

MATERNAL CHARACTERISTICS, PARENTING QUALITY, AND CHILD  
BEHAVIOR PROBLEMS

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#### ABSTRACT

This study examined maternal characteristics, parenting behaviors, and child behavior problems in 27 mothers and their 2-year-old children. Maternal personality, maternal parental stress, childrearing attitudes, and child behavior problems were all mother-reported. Maternal sensitivity, intrusiveness, positive regard, and cognitive stimulation were observed in a laboratory setting. In general, maternal agreeableness and extraversion correlated with behavior problems, observed parenting, and childrearing attitudes. Childrearing attitudes were found to mediate the relations between maternal extraversion and children's attention problems. More research on the origins of young children's behavior problems needs to be done so that intervention programs can be constructed to prevent these problems from continuing into older childhood.

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## INTRODUCTION

### Overview

Belsky's (1984) model of the determinants of parenting incorporates parent and child characteristics, in addition to stress and social support, to illustrate why people parent differently and why children behave differently. Belsky's model holds that parental personality affects parents' social relationships, work experiences, and marital relations, and is also a major contributor to individual differences in parenting behavior. According to the model, parental stress and social support affect parenting and child behaviors as well. Belsky states that parental stress negatively impacts parenting and thus child behaviors. Stress comes from events that occur either during work or through social or marital relationships. Stress can also result from responsibilities related to the parental role, such as finding a babysitter.

This study will investigate the three primary aspects of Belsky's (1984) model using a sample of young children and their mothers. The study will examine how maternal personality and parental stress are related to children's behavior problems. Parenting quality will be examined as a mediator of any observed relationships.

Behavior problems that begin at an early age will be examined since these problems put a child at risk for later behavior problems (Campbell, Shaw, & Gilliom, 2000). Behavior problems can be externalizing or internalizing. Externalizing behavior problems include physical aggression (like kicking and hitting), defiance (purposefully and angrily disobeying), as well as impulsivity and inattention. Internalizing behaviors are harder to measure in young children and include anxiety, depression, dependence, and somatic symptoms such as stomachaches or headaches.

Behavior problems can be seen in very young children and in some cases can persist from toddlerhood to 5 years and beyond. Studies with younger children indicate that externalizing behaviors are common complaints of parents with young children but at high levels such behaviors are defining features of certain psychological disorders such as oppositional defiant disorder, conduct disorder, and attention deficit-hyperactivity disorder. About 60% of 3 year olds with extreme scores on externalizing behavior scales continue to have difficulties into middle childhood. Two main predictors of whether or not these problems persist are high stress in families and negative parenting styles such as inconsistent, unresponsive, or harsh parenting (Campbell et al., 2000). When behavior problems at an early age persist and become a diagnosable disorder in school age children, they are already resistant to treatment. This puts an emphasis on early prevention of externalizing behaviors as well as early identification of these behaviors (Campbell et al., 2000).

The current study has several purposes. First, although research has assessed various components of Belsky's (1984) model, no single study has attempted to examine parental personality and stress as predictors of behavior problems, using parenting as a mediator. Thus, the current study attempts a more comprehensive assessment of Belsky's model and its implications for children's development than previous research. For example, parenting as a mediator of associations between parental characteristics and children's outcomes is often hypothesized, but few studies have evaluated this possibility (Deater-Deckard, 1998). Second, although there are many studies examining predictors of children's behavior problems, the research examining parenting as a mediator of the relations between parental characteristics and children's behavior problems often uses

composite measures of children's adjustment (e.g., behavior problems and attachment security), making it difficult to isolate specific relations of parenting mediating these relations.

In order to provide a framework for this study's hypotheses, the following sections review the research on the various components of Belsky's (1984) model. First, the literature on the relationship of maternal personality and parental stress to children's behavior problems will be reviewed, followed by the research linking maternal characteristics to parenting and parenting quality to children's behavior problems.

#### Maternal Personality and Children's Behavior Problems

Most of the research examining relations between maternal personality and children's behavior problems utilizes the "Big Five" traits identified by Costa and McCrae (1989). They are neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience. *Neuroticism* refers to how a person deals with stress and negative emotions. A person low in neuroticism is in control of their emotions and copes well with stress, while a person high in neuroticism does not cope well with stress and often experiences feelings that are upsetting. *Extraversion* refers to how outgoing and socially active a person is. A person high in extraversion is extraverted, outgoing, and active, while a person low in extraversion is reserved and serious. *Agreeableness* refers to how cooperative and trusting a person is. A person high in agreeableness is eager to please others and compassionate, while a person low in agreeableness is hardheaded and competitive. *Conscientiousness* refers to how organized and dependable a person is. A person high in conscientiousness is well-organized and meticulous while a person low in conscientiousness is easygoing and not well-organized. *Openness to experience* refers to



how broad a person's interests are and their imagination. A person high in openness is very imaginative and interested in new experiences while a person low in openness is practical and set in their ways.

Kochanska, Clark, and Goldman (1997) examined how maternal personality was related to child behavior problems in a sample of 103 toddlers ( $M = 32.86$  months) and their mothers. Kochanska et al. used multiple questionnaires to assess maternal personality characteristics, which included similar constructs to the "Big Five" traits of neuroticism, extraversion, and agreeableness. Children's behaviors were observed in a laboratory during disciplinary episodes (e.g., when mothers were asked to prevent their children from touching attractive toys) and at home during daily interactions (e.g., dinner time, bath time). The observed criterion variables were children's angry affect, defiance, deviation from mother's rules, attachment security, and internalization of maternal rules (i.e., when a child enthusiastically complied without maternal sustained control). Maternal report of children's behavior problems and internalization of family rules was also obtained. Observed and mother-reported child behaviors were aggregated to create "adaptive behavior" composites. The observed "adaptive behavior" composite aggregated the scores on defiance (reversed), angry affect (reversed), committed compliance, and deviation (reversed). The mother-reported "adaptive behavior" composite aggregated measures of security of attachment, total behavior problems (reversed), and internalization of maternal rules.

Kochanska et al. (1997) found that high maternal negative emotionality (defined as an aggregate of scores on scales measuring depression, anxiety, neuroticism, guilt, and reactivity to stress) was associated with more child defiance, angry affect, and deviation.



High maternal negative emotionality was also correlated with more mother-reported child behavior problems and less internalization of rules as well as lower scores on the mother-reported and observed adaptive behavior composites. High maternal disagreeableness (a composite score of anger/frustration, aggression/hostility, and reverse scores on empathy) was related to more observed child defiance and maternal report of low internalization of rules as well as lower scores on the mother-reported adaptive behavior composite. There were no findings with the extraversion construct.

Russell (1997) conducted a study that looked at the association between maternal personality as assessed by the Personal Description Questionnaire and children's behavior in a sample of 6- to 7-year-olds and their parents. A "positive" personality composite comprised of questions asking about loyalty, self-confidence, and patience, as well as self-esteem and self-concept, was used. The maternal personality composite correlated positively with child characteristics such as warmth, affection, and positive involvement, which were observed at home and reported by both parents.

In summary, Kochanska et al. (1997) and Russell (1997) both found relations between maternal personality and child behaviors when child behaviors were both observed and reported by parents. In general, the findings indicate that characteristics such as maternal neuroticism and disagreeableness predict more negative child behaviors (Kochanska et al., 1997) while a more positive maternal personality predicts more positive child characteristics (Russell, 1997).

#### Maternal Parental Stress and Children's Behavior Problems

Stress is a manner by which one evaluates and deals with the pressures and challenges of life (Myers, 2004). Stress can be measured in multiple ways. Some self-report

instruments, such as the Life Events Survey, assess major (negative or positive) events that have occurred in the past 12 months. Other measures assess “daily hassles”, which are more chronic minor stressors (e.g., traffic). While “life events” measures typically do not consider the subjective perception of stress, other instruments do include these perceptions (e.g., by including ratings of the intensity of stress experienced). Parental stress is stress that occurs due to parenting responsibilities. Deater-Deckard (1998) defines it “as the aversive psychological reaction to the demands of being a parent” (p. 315) and states that it “is experienced as negative feelings toward the self and toward the child or children” (p. 315). There are two major self-report instruments which measure parental stress and take into account parental perceptions, the Parenting Stress Index (PSI; Abidin, 1990) and the Parenting Daily Hassles Scale (PDH; Crnic & Greenberg, 1990). Parental stress is hypothesized to be an important risk factor for child development and psychopathology (Crnic & Low, 2002; Deater-Deckard, 1998). Parental stress may influence children’s development directly, although it is hypothesized that development is most likely to be influenced indirectly (Crnic & Low, 2002) through the effects of stress on the quality of parenting (Deater-Deckard, 1998). Research has generally confirmed an association between parental stress and child behavior problems. For example, Eyberg, Boggs, and Rodriguez (1992) looked at a sample of children between the ages of 2 and 10 using questionnaire data from the child’s guardian. They found a positive correlation between a measure of parental stress and the frequency and intensity of child behavior problems. Similarly, Crnic and Greenberg (1990) found that higher perceived intensity of stress as measured by the PDH significantly predicted more mother-reported child behavior problems in a sample of 5-year-old children. Creasey and

Reese (1996) found that maternal reports of behavior problems in elementary school age children were positively related to parenting hassles. Creasey and Jarvis (1994) found that parental stress as assessed by the PSI was positively related to maternal and paternal report of externalizing and total behavior problems in 2-year-olds. In an exception to the general pattern of findings, Shaw, Owens, Vondra, Keenan, and Winslow (1996) found no relation between parenting hassles when the child was 2-years-old and mother-reported aggression or other externalizing behaviors when the child was 5-years-old. The lack of findings may be due to the issue that concurrent associations between parental stress and child behavior problems may be stronger than longitudinal data. One weakness of all of the studies discussed above is that they used parental report of both stress and child behavior problems. It is likely that maternal perceptions of stress influence perceptions of children's behavior problems (or vice versa), and these perceptions are influenced by other variables (e.g., maternal personality). Thus, associations between parental stress and children's behavior problems may be magnified due to shared method variance.

