increasing parental role of fathers, data suggest that mothers are still more involved with childcare than fathers (Furstenberg, 1988; Parke, 1995). Additionally, given higher rates of divorce in parents of children with ADHD (Barkley et al., 1990), fathers may less often be present in the home. Finally, childhood disruptive behavior disorders are associated with paternal APD (Chronis et al., 2003) and fathers with antisocial characteristics are significantly less likely to participate in research (Pfiffner et al., 2001). Therefore requiring father participation may result in a less representative sample.

As reviewed herein, current evidence for relationships between personality traits and parenting behavior is strongest and most consistent for Neuroticism. Emerging as another fairly consistent predictor of parenting is Conscientiousness. Although this may argue for including only these most salient parenting predictors in the proposed analyses, valuable information could be lost in choosing to exclude other dimensions of personality, which may be related to parenting a child with ADHD. Personality research does not consistently look at standardized traits and therefore certain personality dimensions have

not yet been adequately researched. Factors such as Openness and Agreeableness have somewhat limited and inconsistent evidence as to their relationship with parenting and therefore are an important part of the proposed analyses. Furthermore, examining the correlations between all personality variables in the preliminary analyses will allow us to look at discriminant validity. For example, one hypothesis in this study is that Conscientiousness will be related to poor monitoring/supervision on the APQ. According to the literature, the dimension of Agreeableness would not be expected to be related to parental supervision, and this can be verified through the preliminary analyses.

Results

Demographic variables (child age, child sex, and maternal race) were entered into preliminary analyses to select control variables to be entered into the subsequent regression model. Maternal race was coded into two dichotomous (dummy) variables (African American & Caucasian) for the purpose of entering them into the regression analyses. Variables that were significantly related to the dependent variable at $p < .05$ were entered as covariates in analyses of the relationships between personality and parenting (see Table 3). Additionally, in analyses predicting self-reported parenting, child ODD/CD symptoms were controlled to account for the contribution of child behavior to parenting (Patterson, 1982). The selection of ODD/CD symptoms as a control variable as opposed to ADHD symptoms was made due to the fact that child ODD and CD demonstrate more consistent relationships to parenting behavior than child ADHD symptoms (Johnston, 1996; Gomez & Sanson, 1994). Because responsiveness ratings take child behavior into account when the ratings are made, this variable was not entered as a covariate in analyses predicting observed maternal responsiveness. Descriptive

statistics for ODD/CD and all other predictor variables are presented in Table 4. Also, as cognitive ability may have affected child performance on the various tasks, analyses were re-run in a subset of the sample, removing children with an estimated IQ more than one standard deviation below the mean (i.e., 85; n = 12), and the results did not differ in this sub-sample.

Prior to conducting analyses, all dependent variables were examined for variability and skewness; these analyses suggested that all variables were normally distributed. Also, intercorrelations between outcome variables were examined to explore the relationship between parenting variables and self-reported and observed parenting were not generally related to each other (Table 5). Furthermore, principal components analysis with varimax rotation was conducted for the six dimensions of responsiveness, and only one component emerged with an eigenvalue greater than one. This component, labeled responsiveness, had an eigenvalue of 3.966 and accounted for 66.096% of the variance. Factor loadings on this component ranged from .735 to .863, therefore an overall responsiveness score was calculated by summing across all dimensions of responsiveness.

In the first step of all regression equations any demographics that were significantly related to the dependent variable were entered. In analyses looking at self-reported parenting, child ODD/CD symptoms as measured by the DBD were entered into the next step (see Table 6). Maternal personality variables were entered into the final step of the regression (see Tables 6 & 7).

All of the hypothesized relationships were tested using linear regression analyses. Additional correlations were conducted examining all five maternal personality variables

(measured by the NEO-FFI) and their relationships to all parenting variables (measured by the APQ and the Responsiveness Coding System). These results are presented in Table 8. Any personality-parenting relationships that were significant were then tested in regression equations that controlled for relevant demographic variables. Thus, predictor variables in regression models were included if either a relationship was hypothesized between a personality dimension and a parenting behavior, or if the preliminary analyses revealed such a relationship.

Finally, additional analyses were conducted to determine the contribution of maternal Conscientiousness and Neuroticism after controlling for related measures of psychopathology. For example, the relationship between Conscientiousness and Poor Monitoring/Supervision was tested after controlling for the effects of maternal ADHD as measured by the CAARS. Neuroticism's contribution to Inconsistent Discipline was evaluated while controlling for maternal depression as measured by the BDI-II.

Self-Reported Parenting

Results of the hypothesized relationships between the NEO-FFI and the APQ are presented in Table 6. The hypothesis that maternal Neuroticism would be positively related to Inconsistent Discipline was supported ($\beta = .374$, $p = .002$), accounting for an additional 13.2% of the variance in the overall model. However, Neuroticism was not significantly related to Corporal Punishment ($\beta = .011$, $p > .05$). In light of prior evidence indicating racial/ethnic differences in parental discipline strategies (Pinderhughes, Dodge, Bates, Pettit, & Zelli, 2000), and because Caucasian mothers were significantly lower in Corporal Punishment than African American mothers (see Table 3), follow-up analyses were conducted for this hypothesis looking at this relationship separately in African

American and Caucasian participants. No significant relationship was found for corporal punishment in either of these groups, suggesting that maternal race did not moderate the relationship between Neuroticism and Corporal Punishment in this sample.

As hypothesized, maternal Conscientiousness was negatively associated with Poor Monitoring/Supervision and explained an additional 9.8% of the variance in this model (β = -.321, p = .004). In addition to hypothesized relationships, several additional significant correlations between self-reported personality and parenting were found. Relative to the other personality dimensions, Conscientiousness demonstrated the most consistent relationships to APQ dimensions in that Conscientiousness was positively related to Involvement (β = .239, p = .047) and Positive Parenting (β = -.301, p = .015) and negatively related to Inconsistent Discipline (β = -.267, p = .031), after controlling for relevant demographics.

Additional significant findings include a negative relationship between Openness and Corporal Punishment (β = -.277, p = .022) such that mothers high in Openness to Experience used corporal punishment less with their children. More Agreeable mothers were also more consistent in their discipline strategies (β = -.294, p = .015).