The following studies used either teacher- or father-report of child behavior problems, therefore strengthening conclusions about the association between maternal parental stress and child behavior problems. Deater-Deckard and Scarr (1996) examined maternal parental stress and father-reported child misbehavior in toddlers. Child misbehavior was a composite score of the child's temperament and hyperactivity, as well as the parent's perceived ability to manage the child. They found that higher mother-reported stress was predictive of more child misbehavior. Creasey and Reese (1996) found that teacher reports of behavior problems in elementary school age children were

positively related to maternal reports of parenting daily hassles. In a sample of preschool age children, Coplan, Bowker, and Cooper (2003) also found that parenting daily hassles predicted teacher-reported child externalizing behavior problems when child temperament was controlled.

As shown above, multiple studies have found correlations between parental stress and child behavior problems. It is likely that the relationship between parental stress and child behavior problems is cyclical. In other words, behavior problems may increase parental stress, which in turn negatively influence parenting abilities, which can lead to an increase in behavior problems (Webster-Stratton, 1990). Therefore, it is recognized that any correlation between child behavior problems and parental stress may be bidirectional. In addition, because these data are correlational, it is not clear that the association between stress and behavior problems is causal.

#### Why are Parental Characteristics Related to Children's Behavior Problems?

There are two likely mechanisms through which parental characteristics may have an effect on child outcomes, shared genes and parenting. For example, personality characteristics are heritable. It is possible that mothers who are high on neuroticism will have children with more behavior problems due to shared genes. Although shared genes are important, many researchers also emphasize the importance of parenting behavior in affecting children's behavior. For example, Deater-Deckard (1998) argues that parenting mediates the relationship between parental stress and child behavior. Belsky's (1984) model hypothesizes that both maternal and child characteristics and maternal stress influence parenting, which in turn directly affects child outcomes. The following sections will review how maternal personality and parental stress are related to parenting, how



parenting relates to child behavior problems, and how parenting may mediate any associations between maternal personality or parental stress and child behavior problems.

#### Maternal Personality and Parenting Behavior

This area of research is fairly new, only extending over the past two decades (Belsky & Barends, 2002). In Belsky and Barends review of research on personality and parenting, they mention two ideas that are important to understanding relations between parental personality and parenting behavior. First, a researcher cannot expect personality measures to predict a large proportion of the variance in parenting behavior in one situation. Parenting behavior must be measured in multiple situations since behaviors are a result of personality traits and situational components together. Therefore, personality alone cannot account for all of the variance in parenting behavior. The following review of research will be limited to the "Big Five" factors since they will be the traits examined in the current study.

In general, research indicates that neuroticism is negatively related to parenting quality (Belsky, Crnic, & Woodworth, 1995; Clark, Kochanska, & Ready, 2000; Kendler, Sham, & MacLean, 1997; Kochanska et al., 1997; Losoya, Callor, Rowe, & Goldsmith, 1997; Metsapelto & Pulkkinen, 2003). Losoya et al. examined associations between self-report of maternal child-rearing attitudes (positive support and negative control) and maternal personality. They found that maternal positive support was negatively related to neuroticism. Metsapelto and Pulkkinen also examined associations between maternal self-report of personality and parenting and found that nurturance (affection and support) and parental knowledge (awareness of their child's friends, whereabouts, and activities) were negatively linked to maternal neuroticism. Metsapelto and Pulkkinen also divided

the parents into categories representing Baumrind's (1971) parenting styles. Authoritative parents were characterized by high nurturance, low restrictiveness, and high parental knowledge. Permissive parents were characterized by high nurturance and low restrictiveness and parental knowledge. Authoritarian parents were characterized by low nurturance, high restrictiveness, and low parental knowledge. In general, research supports an association between the authoritative style and more positive adjustment in children (Parke & Buriel, 1998). Metsapelto and Pulkkinen found that authoritative parents were low in neuroticism, while authoritarian and permissive parents were high in neuroticism. The two studies above rely solely on maternal report, while the following studies use observational measures of parenting which makes them methodologically stronger.

Kochanska et al. (1997) examined maternal negative emotionality and observed and self-report measures of parenting. Parenting was measured through observations of maternal affect (positive and negative), power assertion (yelling, spanking, and threatening), and guidance (gentle control) in a lab setting, as well as by three parenting questionnaires that measured power assertion, nurturance, and responsiveness/warmth. Two "adaptive parenting" composites, one based on observed maternal behavior and one based on self-reported parenting were created from these measures. Maternal negative emotionality was positively related to observed negative affect and maternal-reported power assertion and negatively related to mother-reported responsiveness/warmth. Maternal negative emotionality was also negatively related to the observed adaptive parenting composite and the mother-reported adaptive parenting composite. Belsky and colleagues (1995) also investigated relations between parental neuroticism and parenting



observed at home when sons were between 15 and 21 months old. The parenting variables were positive and negative affect toward the child, sensitivity to the child's needs, intrusiveness, detachment, and cognitive stimulation. Mothers high on neuroticism were less affectively positive, sensitive, and cognitively stimulating toward their children than mothers who were low on neuroticism. Finally, Clark and colleagues (2000) examined maternal personality when children were between the ages of 8 and 10 months. Parenting was observed when the child was 13 to 15 months old. Maternal use of power was observed in two disciplinary contexts, a toy cleanup and a prohibition situation; a mother high in power assertion intervened forcefully with negative physical control. Maternal responsiveness was observed during unstructured settings in the laboratory. Mothers high in neuroticism were high in maternal power assertion and low in maternal responsiveness.

Not all studies find associations between neuroticism and parenting behavior. Kochanska, Friesenborg, Lange, and Martel (2004) examined neuroticism and empathy (agreeableness) in mothers of 7-month-old infants. Parental responsiveness to the child and visual tracking of the child were observed. They found no relation between neuroticism and parental responsiveness or tracking, which may be because the sample is younger than the other studies discussed.

In summary, higher maternal neuroticism has been linked to less nurturance, knowledge of one's child, positive support, positive affect, cognitive stimulation, sensitivity and responsiveness (Clark et al., 2000; Losoya et al., 1997; Metsapelto & Pulkkinen, 2003). More maternal neuroticism has also been linked to more power

assertion, intrusiveness, and maternal negative affect (Belsky et al., 1995; Clark et al., 2000; Kochanska et al., 1997).

Self-report measures of extraversion predict self-report of better parenting behaviors (Losoya et al., 1997; Metsapelto & Pulkkinen, 2003). Losoya et al. found that maternal extraversion was positively related to positive support of the child, and Metsapelto and Pulkkinen found that maternal extraversion was positively related to nurturance and negatively related to restrictiveness. As noted above in the discussion of neuroticism, Metsapelto and Pulkkinen also categorized parents as authoritative, authoritarian, and permissive. They found that authoritative and permissive parents were high in extraversion, while authoritarian parents were low in extraversion.

When parenting behavior is observed, its relation to extraversion seems to vary depending on the context in which parenting is observed. For example, extraversion is typically related to higher parenting quality in play situations (Belsky et al., 1995), but during disciplinary situations it has been related to lower parenting quality (Clark et al., 2000; Kochanska et al., 1997). Belsky and colleagues found that highly extraverted mothers were more positively affective, sensitive, and cognitively stimulating with their sons. Kochanska et al. (1997) examined two components of extraversion: sociability and socialization. Maternal sociability was positively related to maternal-reported power assertion. There was no relation between sensation seeking and power assertion, although Clark et al. found that mothers high in extraversion used more power assertion during disciplinary situations.

In summary, maternal extraversion is associated with positive parenting behaviors such as sensitivity and cognitive stimulation (Belsky et al., 1995) in less structured

settings, while in disciplinary contexts extraversion is associated with negative parenting behaviors such as power assertion (Clark et al., 2000; Kochanska et al., 1997). The different associations between extraversion and parenting behaviors may be due to the context in which these behaviors are observed since behaviors are a product of both personality and context (Belsky & Barends, 2002). This may also explain why some studies have found no relations between extraversion and parenting behaviors.

Kochanska et al. (2004) examined maternal personality and parental responsiveness and visual tracking of 7-month-old infants, and found no relations between these variables. The sample of Kochanska et al.'s (2004) study is also younger than other studies reviewed in this section.

In contrast to neuroticism, maternal agreeableness is generally related to higher parenting quality (Belsky et al., 1995; Clark et al., 2000; Kochanska et al., 1997; Losoya et al., 1997; Metsapelto & Pulkkinen, 2003). In a study of self-reported parenting behavior and maternal personality, Losoya et al. found that maternal agreeableness was positively related to positive support of children and negatively related to negative control, negative affect, and control (i.e., strict control without negative affect). Similarly, Metsapelto and Pulkkinen found that maternal agreeableness was positively related to self-reported nurturance. Both of these studies used self-report for maternal personality and parenting behavior therefore the relations between these two variables may be at least partially due to shared method variance.