Three interaction variables were created by computing the product of Neuroticism x Conscientiousness, Neuroticism x Extraversion, and Conscientiousness x Agreeableness. These three interaction terms were entered into the final step of a regression equation, after controlling for the effect of the two personality dimensions individually and other related demographic variables. Results of these analyses are presented in Table 9. Results indicated that the Neuroticism x Conscientiousness interaction term did not contribute significantly to the overall relationship to poor

monitoring/supervision (β = .182, p > .05). Furthermore, the relationship between the Neuroticism x Extraversion interaction term and inconsistent discipline was not significant (β = -.314, p > .05) and the relationship between the Conscientiousness x Agreeableness interaction and positive parenting was also not significant (β = -.108, p > .05).

In addition, relationships between personality and parenting were tested while controlling for related dimensions of psychopathology. The relationship between Neuroticism and Inconsistent Discipline was tested after controlling for maternal scores on the BDI-II, however Neuroticism did not contribute significantly to this model. The relationship between Conscientiousness and Poor Monitoring/Supervision was tested after controlling for maternal DSM-IV ADHD scores on the CAARS and Conscientiousness predicted an additional 14.5% of the variance in Poor Monitoring/Supervision (β = -.492, p = .001).

Observed Parenting

The relationships of the overall responsiveness scores in each task (i.e., clean-up, free play, homework, Lego) are also detailed in Table 5. Correlations indicate that the overall responsiveness scores in each of the four tasks were not uniformly related. This is consistent with prior data indicating that there are indeed situational effects evident on maternal behavior as measured by the responsiveness, (Johnston, 2002). In light of these contextual effects, follow-up analyses were conducted testing the hypothesized relationships between personality and responsiveness on a task-by-task basis.

The relationships between these demographic variables and parenting are presented in Table 3. Child age was related to overall responsiveness such that maternal

responsiveness decreased as child age increased. Further, responsiveness scores differed by maternal race where African American mothers were lower in responsiveness and its dimensions than Caucasian mothers (Table 3). Therefore, both child age and maternal race were retained as covariates in the regression analyses. A priori hypotheses stated that Neuroticism and Conscientiousness would be related to overall responsiveness in the parent-child interaction. After controlling for age and race, neither Neuroticism (β = -.083, $p < .05$) nor Conscientiousness (β = .158, $p < .05$) contributed significantly to the relationship with overall responsiveness (see Table 8). As presented in Table 8, follow-up analyses exploring the relationship between Conscientiousness and overall responsiveness in each separate task (clean-up, free play, homework, Lego) revealed a similar pattern of non-significant results. Preliminary correlations revealed a significant relationship between Neuroticism and overall responsiveness during the homework task (see Table 8); however, this relationship did not hold up when tested in a regression analysis controlling for child age and maternal race (β = .116, $p > .05$).

The Neuroticism x Extraversion interaction variable was also tested in a model predicting overall responsiveness. The personality interaction did not significantly add to the overall model (β = .051, $p > .05$) (See Table 10).

Exploratory analyses were conducted looking at the six sub-dimensions of responsiveness and their relationship to personality variables. Preliminary correlations indicated that there were some significant relationships (see Table 8). Significant relationships were then explored further using linear regression and controlling for related demographic variables following the same procedures described above. In the subsequent regression model, Openness was positively related to the sub-dimension of

affect (β = .270, p = .04), accounting for 7% of the variance in the model. This finding indicates that mothers who were higher on Openness to Experience demonstrated more positive affect in the parent-child interaction. Additionally, Conscientiousness explained 12% of the variance in sensitivity of control (β = .346, p = .008). Therefore, mothers who were more Conscientious were also more appropriate with their timing, pacing, and structuring of their commands. Follow-up analyses exploring these relationships within task indicated that the relationships between Openness and affect, and Conscientiousness and sensitivity were greatest during the Lego task. Finally, mothers higher in Extraversion were also higher in sensitivity (β = .269, p = .043).

Discussion

The present study examined the relationship between maternal personality and parenting of their children with ADHD using a multi-method measurement of parenting behavior. As expected, mothers who were lower in Conscientiousness were higher in poor monitoring and supervision. Higher levels of Conscientiousness were also associated with more consistent discipline, more involvement, and more positive parenting in this sample. Conscientiousness demonstrated the most consistent relationships to self-reported parenting in that it was almost always associated with beneficial parenting behaviors. These findings enhance a small literature suggesting that this personality dimension is related to executive aspects of parenting and positive parenting behaviors (Kochanska et al., 2004; Clark, Kochanska, & Ready, 2000). While the majority of existing literature has focused on other personality dimensions, such as Neuroticism, these findings clarify the important role that Conscientiousness plays in important aspects of parenting.

Additional relationships were found with other personality dimensions as well. Both Neuroticism and Agreeableness were related to Inconsistent Discipline. While the positive relationship of Inconsistent Discipline to Neuroticism was expected, the negative relationship to Agreeableness was not. The Agreeableness finding fits with prior literature linking this personality dimension with adaptive parenting, future research should seek to replicate this finding in both families of children with ADHD as well as a normative sample to determine if this finding generalizes.

Although no a priori hypotheses were made regarding Openness to Experience, it surfaced as a predictor of corporal punishment and observed maternal affect. These findings suggest that, with increased understanding of this dimension in relation to parenting, new research hypotheses can be made to gain a more comprehensive understanding of the role parental Openness plays in parenting behavior.

With regard to psychopathology, Conscientiousness was highly related to maternal self-reported ADHD symptoms (see Table 6). Despite this strong relationship, Conscientiousness demonstrated a unique relationship to Poor Monitoring/Supervision after controlling for maternal ADHD symptoms. This finding lends credibility to the argument that, although related, personality and psychopathology are distinct constructs that contribute differentially to parenting behavior. Future studies should continue to explore these constructs side-by-side to obtain a more complete understanding of the correlates of parenting.

As hypothesized, Neuroticism was significantly related to Inconsistent Discipline, although this relationship did not hold up after controlling for maternal depression scores. This is likely due to the shared variance with the BDI-II, as these two measures were very

highly correlated (Table 6). While the relationship between Neuroticism and depression was similar in magnitude to the relationship between Conscientiousness and ADHD symptoms, the Conscientiousness finding did remain significant while the Neuroticism finding did not.

The relationship between Conscientiousness and maternal ADHD symptoms deserves further consideration. It is interesting that, although Conscientiousness and maternal ADHD are highly related, they demonstrate differential relationships to the parenting dimension of Poor Monitoring/Supervision. While Conscientiousness was significantly related to this parenting dimension, maternal ADHD was not. This speaks to the possible differences in the personality vs. psychopathology constructs examined here, despite their apparent similarities. While lower Conscientiousness is likely generally associated with attention problems, there are some aspects of this personality dimension that appear qualitatively different from the symptoms of ADHD. For example, one item on the Conscientiousness scale is "I strive for excellence in everything I do." While this item may in fact be negatively related to ADHD symptoms, one can imagine an individual who meets diagnostic criteria for ADHD, yet still strives for excellence in everything they do. Similarly, another item on the Conscientiousness scale is "I work hard to accomplish my goals." While individuals with ADHD may often be perceived as lazy or indifferent, this is sometimes a result of a lack of ability due to their ADHD symptoms, as opposed to a lack of effort. So again, despite a likely relationship between Conscientiousness items and ADHD symptoms, one possible explanation of these differential relationships may be that there is a facet of achievement striving inherent in the construct of

Conscientiousness that may not always be associated with ADHD symptoms. Also, because Conscientiousness captures a whole continuum of both positive and negative attributes while the ADHD measure only reflects the negative end of a continuum, there may be a larger variability in behavior that is at play in the Conscientiousness findings.

Several relationships were found between maternal individual personality dimensions and parenting, however results exploring the interaction between dimensions in the prediction of parenting were not significant. One possible explanation for this could be the small sample size and resulting insufficient power to conduct analyses with this many predictor variables. However, a visual inspection of graphs of these data indicate that there may not, in fact, be a consistent relationship between these interaction terms and the respective parenting dimensions that they were hypothesized to relate to. Further research with larger sample sizes is warranted to determine if, in fact, these relationships may exist.

The hypothesized relationships between maternal personality and observed responsiveness were not supported. In fact, the overall responsiveness construct failed to demonstrate any consistent relationship to maternal personality dimensions. The failure to find significant results with the responsiveness construct could be a result of several explanations. First, self-reported and observed parenting was generally not highly related. Prior research has produced similar inconsistencies between self-report parenting and observed parental responsiveness (Sessa et al., 2001, Johnston et al., 2002). This is generally considered to reflect meaningful differences between self and observer perceptions of parenting, rather than a methodological flaw (Sessa et al., 2001), and

speaks to the importance of using multi-method assessments of parenting. Also, with respect to the responsiveness coding system used in this study, the measurements were designed to reflect maternal behavior dependent on child behavior (i.e., need for control dependent upon the child's abilities and present behavior, etc.; Johnston et al., 2002), a concept that is not necessarily communicated in the self-report APQ measure. Despite these conceptual differences in the construct of responsiveness and those measured on the APQ, we cannot rule out the possibility that the discrepancy in findings between self-reported and observed parenting could be due to shared method variance. Thus, the strong relationships found between the NEO-FFI and the APQ may be due to the fact that both of these measures are based on maternal self-report, while the responsiveness dimensions were based on observational coding.

An additional consideration of the discrepancy in findings between observed and self-reported parenting is the generalizability of the parent-child interaction task. One review of this question found that, although the coder/observer exerts minimal bias in the perception of the parent-child interaction task, the artificial setting created in the laboratory for these measurements may not reflect the everyday parent and child behaviors that occur (Gardner, 1997). The validity of self-report may also be called into question in light of evidence suggesting that mothers may present themselves in a more favorable way on self-report measures of parenting (Sessa et al., 2001). Additional research is necessary to disentangle the validity of the various ways to measure parenting, but at the present time evidence should be considered in light of these caveats to the validity and generalizability of parenting measures.

While overall responsiveness failed to generate significant relationships to personality even when examined on a task-by-task basis, exploratory analyses did reveal some relationships to the individual dimensions of responsiveness. The overall construct of responsiveness was related to alternative variables (i.e., child age and maternal race) thereby providing some evidence for the validity of this overall construct. It may be the case that the concept of personality dimensions may not map on well to a broad construct such as responsiveness. One study did find a relationship between maternal personality and observed responsiveness (Clark, Kochanska, & Ready, 2000), however this was in a sample of mother-infant dyads, as is much of the literature exploring maternal responsiveness. It is likely that in the present sample of school-age children with ADHD, this relationship is complicated by more difficult and multifaceted child behaviors. For example, a mother high in Conscientiousness may be particularly responsive during the first years of parenting, but as a child with behavioral difficulties grows older and the parental stress and demands of having a disordered child grow, the mother may not retain the capacity for consistent and responsive parenting. Future research should examine the longitudinal course of responsive parenting. This may be particularly relevant in clinical samples of children, such as those with ADHD.

When exploratory analyses were conducted examining maternal personality dimensions and specific sub-dimensions of responsiveness, some significant relationships were found. This is suggestive of the fact that, in contrast to the theory behind the present study, personality may be best studied in the context of more refined and narrowly-defined aspects of parenting. Additional research is needed to determine if, in fact, maternal personality generates significant relationships to more specific parenting

behaviors. It may also be the case that parenting variables interact with each other in meaningful ways, and that personality would demonstrate more consistent relationships to these interactions. For example, a mother who is rated low on authoritative control may also be rated high on acceptance. If more strict discipline strategies are coupled with high levels of warmth and praise, personality may be associated with these interactions between parenting dimensions differentially. Future research should take a more in depth look at how parenting styles and patterns interact with each other.

This study was limited by a small sample size that did not allow for analyses with multiple predictor variables. Maternal personality interaction terms did not demonstrate significant relationships to parenting, which may have been due to insufficient power. Therefore, the size of the sample did not allow for an adequate exploration of the potentially complex interaction between personality dimensions in the prediction of parenting.

Another limitation is the cross-sectional nature of the study design. It is difficult to determine the dynamic nature of the relationship between personality and parenting at one point in time. For example, it is possible that the strength of these personality-parenting relationships may change over the course of the child's development. Our understanding of child psychopathology is enhanced by conceptualizing symptom presentation and contextual factors as developing processes that interact over time. However a cross-sectional study provides only one reference point of the magnitude and nature of the relationship between parental personality and parenting. From a developmental psychopathology standpoint, parenting and its correlates should be looked at longitudinally to see how each factor interacts with the other over time. This type of

research would also allow a derivation of the causal attributes of these personality-parenting relationships.