The following studies used observed measures of parenting behaviors. Kochanska et al. (1997) examined maternal "disagreeableness" and parenting behaviors that were observed and self-reported. Disagreeableness was the composite of scores on

multiple self-report measures of anger/frustration, aggression/hostility, and perspective taking (reversed). Maternal disagreeableness was positively related to observed negative affect with the child and self-reported power assertion and negatively related to self-reported responsiveness/warmth and nurturance. Maternal disagreeableness was also negatively related to the observed adaptive parenting composite and the mother-reported adaptive parenting composite (see above for details). Belsky and colleagues (1995) examined the relation between self-reports of parental agreeableness and home observations of parenting behaviors. Mothers who were more agreeable were more positively affective, sensitive, and cognitively stimulating with their sons. They were also less detached and showed less negative affect toward their sons. Similarly, Clark et al. (2000) observed maternal parenting behaviors and found that mothers high in agreeableness were more responsive. Thus, in general maternal agreeableness is positively related to more positive parenting behaviors (Belsky et al., 1995; Clark et al., 2000; Losoya et al., 1997; Metsapelto & Pulkkinen, 2003) and maternal disagreeableness is positively related to more negative parenting behaviors (Kochanska et al., 1997). These studies are stronger than those that rely solely on self-report measures since they observe parenting and do not rely on parental report alone.

Conscientiousness is typically related to more positive parenting behaviors (Clark et al., 2000; Kochanska et al., 2004; Losoya et al., 1997). It has been related to less control and power assertion (Clark et al., 2000; Losoya et al., 1997) and to greater visual tracking and responsiveness (Clark et al., 2000, Kochanska et al., 2004). However, Metsapelto and Pulkkinen (2003) found that higher conscientiousness was positively related to higher restrictiveness.



Fewer studies have examined openness to experience than is the case for the other "Big Five" traits, but Metsapelto and Pulkkinen (2003) found that maternal openness to experience was positively related to nurturance and negatively related to restrictiveness. Metsapelto and Pulkkinen also clustered parents into types of childrearing orientations based on their self-reported parenting behaviors, as discussed above. The authoritative and permissive parents were higher on openness to experience than were authoritarian parents. In contrast to the findings of this study, in two other studies maternal openness to experience was not found to relate to parenting behaviors including responsiveness, visual tracking of the child, or power assertion (Clark et al., 2000; Kochanska et al., 2004).

The studies reviewed above indicate that the "Big Five" personality factors predict parenting behaviors. Mothers who are more neurotic tend to exhibit lower parenting quality, while mothers who are more agreeable or conscientious show better parenting quality. Extraversion promotes better parenting quality in unstructured settings, while predicting lesser parenting quality in disciplinary settings. Openness to experience has been found in one study (Metsapelto & Pulkkinen, 2003) to promote better parenting quality while other studies have found no relations between this personality dimension and parenting behavior (Clark et al., 2000; Kochanska et al., 2004).

#### Maternal Parental Stress and Parenting Behavior

Crnice and Low (2002) argue that parents' perceived stress (including stress related to the parental role) has a negative impact on parenting behaviors. Although Crnic and Greenberg (1990) found no relationship between stress due to daily hassles or

to life events and seven observed categories of parenting behavior in a sample of parents of 5-year-olds, other studies have found an association. Deater-Deckard and Scarr (1996) examined maternal report of parental stress and child-rearing attitudes in a sample of mothers of young children. They used three subscales of the Parenting Stress Index: Parent Distress (parent's unhappiness in the parenting role), Parent-Child Dysfunctional Interaction (parent's perception of the emotional quality of their relationship with the child), and Child Difficulty (parent's perceptions of the child's behavior and its consistency with expectations of appropriate behavior). Two aspects of childrearing attitudes were assessed. Authoritarianism was a composite score of physical punishment and reasoning (reversed). Parent traditionalism was a measure of traditional childrearing attitudes. Parent Distress and Parent-Child Dysfunctional Interaction were positively related to parents' endorsement of authoritarian discipline and traditionalism. Child Difficulty was positively related to parents' traditionalism. Rodgers (1993) examined maternal report of parental stress and parenting behavior in a sample of mothers of Head Start children and kindergarten children. She found that parental stress was positively related to negative parenting behavior. The above studies used self-report measures for both stress and parenting behaviors; therefore, the relations obtained may be due to shared method variance.

Longfellow, Zelkowitz, and Saunders (1982) examined life stress and parenting behavior in a sample of parents whose children were between the ages of 5 and 7 years. Observations of parenting behavior were done in the home. Parenting behaviors that were analyzed were nurturant mands (mothers' offers for food, comfort, and attention), prosocial mands (mothers' instructions and prohibitions regarding the child's socially



appropriate conduct in certain situations), dominant mands (mother's attempts to control the behavior of the child just for the sake of exerting her will over the child), negative response styles (yelling, scolding, or threatening along with a style of noncompliance to a child's request, like ignoring), and maternal compliance to the child's dependent mands. They found that stress was positively related to prosocial mands and negatively related to compliance to the child's dependent mands, nurturant mands, and dominant mands. Campbell, Pierce, March, and Ewing (1991) looked at family stress, as measured by major life events, as a predictor of maternal control in a sample of mothers and their 2.5 to 4.5-year-old boys who were showing early signs of externalizing behaviors. Mothers' interactions were assessed during a play situation and a clean-up situation. Maternal control was a measure of the extent to which mothers reprimanded the child, gave negative feedback, or directed the child to control himself. Degree of family stress was positively related to maternal control. Belsky et al. (1995) examined daily hassles and parenting in a sample of mothers of firstborn sons between the ages of 15 and 21 months. Daily hassles in this study was a measure assessing both parenting daily hassles and general everyday life hassles. Parenting was observed at home when childrearing demands were expected to be high (e.g., dinner time). Observed parenting behaviors were positive and negative affect toward the child, sensitivity, intrusiveness, detachment, and cognitive stimulation. They found that total hassles were negatively correlated with maternal sensitivity and positively correlated with negative maternal affect.

These studies show that high stress, including parental stress, is related to lower parenting quality. However, these data are correlational and it cannot be assumed that greater stress leads to poorer parenting. There may be third variables involved that are

responsible both for parents' higher stress levels and their poorer parenting (e.g., personality). In addition, poorer parenting may increase parental stress by increasing child behavior problems, so there is also the possibility of bidirectional influences.

#### Quality of Parenting and Child Behavior Problems

Multiple studies have assessed how parenting behavior is related to behavior problems in children. However, most studies involve older children. There are relatively few studies examining preschoolers' behavior problems and how they are related to parenting, and even fewer that have focused on toddlers. The following section will review studies that have examined relations between parenting behaviors and preschoolers' and toddlers' behavior problems.

The majority of these studies have used mother-reported questionnaire data to assess both parenting behavior and child behavior problems. In general, more positive maternal behaviors such as cuddling and nurturing, as well as a positive parent-child relationship predict fewer child behavior problems (Brenner & Fox, 1998; Denham, Workman, Cole, Weissbrod, Kendziora, & Zahn-Waxler, 2000; DeVito & Hopkins, 2001; Harrist & Ainslie, 1998; Javo, Rønning, Heyrdahl, & Rudmin, 2004). Other studies find that behaviors such as physical discipline and teasing predict more child behavior problems (Brenner & Fox, 1998; Javo et al., 2004; Paterson & Sanson, 1999; Polaha, Larzelere, Shapiro, & Pettit, 2004; Singhal, Hirisave, & Reddy, 1998). It is important to note that the link between parenting behaviors and behavior problems reported in these studies may result from shared method variance.

Other studies have examined parenting that is mother-reported and child behavior problems that are teacher-reported. More emotional support and more positive parent-

child communication are related to fewer child behavior problems (Denham et al., 2000; Keown & Woodward, 2002), while greater use of physical discipline, “lax” parenting (i.e., parent gives in or fails to enforce rules), and “over-reactive” parenting (i.e., meanness, anger, and irritability during disciplinary episodes) are related to more child behavior problems (Keown & Woodward, 2002; Polaha et al., 2004). Although most studies find relationships between positive as well as negative parenting behaviors and child behavior problems, Paterson and Sanson (1999) found no relationship between warmth or physical discipline and child behavior problems. There is no clear reason for this inconsistency, although the other studies cited above did not examine parental warmth.

Studies have also examined observed parenting behaviors and their relationship to parent- and teacher-reported child behavior problems. In general, these studies have obtained similar findings as the studies mentioned previously. More positive parenting behaviors such as providing emotional support, warmth, and responsiveness are related to fewer behavior problems (Denham et al., 2000; Pettit & Bates, 1989). More negative parenting behaviors such as coerciveness, making critical and rejecting remarks, and negative affect are related to more behavior problems (Fagot & Leve, 1998; Pettit & Bates, 1989; Smith, Calkins, Keane, & Anastopoulos, 2004; Webster-Stratton & Hammond, 1999).

Although many studies find that more positive parenting behaviors predict fewer behavior problems, there are occasional exceptions. Smith et al. (2004) found that maternal positive behavior (warmth and sensitivity) when the child was 2-years-old significantly predicted more child externalizing behaviors when the child was 4. In

addition to some inconsistent findings, other studies fail to find significant relations between parenting behaviors and child behavior problems (Benzies, Harrison, & Magill-Evans, 1998; Calzada, Eyberg, Rich, & Querido, 2004; Houck & Lecuyer-Maus, 2004). One possible explanation for why some of these studies did not find any relations may be the measure of behavior problems that they used. The majority of the studies in this area use the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2000), while two of the studies that did not find any relations used the Eyberg Child Behavior Inventory (ECBI; Eyberg, 1992). The ECBI measures behavior problems on two dimensions, the frequency of occurrence and whether the behavior is problematic to the rater, while the CBCL only assesses the frequency of externalizing and internalizing behavior problems.