Although the multi-method measurement of parenting can be considered a strength of the study, the interpretation of findings is still limited by our lack of understanding of the validity of the different ways of measuring parenting. An important goal for developmental psychopathology researchers is to identify and elucidate the strengths and limitations of different methods of measuring parenting. Further research on "real world" parenting situations that occur in the home, or during daily life may provide a more accurate representation of parenting than the laboratory interactions used in this study.

A unique contribution of this study lies in its consideration of multiple constructs of individual differences in parents of children with ADHD. The primary focus of parental factors related to parenting in clinical samples of children has been parental diagnoses or psychopathology. Diagnosable disorders allow us to look only at extreme individuals in a population while the construct of personality allows us to gain a greater understanding of all individuals. Further, although psychopathology can be conceptualized and measured continuously, personality represents a unique construct that contributes differentially to parenting. Decades of research have examined personality factors and psychopathology separately; however, a more sophisticated exploration of both constructs at once may yield more insightful findings.

Despite its limitations, this study may have some important clinical implications. For example, maladaptive parenting techniques linked most strongly to psychopathology may be best treated using evidence-based treatment of the underlying disorder. However, those parenting variables that are closely related to parental personality may need to be

targeted through a different treatment modality. There is little information as to the role maternal personality plays in the effectiveness of psychosocial treatments for children with ADHD (i.e., parent training), but it may be the case that those parenting behaviors that are linked to the temporally stable personality factors may be less likely to change through treatment.

Overall, this study suggested that Conscientiousness demonstrated the most consistent and strongest relationships to parenting behavior. This suggests that behaviors related to organization, dependability, and follow-through are important considerations in the development of adaptive and positive parenting skills. Conscientiousness is a personality dimension that has been studied much less in comparison to Neuroticism, however evidence is mounting in support of the relevance of this dimension to parenting behaviors. This finding is especially relevant in families of children with ADHD since, due to the heritability of attention problems, parents of children with ADHD are likely to exhibit lower levels of Conscientiousness. Furthermore, both positive parenting and parental monitoring can be protective in the development of additional behavior problems in these children (Ehrensaft et al., 2003; Chronis et al., in press), and since Conscientiousness is implicated in both of these dimensions it may be an important indicator of a child's risk of developing comorbid conduct problems. Personality dimensions may be a useful tool to assess strengths and weaknesses in parents of children with ADHD when developing psychosocial interventions for these children.

Table 1
Child Demographic and Diagnostic Characteristics (n = 69)

	N (%)	M	SD
Age		8.04	1.14
Estimated IQ (verbal + block design scaled scores)		20.95	6.29
Sex			
Male	50 (72.5)		
Female	19 (27.5)		
Ethnic Characteristics			
Non-Hispanic White	25 (36.2)		
African American	28 (40.6)		
Hispanic	3(4.3%)		
Other/Refused	13 (18.7)		
DSM-IV Diagnoses			
ADHD			
Primarily Inattentive	11 (15.9)		
Primarily Hyperactive	3 (4.3)		
Combined	55 (79.7)		
ODD	34 (49.3)		
CD	13 (18.8)		
ADHD Medication	28 (40.6)		

Note. DSM-IV = Diagnostic and Statistical Manual, Fourth Edition; ADHD = Attention-Deficit/Hyperactivity Disorder; ODD = Oppositional Defiant Disorder; CD = Conduct Disorder; Estimated IQ = sum of verbal and block design scaled scores

Table 2
Maternal Demographic Characteristics (n = 69)

	N (%)	M	SD
Age		38.59	6.10
Total Family Income		$88,592	$55,655
Highest Level of Education			
Less than a high school diploma	1 (1.4)		
High school diploma	17 (24.6)		
Some college, but no Bachelor's degree	7 (10.0)		
Bachelor's degree or equivalent	27 (39.1)		
Master's degree or equivalent	12 (17.4)		
Doctoral degree or equivalent	6 (8.7)		
Ethnic Characteristics			
Non-Hispanic White	32 (46.4)		
African American	31 (44.9)		
Hispanic	5 (7.2)		
Other	1 (1.4)		

Table 3
Relationship Between Demographics and Parenting

	Mean (SD)	**Child Age (*r* value)**	**Child Sex (*F* value)**	**Maternal Race-Caucasian (*F* value)**	**Maternal Race-African American (*F* value)**
Alabama Parenting Questionnaire					
Involvement	38.46 (5.20)	.044	6.963*	.299	1.111
Positive Parenting	24.59 (3.79)	.021	2.377	.000	.001
Poor Monitoring/Supervision	12.46 (3.54)	.115	.234	.306	.133
Inconsistent Discipline	15.07 (4.05)	-.163	1.471	1.247	1.066
Corporal Punishment	5.39 (1.72)	-.166	1.162	6.567*	3.408
Responsiveness					
CU Responsiveness	5.24 (.78)	-.176	.474	4.666*	4.666*
FP Responsiveness	4.76 (.80)	-.120	.001	2.586	2.586
HW Responsiveness	4.94 (.76)	-.417**	3.498	15.463**	15.463**
Lego Responsiveness	5.06 (.64)	-.260	.970	1.302	1.302
Overall Responsiveness	4.98 (.52)	-.352**	1.314	8.588**	8.588**
Control	4.29 (.83)	-.322**	.053	7.327**	7.327**
Sensitivity	4.48 (.83)	-.305*	.038	3.105	3.105
Responsiveness	5.48 (.65)	-.274*	2.497	6.678*	6.678*
Affect	4.71 (.53)	-.184	1.341	4.736*	4.736*
Acceptance	4.73 (.57)	-.323*	2.243	5.321*	5.321*
Involvement	6.14 (.48)	-.415**	.965	9.714***	9.714***

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

Note. CU = Clean-up; FP = Free Play; HW = Homework

Table 4
Descriptive Statistics for Predictor Variables

NEO	**Mean**	**Std. Dev.**
Neuroticism	18.06	7.85
Extraversion	27.57	5.71
Openness	25.68	6.32
Agreeableness	34.10	5.60
Conscientiousness	30.91	6.53
ODD/CD	4.66	3.49
CAARS	13.55	9.23
BDI-II	9.01	8.59

Note. ODD/CD = Oppositional Defiant Disorder/Conduct Disorder

Table 5
Intercorrelations Among Outcome Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Self-Report Parenting																
1. Involvement	---															
2. Positive Parenting	.567**	---														
3. Poor Monitoring	-.189	-.274*	---													
4. Inconsistent Discipline	-.104	-.177	.184	---												
5. Corporal Punishment	-.092	-075	.261	.404**	---											
Observed Parenting Composite																
6. CU Responsiveness	.274*	.313*	-.058	-.077	-.217	---										
7. FP Responsiveness	.215	.185	-.100	-.195	-.164	.448**	---									
8. HW Responsiveness	.158	.185	-.053	.142	-.080	.287*	.168	---								
9. Lego Responsiveness	.125	-.030	-.055	-.031	-.042	.513**	.269	.168	---							
10. Overall Responsive	.275*	.214	-.096	-.052	-.180	.831**	.667**	.570**	.687**	---						
Observed Parenting Subdimensions																
11. Authoritative Control	.309*	.209	-.106	-.108	-.200	.674**	.648**	.467**	.570**	.854**	---					
12. Sensitivity of Control	.318*	.233	-.099	-.163	-.076	.631**	.596**	.388**	.557**	.786**	.815**	---				
13. Responsiveness	.207	.152	-.134	.019	-.161	.761**	.464**	.483**	.646**	.845**	.538**	.531**	---			
14. Affect	.126	.227	-.136	-.014	-.274*	.750**	.551**	.387**	.475**	.792**	.538**	.361**	.756**	---		
15. Acceptance	.239	.204	-.072	.025	-.187	.761**	.439**	.517**	.576**	.835**	.572**	.468**	.752**	.801**	---	
16. Involvement	.064	-.016	.000	.109	.022	.471**	.478**	.651**	.393**	.730**	.563**	.462**	.566**	.566**	.571**	---

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

Note. CU = Clean-up; FP = Free Play; HW = Homework

Table 6
Hypothesized relationships between self-reported personality and parenting

	Inconsistent Discipline					
	df	*F*	$R^2\Delta$	B	SE	β
Step 1	1, 67	1.307	.019			
Child Behavior (ODD/CD)				.159	.139	.138
Step 2	2, 66	5.865	.132**			
Child Behavior (ODD/CD)				.053	.135	.046
Neuroticism				.193	.060	.374**
	Poor Monitoring/Supervision					
	df	*F*	$R^2\Delta$	B	SE	β
Step 1	1, 67	4.077	.057*			
Child Behavior (ODD/CD)				.241	.120	.239*
Step 2	2, 66	6.058	.098*			
Child Behavior (ODD/CD)				.170	.117	.168
Conscientiousness				-.174	.063	-.321**
	Corporal Punishment					
	df	*F*	$R^2\Delta$	B	SE	B
Step 1	1, 67	6.567	.089*			
Maternal Race- Caucasian				-1.021	.398	-.299*
Step 2	2, 66	3.378	.004			
Maternal Race- Caucasian				-.993	.404	-.291*
Child Behavior (ODD/CD)				.030	.057	.060
Step 3	3, 65	2.220	.000			
Maternal Race- Caucasian				-.979	.444	-.286*
Child Behavior (ODD/CD)				.031	.061	.064
Neuroticism				-.002	.029	.011

* indicates $p < .05$ ** indicates $p < .01$
Note. ODD = Oppositional Defiant Disorder symptoms; CD = Conduct Disorder symptoms

Table 7
Hypothesized relationships between personality and responsiveness

	Overall Responsiveness					
	df	*F*	$R^2\Delta$	B	SE	β
Step 1	2, 54	6.645	.198**			
Child Age				-.119	.058	-.263*
Maternal Race				.294	.132	.285*
Step 2	3, 53	4.505	.006			
Child Age				-.121	.058	-.268*
Maternal Race				.328	.144	.318*
Neuroticism				-.006	.009	-.083
	Overall Responsiveness					
	df	*F*	$R^2\Delta$	B	SE	β
Step 1	3, 54	4.551	.202**			
Child Age				-.119	.058	-.269
Maternal Race				.088	.490	.086
Step 2	4, 53	3.853	.023			
Child Age				-.112	.058	-.256
Maternal Race				-.052	.500	-.051
Conscientiousness				.012	.009	.158

Table 8
Correlations among personality and outcome variables

	Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
APQ					
Involvement	-.185	.163	.233+	.022	.286*
Positive Parenting	-.209+	.234+	.031	.092	.312**
Poor Monitoring	.079	-.076	-.149	-.032	-.358**
Inconsistent Discipline	.386**	-.153	.017	-.283*	-.284*
Corporal Punishment	-.095	-.062	-.280*	-.139	-.099
Responsiveness					
CU Responsiveness	.082	-.011	.155	.129	.117
FP Responsiveness	-.069	.004	.266+	.111	.113
HW Responsiveness	.295*	.142	.085	-.102	.015
Lego Responsiveness	-.030	.070	.186	.020	.218
Overall Responsiveness	.099	.063	.260+	.041	.146
Control	.039	.089	.245+	.097	.151
Sensitivity	-.059	.269*	.069	.152	.346**
Responsiveness	.177	-.059	.278*	-.024	.143
Affect	.194	-.068	.316*	-.018	-.056
Acceptance	.101	.014	.239+	-.084	.063
Involvement	.144	.030	.140	-.023	-.057
Psychopathology					
CAARS	.536**	-.212	.055	-.302*	-.623**
BDI-II	.669**	-.312**	-.054	-.429**	-.497**

+ indicates $p < .10$ * indicates $p < .05$ ** indicates $p < .01$
Note. CU = Clean-up; FP = Free Play; HW = Homework; CAARS = Conners Adult ADHD Rating Scale; BDI-II = Beck Depression Inventory

Table 9
Hypothesized relationships between interaction terms and self-reported parenting