Other studies in this area have used observational measures of both parenting behavior and child behavior problems. Kilgore, Snyder, and Lentz (2000) used observational and self-report measures of parental monitoring and observational and teacher-reported measures of parental discipline. They found that greater parental monitoring significantly predicted fewer concurrent child behavior problems at the age of 4 years, while parental discipline significantly predicted more concurrent child behavior problems at the age of 4 years. They also found that greater parental discipline at age 2 significantly predicted more child behavior problems at age 4 when early behavior problems were controlled. Crockenberg and Litman (1990) observed maternal behavior and child defiance in the home setting and found that maternal power assertion was more likely to be followed by and increase the probability of child defiance. Few studies have examined how parenting behavior may interact with other child characteristics to predict behavior problems. However, Chen, Wu, Chen, Wang, and Chen (2001) observed



parental behavior at home and child aggression in a lab setting during dyadic peer interaction. The findings depended on the child's level of compliance and were not entirely consistent across parents. Specifically, maternal warmth was negatively related to aggression only for children with high compliance scores. However, paternal guidance was negatively related to aggression only for children with low compliance scores. In addition, maternal power assertion positively predicted aggression but only for children whose fathers also had high scores on power assertion, and paternal power assertion positively predicted aggression only for girls.

The majority of the findings of the above studies show that more positive parenting is related to fewer child behavior problems, while more negative parenting is related to more child behavior problems. In general, physical discipline, lax parenting, over-reactive parenting, coerciveness, making critical and rejecting remarks, power assertion, and negative affect are associated with more child behavior problems (Brenner & Fox, 1998; Chen et al., 2001; Crockenberg & Litman, 1990; Fagot & Leve, 1998; Javo et al., 2004; Keown & Woodward, 2002; Kilgore et al., 2000; Pettit & Bates, 1989; Polaha et al. 2004; Singhal et al., 1998; Smith et al., 2004; Webster-Stratton & Hammond, 1999), while parental warmth, emotional support, monitoring the child, guidance, and responsiveness are related to fewer child behavior problems (Chen et al.; Denham et al., 2000; Kilgore et al.; Pettit & Bates).

Given that maternal characteristics relate to parenting quality and parenting quality is related to child behavior problems, it seems logical that the association between maternal characteristics and child behavior problems may be accounted for by parenting quality. However, only a limited number of studies have actually examined whether

parenting quality mediates the association between maternal personality or parental stress and child behavior problems. The next two sections will review these studies.

#### Parenting Quality as a Mediator of the Relationship between Maternal Personality and Child Behavior Problems

Kochanska et al. (1997) examined parenting as a mediator of the relationship between maternal personality and child behavior. Maternal personality traits included negative emotionality and disagreeableness (see above for definitions). Parenting was measured through observations of maternal affect (positive and negative), power assertion (yelling, spanking, and threatening), and guidance (gentle control) in the lab setting, as well as through maternal self-report of power assertion, nurturance, and responsiveness/warmth. Two composites of "adaptive parenting" behavior were created, one based on observed measures of parenting and the other based on maternal report of parenting behavior. Children's "committed compliance" (i.e., complying with enthusiasm) during disciplinary episodes, as well as reverse scores on defiance, angry affect, and deviation from rules were aggregated to form an observed "adaptive behavior" composite. A similar composite based on data obtained from maternal report aggregated scores on measures of attachment security, total behavior problems (reversed), and internalization of maternal rules.

Parenting quality partially mediated the relationship between maternal negative emotionality and the mother-reported "adaptive behavior" composite. Maternal negative emotionality was negatively related to the observed child "adaptive behavior" composite, but this relationship was not mediated by parenting quality. Maternal socialization was only directly related to the observed child behavior composite. Therefore, parenting did



not mediate the relations between maternal socialization and the observed child behavior composite. Higher maternal disagreeableness was associated with lower scores on both the mother-reported and observed adaptive behavior composites, and parenting mediated these relationships. Therefore, this study provides some evidence that parenting may mediate relations between certain maternal personality traits and child behavior, although some of these associations cannot be accounted for by parenting behavior, at least as assessed in this study.

#### Parenting Quality as a Mediator of the Relationship between Maternal Parental Stress and Child Behavior Problems

Deater-Deckard and Scarr (1996) examined parenting as a mediator of the relationship between parental stress and child misbehavior using path analysis. Child misbehavior was father-reported, while parenting behavior and stress were mother-reported. Child misbehavior was a composite score of the child's temperament and hyperactivity, as well as the parent's ability to manage the child. They found that the positive association between parental stress and child misbehavior was mediated by parental physical discipline. Specifically, greater stress predicted more discipline, which in turn was linked to more child misbehavior. This specific model was found to fit only the younger toddler age group. Sample sizes for all three groups (younger toddler, older toddler, and preschool children) exceeded 150; therefore, power was high enough to detect effects, if present, for all age groups. Although they did not specify the ages of each group, the sample age range was 12 to 60 months. Therefore 24-month-olds were likely to be in the younger toddler group. Deater-Deckard and Scarr are the only researchers to have examined parenting as a mediator of relations between maternal stress

and child behavior problems in very young children, although one other study has examined these associations in adolescents. Conger, Patterson, and Ge (1995) investigated parental stress and adolescent boys' deviance and antisocial behavior using harsh discipline as a mediator. Stressful life events were related to parental depressed mood, which in turn was related to greater disciplinary actions; more discipline predicted greater deviance and antisocial behavior in two separate samples of adolescent boys. The findings of these two studies indicate that the relationship between parental stress and child behaviors may be mediated by parenting.

#### Rationale for the Present Study

In this study, maternal personality and parental stress will be examined to see if there is a relationship with child behavior problems. If these variables are related, parenting quality will be examined as a mediator of the associations between maternal characteristics and child behavior problems. Few studies have examined parenting as a mediator of associations between maternal characteristics and children's outcomes. Moreover, no previous studies have assessed behavior problems alone as an outcome variable. For example, Kochanska and colleagues (1997) examined parenting as a mediator of the associations between maternal personality and child behavior, but child behavior was a composite measure of attachment security, internalization of family rules, and child behavior problems. Similarly, Deater-Deckard and Scarr (1996) examined parenting as a mediator of the associations between maternal stress and child misbehavior. The misbehavior score was a composite of the parent's ability to manage the child and the child's temperament and hyperactivity. Therefore, parenting may only mediate the relationship between maternal personality and certain child outcomes. Given

the importance of prevention and early identification of behavior problems, clarifying specific associations between maternal characteristics and behavior problems, as well as the processes underlying these relations, is important.

#### Hypotheses

- 1) Higher maternal neuroticism and higher parental stress would predict more child behavior problems. Higher maternal extraversion, agreeableness, conscientiousness, and openness would predict fewer child behavior problems.
- 2) Higher maternal neuroticism and higher parental stress would predict lower parenting quality. Higher maternal extraversion, agreeableness, conscientiousness, and openness would predict better parenting quality.
- 3) Parenting quality would predict fewer child behavior problems.
- 4) Parenting quality would mediate the associations between maternal personality and child behavior problems as well as between parental stress and child behavior problems.

## METHOD

#### Participants

Twenty-seven mothers and their 2-year-olds (23-26 months) were recruited through public birth records for New Hanover County in southeastern North Carolina. The birth records were two years old, so phone numbers and current addresses of families were looked up via the white pages online. Letters were sent out to families whose phone numbers were located. The families received a call about two weeks after the letter was

sent out and were asked to participate in the study. Families who participated were reimbursed twenty dollars.

Maternal age ranged from 25 to 45 years. Twenty-one of the children were European-American, 2 were African-American, and 4 were multiracial. All of the children except 1 lived in the same household as both of their parents. All of the children were healthy without any history of serious health problems or evidence of developmental delays. Although 2 children were premature, there were no signs of developmental delays.

#### Measures

##### Demographic Questionnaire

This questionnaire, completed by the mother, provided information about child age, parental age, parental education, family ethnicity, siblings (sex and age), and any birth complications or other serious health problems of the child.

##### NEO Five-Factor Inventory (NEO-FFI; Costa & McCrae, 1989)

The NEO Five-Factor Inventory (NEO-FFI) was used to measure maternal personality. This self-report instrument has five 12-item scales: neuroticism, extraversion, conscientiousness, openness to experience, and agreeableness. Costa and McCrae reported reliability and validity information on a single standardization sample of 983 adults. All five subscales showed good internal consistency ( $\alpha$ 's = .89, .79, .76, .74, and .84 for neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness, respectively). Self-reports of personality were taken twice, three years apart, and there was significant stability ( $r$ 's = .56 - .62,  $p < .01$ ). Convergent validity was indicated by cross-observer correlations between self-report of personality and



spouses' reports ( $r's = .39 - .53, p < .001$ ), and between self-report and peer ratings of personality ( $r's = .34 - .59, p < .001$ ; Costa & McCrae). T-scores were used for all preliminary analyses.

Parental Modernity Scale (Schaefer & Edgerton, 1985)

The Parental Modernity Scale assessed childrearing attitudes and included 30 items which measured the parent's traditional authoritarian (high on control, low on warmth) and progressive democratic (high on control, high on warmth) beliefs concerning education and childrearing. The mother rated how much she agreed with each statement on a 5-point Likert scale. Examples of traditional beliefs include statements such as *Children should be treated alike regardless of their differences*, *Children will not do the right thing without parental guidance*, and *Parents should not question a teacher's teaching methods*. Examples of progressive beliefs include statements such as *Children should be allowed to disagree with their parents if they feel their own ideas are better* and *Children like to teach other children*. Three scores can be calculated: traditional, progressive, and total. Low total scores represent more authoritative attitudes while high scores represent more authoritarian attitudes. The traditional and progressive subscales have been shown to have good predictive validity and the total scale had moderate predictive validity, relating to child overall intelligence and verbal intelligence. The test-retest reliability correlations for the subscales, taken several months apart, were moderate,  $r's = .73$  and  $.64$  for traditional and progressive, respectively (Schaefer & Edgerton).



Parenting Daily Hassles (PDH; Crnic & Greenberg, 1990)

The Parenting Daily Hassles (PDH) Scale included 20 items and measured the frequency and intensity of stress due to both children's challenging behavior and to routine parenting tasks. The parent rated how often an event happens either as *rarely*, *sometimes*, *a lot*, or *constantly*, and also rates the degree of "hassle" as *low* or *high* on a 5-point scale. Some examples of hassles are cleaning up messes, finding babysitters, and managing children in public. There is no information on reliability, although the PDH had shown predicted relations with child behavior problems (Coplan et al., 2003; Creasey & Reese, 1996; Crnic & Greenberg, 1990) and parenting behaviors (Belsky et al., 1995). Two total scores can be calculated, one for intensity and one for frequency. There are two subscales of the intensity score, a challenging behavior scale and a parenting tasks scale. In this study, the intensity score will be used in all analyses since all scales were highly correlated.

Child Behavior Checklist (CBCL 1 ½ - 5 years; Achenbach & Rescorla, 2000)

The Child Behavior Checklist (CBCL) is the most widely used assessment of behavior problems in young children. The CBCL consisted of 99 items that described behavioral/emotional problems that the child currently had or had had within the last 2 months. Mothers were asked to complete the CBCL. The CBCL assessed internalizing and externalizing behaviors of the child. Two broadband factors for internalizing and externalizing behaviors, as well as a total behavior problems score, can be calculated. Subscales of the internalizing factor are *emotionally reactive*, *anxious/depressed*, *somatic complaints*, and *withdrawn*. The items for internalizing behaviors included signs of sadness or anxiety, as well as somatic symptoms without known medical cause (e.g.,

stomachaches). Subscales of the externalizing factor are *attention problems* and *aggressive behavior*. Items assessing externalizing behaviors included signs of inattention, hyperactivity, and aggression. A separate subscale for sleep problems is also included. In this study, the t-scores based on the standardization sample were used for analyses involving the internalizing and externalizing broad-band factors and the total behavior problems score. Because the t-scores were truncated for the subscales, the raw scores were used for analyses involving the subscale scores as recommended by Achenbach and Rescorla (2000).

In one sample assessed with the CBCL 1½-5, consisting of 68 children, Achenbach and Rescorla (2000) found that externalizing, internalizing, and total behavior problem scores showed good test-retest reliability ( $r$ 's = .77 – .90,  $p < .01$ ). In a separate sample, interparental agreement was also significant ( $r = .65, p < .01$ ). In another sample, all stability coefficients were significant at  $p < .01$  over a 1-year period. Scores on the CBCL were also significantly correlated with other measures of behavior problems in young children, including the *CBCL 2-3 Years*, the *Toddler Behavior Screening Inventory*, and the *Infant-Toddler Social and Emotional Assessment*, indicating convergent validity (Achenbach & Rescorla, 2000).

#### Procedure

After mothers agreed to participate in this study, they were sent all questionnaires (demographic, CBCL, Parental Modernity Scale, PDH, and NEO-FFI) to complete prior to their laboratory visit. The lab was located on the University of North Carolina Wilmington campus and resembled a waiting room (chair and magazines for mother,

small table and chair for child). The entire session was videotaped through a one-way mirror.

Mothers and children were observed during the middle 5 min of a 15 min semi-structured play session that occurred as part of a longer assessment. There were three boxes numbered one to three and placed on a table out of the child's reach. Each box had one toy or a set of toys in it (book, toy dishes, and toy zoo). The mother was instructed to have the child play with each of the toys in the three boxes within the 15 min in the order that the boxes were numbered (National Institute of Child Health and Human Development [NICHD] Study of Early Childcare and Youth Development). Mothers were told that they could divide the time spent playing with each toy however they wished and that they could play with their child if they liked. The rationale for using this type of play session was that it should reveal variability in how mothers behave with their children. For example, mothers could play with their children or let their children play alone. Mothers could also let the child choose the pace that they go through the boxes or mothers could choose the pace themselves.

Mothers were rated (from videotape) on their sensitivity, intrusiveness, positive regard for the child, and cognitive stimulation, using a coding system developed by the NICHD Study of Early Childcare and Youth Development. Global ratings were made for the middle 5 min of the play session on four 4-point scales (1 being *not at all characteristic* and 4 being *highly characteristic*; see Appendix A for the coding manual). *Sensitivity* referred to the degree to which the mother responded to the child's signals (e.g., the child cried when a toy was taken away and the mother responded by giving it back). *Intrusiveness* referred to the degree to which the mother inserted her own agenda

into the child's play while disregarding the child's desires. *Positive regard* for the child referred to the degree to which the mother displayed positive feelings toward the child, which were shown by physical affection, enthusiasm, laughing, praising the child, smiling, and speaking in a warm voice. *Cognitive stimulation* referred to the degree to which the mother asked questions, taught concepts, and challenged their child cognitively.

Two coders, including the study author, were trained by a more experienced coder. All three individuals met and coded three pilot participants' data as a group. The two coders then began to code videotapes separately, beginning with four additional pilot tapes and then continuing with participants' tapes. Twenty of the study tapes were coded by both coders and any disagreements were resolved by consensus. The remaining seven tapes were coded by the author due to time constraints. At the time the current study was completed, attempts to establish higher levels of reliability were still ongoing. Interrater reliability estimates assessed by Pearson correlations and based on 30 tapes were .63, .65, .69, and .76 for sensitivity, intrusiveness, cognitive stimulation, and positive regard, respectively.<sup>1</sup> It should be noted that the reliability in this study is higher than the reliability estimates established in the NICHD Study of Early Childcare and Youth Development ( $r$ 's = .67, .54, .57, and .61, respectively).

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<sup>1</sup> Six of the seven remaining tapes that were coded only by the study author were recodings of participants' data that were used in the reliability estimates. These were recoded because the coding manual had changed after they had been coded the first time.



## RESULTS

### Preliminary Analyses

Descriptive statistics for the predictor variables, mediator variables, and dependent variables are provided in Tables 1, 2, and 3, respectively. To see if any variables were related and to see if any mediational analyses were possible, zero-order Pearson correlations were calculated to assess associations between maternal characteristics (personality and parental stress) and child behavior problems, between maternal characteristics and parenting measures (observed and self-report), and between parenting measures and child behavior problems.

### Maternal Personality and Child Behavior Problems

For this set of analyses, the five factor scores from the NEO-FFI (neuroticism, extraversion, openness to experience, conscientiousness, and agreeableness) were correlated with children's internalizing, externalizing, and total behavior problems scores and the subscale scores of the CBCL using Pearson zero-order correlations. All correlations are reported in Table 4. Maternal neuroticism was not significantly related to any of the behavior problems scores. Maternal neuroticism was marginally related to children's externalizing and total behavior problems as well as children's anxious/depressed symptoms and attention problems. Maternal extraversion was negatively related to the attention problems and aggressive problems subscales of the CBCL. Maternal agreeableness was negatively related to children's internalizing, externalizing, and total behavior problems scores and to the emotionally reactive, anxious/depressed, withdrawn, and aggressive problems subscales. Maternal

Table 1

Means and Standard Deviations of Predictor Variables

Predictor Variables	Mean	Standard Deviation	Range
Maternal Neuroticism	45.81	-	38
Maternal Extraversion	52.33	-	45
Maternal Agreeableness	53.11	-	42
Maternal Conscientiousness	47.81	-	46
Maternal Openness	46.74	-	40
Maternal Parental Stress	41.15	14.27	-

Table 2

Means and Standard Deviations of Mediator Variables

Mediator Variables	Mean	Standard Deviation
Observed Maternal Sensitivity	2.74	0.71
Observed Maternal Intrusiveness	2.04	0.76
Observed Maternal Cognitive Stimulation	2.30	0.47
Observed Maternal Positive Regard	2.96	0.90
Progressive Child-Rearing Attitudes	32.85	3.57
Traditional Child-Rearing Attitudes	56.04	14.26
Total Child-Rearing Attitudes	88.89	13.92

Table 3

Means and Standard Deviations of Dependent Variables

Dependent Variables	Mean	Standard Deviation
Total Behavior Problems	50.04	9.28
Internalizing Behavior Problems	48.63	9.14
Externalizing Behavior Problems	50.74	9.58
Emotionally Reactive	2.07	1.80
Anxious/Depressed	2.11	1.67
Somatic Complaints	1.81	1.67
Withdrawn	1.44	1.45
Sleep Problems	2.44	2.46
Attention Problems	3.07	2.11
Aggressive Problems	10.30	6.08



Table 4

## Correlations between Maternal Personality and Child Behavior Problems

Child Behavior Problems	Maternal Personality				
	Neuroticism	Extraversion	Agreeableness	Conscientiousness	Openness
Total Behavior Problems	0.35 †	-0.32 †	-0.54 **	-0.20	-0.37 †
Internalizing Behavior Problems	0.28	-0.12	-0.48 *	-0.14	-0.42 *
Externalizing Behavior Problems	0.36 †	-0.38 †	-0.41 *	-0.15	-0.30
Emotionally Reactive	0.26	-0.05	-0.56 **	0.01	-0.31
Anxious/Depressed	0.34 †	-0.08	-0.055 **	-0.39 *	-0.35 †
Somatic Complaints	-0.01	0.07	-0.10	-0.11	-0.03
Withdrawn	0.28	-0.20	-0.68 **	-0.11	-0.34 †
Sleep Problems	0.17	-0.39 *	-0.28	-0.04	-0.12
Attention Problems	0.35 †	-0.43 *	-0.27	-0.17	-0.33 †
Aggressive Problems	0.28	-0.30	-0.46 *	-0.02	-0.25

Note. Spearman correlations were conducted for the CBCL subscales that were skewed (positively).