	Poor Monitoring/Supervision					
	df	*F*	$R^2\Delta$	B	SE	β
Step 1	1, 67	4.077	.057*			
Child Behavior (ODD/CD)				.241	.120	.23*
Step 2	3, 65	4.689	.121			
Child Behavior (ODD/CD)				.195	.118	.193
Neuroticism				-.081	.060	-.178
Conscientiousness				-.221	.072	-.407**
Step 3	4, 64	3.520	.002			
Child Behavior (ODD/CD)				.202	.120	.200
Neuroticism				-.173	.222	-.383
Conscientiousness				-.285	.165	-.526
N x C				.003	.008	.182
	Inconsistent Discipline					
	df	*F*	$R^2\Delta$	B	SE	β
Step 1	1, 67	1.307	.019			
Child Behavior (ODD/CD)				.159	.139	.138
Step 2	3, 65	3.866	.132**			
Child Behavior (ODD/CD)				.050	.137	.043
Neuroticism				.189	.06	.367**
Extraversion				-.017	.087	-.024
Step 3	4, 64	2.960	.005			
Child Behavior (ODD/CD)				.042	.138	.036
Neuroticism				.355	.285	.689
Extraversion				.090	.198	.126
N x E				-.006	.010	-.314
	Positive Parenting					
	df	*F*	$R^2\Delta$	B	SE	β
Step 1	1, 67	.939	.014			
Child Behavior (ODD/CD)				-.127	.131	-.118
Step 2	3, 65	2.402	.086			
Child Behavior (ODD/CD)				-.056	.132	-.052
Agreeableness				.003	.085	.005
Conscientiousness				.173	.074	.299*
Step 3	4, 64	1.777	.000			
Child Behavior (ODD/CD)				-.053	.135	-.049
Agreeableness				.041	.360	.061
Conscientiousness				.217	.411	.375
C x A				-.001	.012	-.108

Note. ODD = Oppositional Defiant Disorder symptoms; CD = Conduct Disorder symptoms; N = Neuroticism; E = Extraversion; A = Agreeableness; C= Conscientiousness

Table 10
Hypothesized relationship between interaction terms and observed responsiveness

	Overall Responsiveness					
	df	*F*	$R^2\Delta$	B	SE	β
Step 1	2, 54	6.645	.198**			
Child Age				-.119	.058	-.263*
Maternal Race				.294	.132	.285*
Step 2	4, 52	3.318	.006			
Child Age				-.112	.059	-.270*
Maternal Race				.330	.147	.371*
Neuroticism				-.006	.010	-.088
Extraversion				-.001	.012	-.013
Step 4	5, 51	2.605	.000			
Child Age				-.122	.060	-.271*
Maternal Race				.330	.149	.320
Neuroticism				-.009	.039	-.140
Extraversion				-.003	.028	-.040
N x E				.000	.001	.051

Note. N = Neuroticism; E = Extraversion

Bibliography

American Psychiatric Association (2000). *Diagnostic and Statistical Manual of Mental Disorders* (4th edition, Text Revision). Washington, D.C.

Angst, J., Clayton, P.J. (1986). Premorbid personality of depressive, bipolar, and schizophrenic patients with special reference to suicidal issues. Comprehensive Psychiatry, 27(6), 511-532.

Barkley, R.A., Fischer, M., Edelbrock, C.S., & Smallish, L. (1990). The adolescent outcome of hyperactive children diagnosed by research criteria: I. An 8-year prospective follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry, 29,* 546-557.

Belsky, J. (1984). The determinants of parenting: A process model. *Child Development, 55*, 83-96.

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

Biederman, J., Milberger, S., Faraone, S.V., Kiely, K, et al. Family-environment risk factors for attention-deficit hyperactivity disorder: A test of Rutter's indicators of adversity. *Archives of General Psychiatry, 52(6*), 464-470.

Cattell, R. B. (1970). A factor analytic system for clinicians. 1. The integration of functional and psychometric requirements in a quantitative and computerized diagnostic system. In A. R. Mahrer (Ed.), *New approaches to personality classification.* New York: Columbia University Press.

Chi, T. C., & Hinshaw, S.P. (2002). Mother-child relationships of children with ADHD: The role of maternal depressive symptoms and depression-related distortions. *Journal of Abnormal Child Psychology, 30*(4), 387-400.

Chioqueta, A.P. & Stiles, T.C. (2005). Personality traits and the development of depression, hopelessness, and suicide ideation. Personality and Individual Differences, 38, 1283-1291.

Chronis, A. M., Lahey, B.B., Pelham, W.E., Kipp, H.L., Baumann, B.L., & Lee, S.S. (2003). Psychopathology and substance abuse in parents of young children with attention-deficit/hyperactivity disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 42*(12), 1424-1432.

Chronis, A. M., Lahey, B.B., Pelham, W.E., Williams, S.H., Baumann, B.L., Kipp, H., & Jones, H.A. (in press). Parental psychopathology and maternal positive parenting predict future conduct problems in young children with attention-deficit/hyperactivity disorder. *Developmental Psychology.*

Clark, L. A., Kochanska, G., & Ready, R. (2000). Mothers' personality and its interaction with child temperament as predictors of parenting behavior. *Journal of Personality and Social Psychology, 79*(2), 274-285.

Cloninger, R.C., Svrakic, D.M., Bayon, C., Pryzbeck, T.R. (1999). Measurement of psychopathology as variants of personality. In Cloninger, R.C. (Ed.), *Personality and Psychopathology* (pp. 33-65). Washington, DC, US: American Psychiatric Association.

Costa, P. T. & McCrae, R. R. (1988). Personality in adulthood: A six-year longitudinal study of self-reports and spouse ratings on the NEO Personality Inventory. *Journal of Personality and Social Psychology*, 54, 853-863.

Costa, P.T., & McCrae, R.R. (1991). NEO Five Factor Inventory. The Psychological Assessment Resources, Inc., 1991.

Costa, P.T., & McCrae, R.R. (1992). Revised NEO Personality Inventory (NEO-PI-R) and NEO Five Factor Inventory (NEO-FFI) professional manual. Odessa, FL: Psychological Assessment Resources.

Costa, P. T. & McCrae, R. R. (1994). Set like plaster? Evidence for the stability of adult personality.In T. Heatherton & J. L. Weinberger (Eds.),*Can personality change?*(pp. 21-40). Washington, DC: American Psychological Association.

Costa, P.T., & McCrae, R.R. (1995). Domains and facets: Hierarchical personality assessment using the Revised NEO Personality Inventory. *Journal of Personality Assessment, 64(1)*, 21-50.

Cunningham, C. E. Boyle, M.H. (2002). Preschoolers at risk for attention-deficit hyperactivity disorder and oppositional defiant disorder: Family, parenting, and behavioral correlates. *Journal of Abnormal Child Psychology, 30*(6), 555-560.