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

† $p < .10$

conscientiousness was negatively related to the anxious/depressed subscale of the CBCL and maternal openness was negatively related to internalizing behavior problems.

#### Maternal Parental Stress and Child Behavior Problems

Correlations were conducted on the maternal parental stress measure (the intensity scale of the PDH) and the internalizing, externalizing, and total behavior problems scores and subscale scores of the CBCL. There were no significant associations between maternal parental stress and any of the behavior problems scores, although parental stress was marginally associated with aggressive problems ( $r = .33, p < .10$ ).

#### Maternal Personality and Parenting

Correlations were calculated to examine associations between maternal personality and observed parenting (sensitivity, intrusiveness, positive regard for the child, and cognitive stimulation) and between maternal personality and self-reported childrearing attitudes. As noted above, higher scores on the total score of the Parental Modernity Scale reflect more traditional childrearing attitudes. Zero-order Pearson correlations are reported in Table 5. Maternal neuroticism was positively correlated with scores on the traditional subscale of the Parental Modernity Scale and with the total score. Maternal extraversion was negatively related to total scores on the Parental Modernity Scale. Maternal agreeableness was positively related to observed sensitivity and negatively related to observed intrusiveness and to the traditional subscale of the Parental Modernity Scale. Maternal conscientiousness was not significantly related to any of the parenting measures (observed or self-report). Maternal openness was negatively correlated with traditional and total childrearing scores on the Parental Modernity Scale and positively correlated with observed sensitivity.

Table 5

## Correlations between Maternal Personality and Parenting Variables

Parenting Variables	Maternal Personality				
	Neuroticism	Extraversion	Agreeableness	Conscientiousness	Openness
Observed Sensitivity	-0.21	0.27	0.49 **	0.16	0.43 *
Observed Intrusiveness	0.07	-0.25	-0.46 *	0.02	-0.29
Observed Cognitive Stimulation	-0.06	0.01	-0.03	0.04	0.09
Observed Positive Regard	-0.27	0.11	0.31	0.06	0.04
Progressive Child-Rearing Attitudes	-0.14	-0.18	0.24	0.02	-0.10
Traditional Child-Rearing Attitudes	0.51 **	-0.37 †	-0.41 *	-0.24	-0.43 *
Total Child-Rearing Attitudes	0.49 **	-0.43 *	-0.36 †	-0.24	-0.46 *

\* $p < .05$  \*\* $p < .01$ † $p < .10$

#### Maternal Parental Stress and Parenting

Zero-order Pearson correlations were calculated to assess associations between maternal parental stress and observed parenting and self-reported childrearing attitudes. There were no significant correlations between the intensity scale of the PDH and the observed parenting variables, although the intensity scale was marginally and negatively associated with maternal cognitive stimulation ( $r = -0.37, p < .10$ ). The intensity scale of the PDH was negatively correlated with the progressive subscale of the Parental Modernity Scale ( $r = -.53, p < .01$ ), indicating that higher parental stress was associated with less progressive childrearing attitudes.

#### Parenting and Child Behavior Problems

Last, Zero-order Pearson correlations were calculated to assess associations between observed parenting and self-reported childrearing attitudes and children's behavior problems. Maternal cognitive stimulation was positively related to the sleep problems subscale score of the CBCL ( $r = .52, p < .01$ ), but there were no other significant correlations between the observed parenting variables and behavior problems scores. Maternal sensitivity was marginally and negatively related to the anxious/depressed subscale of the CBCL ( $r = -.36, p < .10$ ), and maternal intrusiveness was marginally positively correlated with the child sleep problems subscale ( $r = .36, p < .10$ ). The traditional subscale of the Parental Modernity Scale was positively correlated with the anxious/depressed ( $r = .38, p < .05$ ) and attention problems subscales ( $r = .43, p < .05$ ) of the CBCL. The traditional subscale was also marginally correlated with the internalizing factor of the CBCL ( $r = .34, p < .10$ ). Total scores on the Parental



Modernity Scale were also positively associated with the attention problems subscale of the CBCL ( $r = .47, p < .05$ ).

The results of the preliminary analyses indicated that a negative relationship between maternal agreeableness and children's anxious/depressed symptoms might be mediated by traditional childrearing attitudes on the Parental Modernity Scale. In addition, the negative relationship between maternal extraversion and children's inattention symptoms might also be mediated by total childrearing attitudes on the Parental Modernity Scale.

#### Predictive Analyses

Before conducting any mediational analyses, maternal education, paternal education, and child gender were correlated with the dependent variables, child behavior problems scores. These demographic variables were examined because education is one indicator of socioeconomic status, which is negatively related to the incidence of child behavior problems (Kahn, Wilson, & Wise, 2005). Child gender was examined because behavior problems manifest themselves differently in males than in females (e.g., males are more likely to have externalizing behavior problems while females are more likely to have internalizing behavior problems; Smith et al., 2004). Since no relationships were found between any of the demographic variables and the behavior problems scores, these variables were not included as control variables in the predictive analyses. Z-scores for all variables were used in the predictive analyses.

Traditional Childrearing Attitudes as a Mediator of the Relationship between  
Maternal Agreeableness and Children's Anxious/Depressed Symptoms

Scores on the traditional childrearing attitudes subscale of the Parental Modernity Scale were examined as a potential mediator of the relationship between maternal agreeableness and children's anxious/depressed symptoms following the procedures recommended by Baron and Kenny (1986). Three regressions are needed to determine if mediation is present. In the first regression, the predictor variable is entered on the first step to predict the mediator. In the second regression, the predictor variable is entered on the first step to predict the dependent variable. In the third regression, the predictor and mediator variable are entered simultaneously on the first step to predict the dependent variable. If the mediator variable in the last regression significantly predicts the dependent variable and the beta weight and significance of the predictor variable has decreased, mediation is present. In the first regression, maternal agreeableness was entered on the first step to predict traditional childrearing attitudes and the overall model was significant,  $F(1, 25) = 5.11, p < .05$  (see Table 6). In the second regression equation, maternal agreeableness was entered on the first step to predict children's anxious/depressed symptoms and the overall model was significant,  $F(1, 25) = 10.61, p < .01$  (see Table 7). In the last regression, maternal agreeableness and traditional childrearing attitudes were entered simultaneously on the first step to predict children's anxious/depressed symptoms and the overall model was significant,  $F(2, 24) = 5.87, p < .01$ . For traditional childrearing attitudes to be a mediator, it must significantly predict children's anxious/depressed symptoms. This did not occur (see Table 8); therefore, it

did not mediate the relationship between maternal agreeableness and children's anxious/depressed symptoms.

#### Total Childrearing Attitudes as a Mediator of the Relationship between Maternal Extraversion and Children's Attention Problems

Next, scores on the total scale of the Parental Modernity Scale were examined as a potential mediator of the relationship between maternal extraversion and children's attention problems following the procedures recommended by Baron and Kenny (1986). In the first regression equation, maternal extraversion was entered on the first step to predict total childrearing attitudes and the overall model was significant,  $F(1, 25) = 5.51$ ,  $p < .05$  (see Table 9). In the second regression equation, maternal extraversion was entered on the first step to predict children's attention problems and the overall model was significant,  $F(1, 25) = 5.63$ ,  $p < .05$  (see Table 10). In the third regression equation, maternal extraversion and total childrearing attitudes were entered simultaneously on the first step to predict children's attention problems and the overall model was significant,  $F(2, 24) = 4.79$ ,  $p < .05$ . Although total childrearing attitudes did not significantly predict children's attention problems, there was a trend (see Table 11). In addition, the beta weight for maternal extraversion decreased and was no longer a significant predictor of children's attention problems (see Table 10 and Table 11).