Diaz, Y., Jones, H., Chronis, A., Raggi, V., Clarke, T., & Belendiuk, K. (2005, November). *Comparison of African American and Caucasian children presenting to a university-based ADHD clinic: Differences in demographics, symptoms and impairment.* Abstract submitted for presentation at the annual meeting of the Association for the Advancement of Behavior Therapy: Washington, DC.

Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review of Psychology, 41*, 417-440.

Duggan, C., Milton, J., Egan, V., McCarthy, L., Palmer, B., Lee, A. (2003). Theories of general personality and mental disorder. British Journal of Psychiatry, 182, 19-23.

DuPaul, G.J., McGoey, K.E., Eckert, T.L., VanBrakle, J. (2001). Preschool children with attention-deficit/hyperactivity disorder: Impairments in behavioral, social, and school functioning. Journal of the American Academy of Child and Adolescent Psychiatry, 40, 508-515.

Ehrensaft, M. K., Wasserman, G.A., Verdelli, L., Greenwald, S., Miller, L.S., & Davies, M. (2003). Maternal antisocial behavior, parenting practices, and behavior problems in boys at risk for antisocial behavior. *Journal of Child and Family Studies, 12*(1), 27-40.

Erdfelder, E., Faul, F., & Buchner, A. (1996). GPOWER: A general power analysis program. *BehaviorResearch Methods, Instruments, & Computers*, *28*, 1-11.

Evans, S.W., Vallano, G., Pelham, W. (1994). Treatment of parenting behavior with a psychostimulant: A case study of an adult with attention-deficit hyperactivity disorder. *Journal of Child and Adolescent Psychopharmacology, 4(1),* 63-69.

Eysenck H.J., Eysenck S.B.G. (1975). *Manual of the Eysenck Personality Questionnaire*. London: Hodder & Stoughton.

Fabiano, G. A., Pelham, W. E., Waschbusch, D. A., Gnagy, E., Lahey, B. B., Chronis, A. M., Onyango, A. N., Kipp, H., Lopez-Williams, A., Burrows-MacLean, L. (2006). A Practical Measure of Impairment: Psychometric Properties of the Impairment Rating Scale in Samples of Children With Attention Deficit Hyperactivity Disorder and Two School-Based Samples. *Journal of Clinical and*

Adolescent Psychology, 35, 369-385.

Faraone, S. V., Biederman, J., Chen W., Milberger, S., et al. (1995). Genetic heterogeneity in attention-deficit hyperactivity disorder (ADHD): Gender, psychiatric comorbidity, and maternal ADHD. *Journal of Abnormal Psychology, 104(2)*, 334-345.

First, M. B., Gibbon, M., Spitzer, R. L. & Williams, J. B. (1996). Structured Clinical Interview for DSM-IV Axis I Disorders. New York: Biometrics Research.

Fischer, M. (1990). Parenting stress and the child with Attention Deficit Hyperactivity Disorder. *Journal of Clinical Child Psychology, 19*(4), 337-346.

Furstenberg, F. F., Jr. (1988). Good dads – bad dads: Two faces of fatherhood. In A. J. Cherlin (Ed.), *The changing American family and public policy* (pp. 193-218). Washington, DC: Urban Institute Press.

Gardner, F. (1997) Observational methods for recording parent-child interaction: How generalisable are the findings? *Child Psychology & Psychiatry Review***,** 2, 70-74.

Gomez, R., & Sanson, A.V. (1994). Mother child interactions and noncompliance in hyperactive boys with and without conduct problems. *Journal of Child Psychology and Psychiatry, 35*, 477-490.

Harkness, K. L., Bagby, R.M., Joffe, R.T., & Levitt, A. (2002). Major depression, chronic minor depression, and the five-factor model of personality. *European Journal of Personality, 16*, 271-281.

Hinshaw, S. P., Owens, E.B., Wells, K.C., Kraemer, H.C., Abikoff, H.B., Arnold, L.E., Conners, C.K., Elliott, G., Breenhill, L.L., Pelham, W.E., Swanson, J.M., Vitiello, B., & Wigal, T. (2000). Family processes and treatment outcome in the MTA:

Negative/ineffective parenting practices in relation to multimodal treatment. *Journal of Abnormal Child Psychology, 28*(6), 555-568.

Jensen, P. S., Martin, D., & Cantwell, D.P. (1997). Comorbidity in ADHD: Implications for research, practice, and DSM-V. *Journal of the American Academy of Child and Adolescent Psychiatry, 36*(8), 1065-1079.

Johnston, C. (1996). Parent characteristics and parent-child interactions in families of nonproblem children and ADHD children with higher and lower levels of oppositional-defiant behavior. *Journal of Abnormal Child Psychology, 24*, 85-104.

Johnston, C., Murray, D., Stephen, S.P., Pelham, W.E., & Hoza, B. (2002). Responsiveness in interactions of mothers and sons with ADHD: Relations to maternal and child characteristics. *Journal of Abnormal Child Psychology, 30*(1), 77-88.

Johnston, C. M., E.J. (2001). Families of children with Attention-Deficit/Hyperactiviy Disorder: Review and recommendations for future research. *Clinical Child and Family Psychology Review, 4*(3), 183-207.

Kochanska, G., Friesenborg, A.E., Lange, L.A., & Martel, M.M. (2004). Parents' personality and infants' temperament as contributors to their emerging relationship. *Journal of Personality and Social Psychology, 86*(5), 744-759.

Kochanska, G., Clarke, L.A., & Goldman, M.S. (1997). Implications of mothers' personality for their parenting and their young children's developmental outcomes. *Journal of Personality, 65*(2), 387-420.

Lovejoy, M. C., Graczyk, P.A., O'Hare, E., & Neuman, G. (2000). Maternal depression and parenting behavior, A meta-analytic review. *Clinical Psychology Review, 20*(5), 561-592.

Lynam, D. R., Widiger, T.A. (2001). Using the five-factor model to represent the DSM-IV personality disorders: An expert consensus approach. *Journal of Abnormal Psychology, 110*(3), 401-412.

Maier, W., Lichtermann, D., Minges, J., & Heim, R. (1992). Personality traits in subjects at risk for unipolar major depression. *Journal of Affective Disorders, 24*, 153-64.

Marsh, P.J., & Williams, L.M. (2004). An investigation of individual typologies of attention-deficit hyperactivity disorder using cluster analysis of DSM-IV criteria. *Personality and Individual Differences, 36*, 1187-1195.