## DISCUSSION

This study contributes to research concerning the associations between maternal personality, maternal parental stress, maternal parenting behavior and childrearing

Table 6

Summary of Regression Analysis for Agreeableness Predicting Traditional Childrearing Attitudes ( $N = 27$ )

Variable	$B$	$SE B$	$\beta$	$\Delta R^2$
Step 1				
Maternal Agreeableness	-0.41	0.18	-0.41 *	0.17

\* $p < .05$



Table 7

Summary of Regression Analysis for Agreeableness Predicting Anxious/Depressed ( $N = 27$ )

Variable	$B$	$SE B$	$\beta$	$\Delta R^2$
Step 1				
Maternal Agreeableness	-0.55	0.17	-.055 **	0.30

\*\* $p < .01$

Table 8

Summary of Simultaneous Regression Analysis of Agreeableness Predicting Anxious/Depressed with Traditional Childrearing Attitudes as a Mediator ( $N = 27$ )

Variable	$B$	$SE B$	$\beta$	$\Delta R^2$
Step 1				
Maternal Agreeableness	-0.47	0.18	-.047 *	
Traditional Childrearing Attitudes	0.19	0.18	0.19	0.33

\* $p < .05$

Table 9

Summary of Regression Analysis for Extraversion Predicting Total Childrearing Attitudes ( $N = 27$ )

Variable	$B$	$SE B$	$\beta$	$\Delta R^2$
Step 1				
Maternal Extraversion	-0.43	0.18	-0.43 *	0.18

\* $p < .05$

Table 10

Summary of Regression Analysis for Extraversion Predicting Attention Problems ( $N = 27$ )

Variable	$B$	$SE B$	$\beta$	$\Delta R^2$
Step 1				
Maternal Extraversion	-0.43	0.18	-0.43 *	0.18

\* $p < .05$



Table 11

Summary of Simultaneous Regression Analysis for Extraversion Predicting Attention Problems with Total Childrearing Attitudes as a Mediator ( $N = 27$ )

Variable	$B$	$SE B$	$\beta$	$\Delta R^2$
Step 1				
Maternal Extraversion	-0.28	0.19	-0.28	
Total Childrearing Attitudes	0.35	0.19	.35 <sup>†</sup>	0.29

<sup>†</sup> $p < .10$

attitudes, and child behavior problems. As predicted, higher maternal extraversion and agreeableness were related to fewer child behavior problems, more sensitive parenting, and less traditional (authoritarian) childrearing attitudes. In contrast, the data did not show many relations between maternal parental stress and child behavior problems, parenting behavior, or childrearing attitudes.

#### Maternal Personality and Child Behavior Problems

In this study, maternal extraversion and agreeableness were related to fewer child behavior problems. These findings are consistent with much of the literature (Kochanska et al., 1997; Russell et al., 1997). Although neuroticism was not significantly related to any of the behavior problems measures, it was marginally related to scores on the externalizing factor and to total behavior problems as assessed by the CBCL. This finding is consistent with that of Kochanska and her colleagues, who found that the construct of maternal “negative emotionality” was related to more child behavior problems and defiance. One reason that neuroticism may not have been significantly related to child behavior problems was that the study had moderate power ( $\delta = .44$ ). Detecting these effects would have been easier if the study had greater power. Increasing the sample size would increase the power. In addition, the construct of neuroticism in this study was measured by the NEO-FFI, while the construct of negative emotionality in Kochanska et al.’s study was a composite of scores on multiple questionnaires, not including the NEO-FFI. In the current study, higher agreeableness was significantly and negatively related to internalizing, externalizing, and total behavior problems scores as well as to multiple subscales of the CBCL. These data are consistent with findings that

higher maternal disagreeableness is positively related to child defiance (Kochanska et al., 1997).

In this study, higher maternal extraversion was negatively related to children's sleep and attention problems. These data are consistent with the findings that maternal socialization (one subscale of extraversion) was negatively related to certain child behavior measures (Kochanska et al., 1997). The other subscale of extraversion, sociability, was not related to any of the children's measures. One explanation for higher maternal extraversion predicting fewer child attention problems is that the mother may be more likely to intervene and help a child focus their attention on certain objects when needed.

This study expands research on maternal personality and child behavior problems by examining maternal conscientiousness and openness to experience for the first time. Higher maternal conscientiousness was negatively related to children's anxious/depressed symptoms, and higher maternal openness was negatively related to children's internalizing behavior problems.

Researchers have investigated heritability coefficients of the "big five" factors of personality. In general, neuroticism, extraversion, conscientiousness, and openness are moderately to highly heritable (e.g., Bergeman et al., 1993). Agreeableness is less heritable. This being stated, it is important to mention that the present study found an abundant number of correlations between maternal agreeableness and children's behavior problems. It is also important to state that the present study found fewer correlations between the other four personality factors and children's behavior problems. This study

sheds new light on how maternal agreeableness, through environmental trajectories, may impact children's behavior problems.

#### Maternal Personality and Parenting

As predicted, maternal personality was related to observed parenting behavior and to self-reported childrearing attitudes. Higher maternal neuroticism was related to more traditional childrearing attitudes. This finding is consistent with Metsapelto and Pulkkinen's (2003) finding that higher maternal neuroticism was related to more authoritarian attitudes. In the present study, neuroticism was not significantly related to any of the observed parenting measures. Although this is consistent with one other study that found maternal neuroticism was not related to responsiveness or to visual tracking of the child (Kochanska et al., 2004), it is inconsistent with other studies in which higher neuroticism was related to lower maternal sensitivity, cognitive stimulation, and positive affect (Belsky et al. 1995; Clark et al., 2000; Kochanska et al., 1997). One possible explanation for the inconsistency is that the present study used a semi-structured play situation instead of an unstructured play situation or a naturalistic setting. The present study used a different coding manual than the above mentioned studies.

Higher maternal extraversion in the present study was negatively related to total scores on the Parental Modernity Scale, indicating that mothers who are more extraverted also hold more authoritative childrearing attitudes. This is consistent with Metsapelto and Pulkkinen's (2003) findings that higher maternal extraversion was related to more authoritative parenting. Extraversion, like neuroticism, was not significantly related to observed parenting measures in the current study. This is inconsistent with the findings that maternal extraversion is positively related to maternal positive affect, sensitivity, and



cognitive stimulation in naturalistic settings (Belsky et al., 1995). Some possible explanations for the inconsistency are that the present study used a semi-structured play situation instead of a naturalistic setting and the present study used a different coding manual than the above mentioned studies.

Finally, maternal agreeableness was negatively related to traditional childrearing attitudes and to observed intrusiveness. Agreeableness was also positively related to observed sensitivity. This is consistent with past findings indicating that maternal agreeableness is positively related to parenting quality (Belsky et al., 1995; Clark et al., 2000; Kochanska et al., 1997; Losoya et al., 1997; Metsapelto & Pulkkinen, 2003).

Less research has been conducted on maternal conscientiousness and openness to experience and their associations with parenting. This study did not find that conscientiousness was related to any parenting measures. This is inconsistent with multiple previous studies that found that higher conscientiousness was related to better parenting quality (Clark et al., 2000; Kochanska et al., 2004; Losoya et al., 1997), although one study found that higher conscientiousness was related to more restrictiveness (Metsapelto & Pulkkinen, 2003). As for maternal openness, in this study it was negatively related to more traditional childrearing attitudes. This is consistent with Metsapelto and Pulkkinen's (2003) findings. Maternal openness was also positively related to observed sensitivity, which is inconsistent with previous findings that openness was not related to responsiveness (Kochanska et al., 2004).

One reason that personality variables were not related to our observed parenting measures may be that our measures were different than those used in other studies. For example, some studies observed parenting behavior in naturalistic settings at home, such

as during snack and bath time (Belsky et al., 1995; Kochanska et al., 2004). Perhaps being in a laboratory setting changed mothers' parenting behaviors, although two previous studies did observe parenting in a laboratory setting and were inconsistent with our findings (Clark et al., 2000; Kochanska et al., 1997). However, these two studies did not observe the mother in the same types of situations as the present study. Mothers in these two studies were also observed in multiple settings, such as clean up, play, and snack time. According to Belsky and Barends (2002), observing parenting behaviors in multiple situations will increase the possibility of finding relations between maternal personality traits and parenting behaviors because parenting behaviors are a product of both personality and situational contexts. Another reason for the inconsistencies may be the differences between childrearing measure used in one other study (Metsapelto & Pulkinnen, 2003) and the childrearing measure used in the present study. Lastly, other studies may have used different questionnaires to assess maternal personality.

Kochanska et al. (1997) used multiple questionnaires to assess personality traits of mothers. Other studies (Belsky et al., Metsapelto & Pulkinnen) used the NEO-PI, which has been found to measure the same constructs as the NEO-FFI (Costa & McCrae, 1989). Other studies used the NEO-FFI (Clark et al.; Kochanska et al., 2004). In general, the majority of the previous studies examined personality with similar questionnaires as the one in the current study, so this should not be a reason for the inconsistent findings.

#### Parenting and Child Behavior Problems

In the present study only a few relations were found between parenting and child behavior problems. More maternal cognitive stimulation was related to more child sleep problems, but there were no other associations between observed parenting variables and

children's behavior problems. These data are consistent with other studies that did not find any relationship between observed parenting behaviors, such as maternal warmth or physical discipline, and child behavior problems (Benzies et al., 1998; Calzada et al., 2004; Houck & Lecuyer-Maus, 2004), but our data are generally inconsistent with prior studies, many of which have found relations between observed parenting quality and child behavior problems (Denham et al., 2000; Keown & Woodward, 2002; Kilgore et al., 2000; Pettit & Bates, 1989). There are at least three reasons for the inconsistency: having moderate power, the coding manual used, and the semi-structured play situation used for observing mothers. One possibility that may play a role in the failure to obtain relations between observed parenting and behavior problems in the present study is that maternal behavior was observed in a laboratory context rather than the home context (Benzies et al., 1998; Pettit & Bates, 1989). Mothers' parenting behaviors may change in a laboratory setting. Mothers may become more nervous or more aware of being observed and change their behaviors, trying to please the experimenters. Pettit and Bates found relations between mothers' parenting behaviors and child behavior problems, while Benzies and colleagues did not, making it hard to determine if observing the mother in the laboratory is a limitation.