Mash, E. J., Johnston, C. (1982). A comparison of the mother-child interactions of younger and older hyperactive and normal children. *Child Development, 53*, 1371-1381.

McCrae, R.R., John, O.P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality, 60(2)*, 175-215.

McMahon, R. J., Munson, J. A., & Spieker, S. J. (1997, November). *The Alabama Parenting Questionnaire: Reliability and validity in a high-risk longitudinal sample.* Presented at the meeting of the Association for the Advancement of Behavior Therapy, Miami, Florida.

Metsapelto, R. Pulkkinen, L. (2003). Personality traits and parenting: Neuroticism, Extraversion, and Openness to Experience as discriminative factors. *European Journal of Personality, 17*, 59-78.

Miller, J. D., Lynam, D.R., Widiger, T.A., Leukefeld, C. (2001). Personality disorders as extreme variants of common personality dimensions: Can the Five-Factor Model adequately represent psychopathy? Journal of Personality, 69(2), 253-276.

Miller, J. D., Reynolds, S.K., & Pilkonis, P.A. (2004). The validity of the five-factor model prototypes for personality disorders in two clinical samples. *Psychological Assessment, 16*(3), 310-322.

Murray, C., Johnston, C. (2006). Parenting in mothers with and without attention-deficit/hyperactivity disorder. *Journal of Abnormal Psychology, 115*, 62-61.

Nigg, J. T., John, O.P., Blaskey, L.G., Huang-Pollock, C.L., Willcutt, E.G., Hinshaw, S.P., & Pennington, B. (2002). Big five dimensions and ADHD symptoms: Links between personality traits and clinical symptoms. *Journal of Personality and Social Psychology, 83*(2), 451-469.

Nigg, J. T. Hinshaw, S.P. (1998). Parent personality traits and psychopathology associated with antisocial behaviors in childhood attention-deficit hyperactivity disorder. *Journal of Child Psychology and Psychiatry, 39*(2), 145-159.

Orvaschel, H., & Puig-Antich, J. (1995). *Schedule for Affective Disorders and Schizophrenia for School-Aged Children-Epidemiologic 5th Version.* Ft. Lauderdale, FL: Nova University.

Parker, J. D. A., Majeski, S.A., & Collin, V.T. (2004). ADHD symptoms and personality: Relationships with the five factor model. *Personality and Individual Differences, 36*, 977-987.

Parke, R. D. (1995). Fathers and families. In M. H. Bornstein (Ed.), *Handbook of parenting* (Vol 4, pp. 27-63). New Jersey: Lawrence Erlbaum Associates.

Pelham, W. E., Gnagy, E. M., Greenslade, K. E., & Milch, R. (1992). Teacher ratings of DSM-III-R symptoms of the disruptive behavior disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 31,* 210-218.

Pelham, W. E., Lang, A. R., Atkeson, B., Murphy, D. A., Gnangy, E. M., Greiner, A. R., Vodde-Hamilton, M., Greenslade, K. E. (1997). Effects of deviant child behavior on parental distress and alcohol consumption in laboratory interactions. Journal of Abnormal Child Psychology, 25(5), 413-424.

Piacentini, J. C., Cohen, P., & Cohen, J. (1992). Combining discrepant diagnostic information from multiple sources: Are complex algorithms better than simple ones? *Journal of Abnormal Child Psychology, 20,* 51-63.

Pfiffner, L.J., McBurnett, K., Rathouz, P.J. (2001). Father absence and familial antisocial characteristics. *Journal of Abnormal Child Psychology, 29*, 357-367.

Podolski, C. N., J.T. (2001). Parent stress and coping in relation to child ADHD severity and associated child disruptive behavior problems. *Journal of Clinical Child Psychology, 30*(4), 503-513.

Reich, J. H., & Vasile, R. G. (1993). Effect of personality disorders on treatment outcome of Axis I conditions: An update. *Journal of Nervous and Mental Disorders, 181,* 475-484.

Rhule, D. M., McMahon, R.J., & Spieker, S.J. (2004). Relation of adolescent mothers' history of antisocial behavior to child conduct problems and social competence. *Journal of Clinical Child and Adolescent Psychology, 33*(3), 523-535.

Robins R.W., Fraley, R.C., Roberts, B.W., Trzesneiwski, K.H. (2001). A longitudinal study of personality change in young adulthood. *Journal of Personality, 69*, 617-640.

Rothbaum, F., Weisz, J. R. (1994). Parental caregiving and child externalizing behavior in

nonclinical samples: A meta-analysis. *Psychological Bulletin, 116(1)*, 55-74.

Seipp, C.M., Johnston, C. (2005). Mother-son interactions in families of boys with Attention-Deficit/Hyperactivity Disorder with and without Oppositional Behavior. *Journal of Abnormal Psychology, 33*, 81-98.

Sessa, F. M., Avenevoli, S., Steinberg, L., Morris, A. S. (2001). Correspondence among informants on parenting: Preschool children, mothers, and observers. *Journal of Family Psychology*, 15, 53-68.

Seymour, K. E., Chronis, A. M., Clarke, T. L., Raggi, V. L., Diaz, Y., & Coll, K. (2005, November) *Are There Differences in Parenting of Boys and Girls with ADHD?* Abstract submitted for presentation at the Association for Advancement of Behavior Therapy 39th annual convention: Washington, DC.

Shelton, K. K., Frick, P.J., & Wootton, J. (1996). Assessment of parenting practices in families of elementary school-age children. *Journal of Clinical Child Psychology, 25*(3), 317-329.

Spinath, F. M., O'Connor, T.G. (2003). A behavioral genetic study of the overlap between personality and parenting. *Journal of Personality, 71*(5), 785-808.

Wechsler, D. (1991). *Wechsler Intelligence Scale for Children – Third Edition: Manual.* San Antonio: The Psychological Corporation.

Wolfenstein, M., and Trull, T.J. (1997). Depression and openness to experience. *Journal of Personality Assessment, 69*, 612-632.

Weiss, M., Hechtman, L., Weiss, G. (2000). ADHD in parents. *Journal of Child and Adolescent Psychiatry, 39(8)*, 1059-1061.

Zanarini, M.C., Frankenburg, F.R. (2001). Attainment and maintenance of reliability of Axis I and II disorders over the course of a longitudinal study. *Comprehensive Psychiatry, 42*, 369-374.