Another possibility for the present study's lack of findings between parenting and child behavior problems is that the sample was normative. One of the above mentioned studies that found relations between parenting and child behavior problems looked at boys with pervasive hyperactivity (Keown & Woodward, 2002), while another one looked at early conduct problems of boys and girls in a highly disadvantaged population (Kilgore et al., 2000). These studies selected certain populations who were already at

risk for externalizing behavior problems and examined parenting behaviors. Since this study assessed multiple domains of behavior problems and the children in this study were not previously referred to clinicians because of behavior problems, it is less likely that the study would find a relationship between parenting and child behavior problems. Calzada and colleagues (2004) are an exception, as they examined maternal parenting style and children with oppositional defiant disorder and found no relations.

More traditional childrearing attitudes were related to higher anxious/depressed symptoms and more attention problems in children. These findings are consistent with previous research indicating that traditional childrearing attitudes are related to more child behavior problems (Parke & Buriel, 1998; Denham et al., 2000).

#### Childrearing Attitudes as a Mediator of the Relationship between Maternal Personality and Child Behavior Problems

Mothers who were higher on agreeableness had children who were less anxious or depressed. However, traditional childrearing attitudes did not mediate the association between maternal agreeableness and children's anxious/depressed symptoms. In contrast, Kochanska and colleagues (1997) found that two composites of parenting behavior (observed and self-reported) mediated the relationship between maternal disagreeableness and children's observed and mother-reported behavior problems.

Childrearing attitudes were also examined as a mediator of the relationship between maternal extraversion and children's attention problems. Although total scores on the Parental Modernity Scale did not significantly predict attention problems when maternal extraversion was also included in the model, there was a trend ( $p = .08$ ). The beta weight for maternal extraversion also decreased and was no longer a significant



predictor of attention problems. Therefore, it is possible that total childrearing attitudes mediates (or partially mediates) the relationship between maternal extraversion and children's attention problems. A larger sample might increase the chances of finding evidence for mediation, since a larger sample size would increase statistical power. Kochanska et al. (1997) found that a parenting composite did not mediate the relationship between maternal socialization (one aspect of extraversion) and observed child behavior problems. Another possibility is that parenting does not (or only partially mediates) the relationship between maternal personality and child behavior problems. Other factors, such as genetic makeup, may explain why maternal personality and child behavior problems are related. As mentioned previously, extraversion is moderately heritable; therefore the mediator between maternal extraversion and children's attention problems may be genes (Bergeman et al., 1993).

Multiple reasons for the inconsistency of parenting mediating the relationship between maternal agreeableness and child behavior problems can be hypothesized. First, the study only had moderate power. Kochanska and colleagues' (1997) study included 103 mother-child dyads. Second, Kochanska and colleagues used composite measures for all parenting, personality, and child outcome variables. Therefore, it is hard to determine which specific aspects of parenting or maternal personality are related to specific child behavior problems. It is possible that one aspect of a variable is highly correlated with another aspect of a different variable and this is the reason that a relationship was obtained. Since the present study and Kochanska et al.'s study were the first to look at parenting as a mediator of the association between maternal personality and child behavior problems and our findings are somewhat inconsistent, more research

is needed in this area. Also, since agreeableness is not highly heritable, other possible mediators need to be examined (Bergeman et al., 1993). Due to the heritability of four of the “big five” personality factors, Belsky’s (1984) model of the determinants of parenting may need to be adjusted slightly. His model states that parenting is the mediator through which maternal personality is related to children’s development. It is possible that shared genes should be entered into this model as a partial mediator of the relationship between maternal personality and children’s development. Once other variables have been examined as mediators, these can also be entered into Belsky’s model.

#### Maternal Parental Stress and Child Behavior Problems

Although there were no significant relations between maternal parental stress and child behavior problems, there was one trend. Higher parental stress was marginally related to higher aggressive behavior in children. One other study also found no relations between parental stress and children’s behavior problems (Shaw et al., 1996), although many studies have found that parental stress and children’s behavior problems are strongly related (Coplan et al., 2003; Creasey & Jarvis, 1994; Creasey & Reese, 1996; Crnic & Greenberg, 1990; Deater-Deckard & Scarr, 1996; Eyberg et al., 1992). Three studies used the Parenting Daily Hassles scale, the same measure as the one used in this study (Crnic & Greenberg; Coplan et al.; Creasey & Reese). The two studies that used the CBCL to measure child behavior problems (Crnic & Greenberg; Creasey & Reese) examined behavior problems in elementary school children. Coplan et al. examined behavior problems in preschool children aged 3 to 5, but measured child behavior problems through the Preschool Behavior Questionnaire. The differences in child age may be one reason for the inconsistencies across studies. As for the study that examined

preschool children, the inconsistency may lie in the questionnaire used to assess child behavior problems.

#### Maternal Parental Stress and Parenting Behavior

Parental stress was negatively related to progressive, authoritative childrearing attitudes. This is consistent with previous findings indicating that higher parental stress is positively related to self-reported authoritarian childrearing attitudes (Deater-Deckard & Scarr, 1996; Rodgers, 1993).

There were no significant relations between parental stress and observed parenting behavior, although there was a trend toward parental stress being negatively related to cognitive stimulation. These data are consistent with some studies that have found no significant relations between parental stress and observed maternal intrusiveness and positive affect (Belsky et al., 1995; Crnic & Greenberg, 1990). However, Belsky and colleagues did find that parental stress was negatively related to observed sensitivity, although Crnic and Greenberg did not find a relationship between these two variables. One reason may be that Belsky et al. observed parenting behaviors in naturalistic settings while Crnic and Greenberg observed parenting in a free play and a structured situation. It is possible that maternal parental stress is only correlated with maternal sensitivity in naturalistic settings. Unlike the present study, Belsky et al. did not find associations between parental stress and cognitive stimulation.

#### Parenting as a Mediator of the Relationship between Maternal Parental Stress and Child Behavior Problems

Since there was no association between maternal parental stress and child behavior problems, parenting as a mediator of the relationship between parental stress

and child behavior problems was not examined. The failure to establish the conditions to test for mediation is inconsistent with two studies that have examined parenting as a mediator of the relations between parental stress and child behavior problems (Conger et al., 1995; Deater-Deckard & Scarr, 1996). In one study, parental stress was measured by negative life events experienced by mothers of adolescent children (Conger et al.). The present study examined daily hassles related to parenting toddler-age children. Deater-Deckard and Scarr examined parental stress assessed by frequency of negative life events for mothers of preschool-age children (12 to 60 months). Childrearing attitudes in Deater-Deckard and Scarr's study were measured by the traditional scale of the Parental Modernity Scale, the same scale that was used in the present study. Therefore, it is possible that parenting only mediates the relationship between negative life events and child behavior problems. Negative life events may be perceived as more stressful by mothers than parenting daily hassles. Therefore, parenting may be affected more by the higher perceived stress from negative life events. The moderate power in this study may have also limited our findings.

#### Limitations

One major limitation of this study is having moderate power ( $\delta = .44$ ). A larger sample size would help to increase power. A second limitation of this study is that interrater reliability on the observed parenting behaviors was not as high as hoped and most of the participants' data was included in the reliability data set, meaning that most of the data were coded by consensus. Also, the NICHD Study of Early Childhood and Youth Development, which originally developed the coding system, did not obtain high reliability on these observational codes. Therefore, the observed parenting variables may



not be accurately measuring these parenting behaviors. This could be another reason why there were fewer findings in this study than in some others.

A third limitation of this study was the statistical analyses used to establish mediation. The assumptions underlying the technique recommended by Baron and Kenny (1986) to test for mediation are: 1) that there is no measurement error in the mediator and 2) that the dependent variable does not predict the mediator (Baron & Kenny, 1986). It is definite that assumption one has been violated. Baron and Kenny suggested multiple measures of the same construct to minimize measurement error. The current study had two measures of parenting, although more measures would have helped to minimize measurement error. It is also very likely that assumption two has been violated. In developmental research it is hypothesized that parenting and child behavior problems are cyclical in nature and that they have an impact on each other. Therefore, different statistical procedures (such as structural equation modeling) would have been better to test mediation in this study. Unfortunately, there was not a large enough sample size to use structural equation modeling in this study. Another way to correct for this limitation could have been to conceptualize personality as the mediator of the relationship between maternal childrearing attitudes and children's behavior problems. Personality is a relatively stable construct; therefore, children's behavior problems should not affect it. Also, there is less measurement error in the NEO-FFI, as it is a well-validated instrument. Conceptualizing personality as the mediator would have helped to meet the two assumptions necessary to test for mediation with Baron and Kenny's procedure.

A fourth limitation of the current study is that all of the variables used in the predictive analyses were maternal report. This raises the possibility that these variables



were correlated mainly because of shared method variance. In addition, it is quite plausible that maternal personality and/or stress may affect the perception of children's behavior problems. Additional measures of children's behavior problems would have been desirable so that all variables were not mother-reported. Finally, the fact that all variables were mother-reported should have made it easier to find evidence of mediation because of shared method variance. Since this was not the case in the current study, it is possible that parenting is not a strong mediator of the associations between maternal personality and children's behavior problems. Other factors, such as shared genetic makeup, may play a larger role in the associations between maternal personality and children's behavior problems.

A fifth limitation is that the present study only observed parenting behaviors in one setting. As mentioned earlier, Belsky and Barends (2002) state that personality alone cannot predict parenting behavior; therefore, parenting should be observed in multiple situations. The reason that the present study only observed parenting behaviors in one setting was because of time constraints with respect to coding parenting behaviors.

#### Future Directions

In general, more studies regarding maternal characteristics and child behavior problems in the toddler-age population are needed. There are few studies examining maternal characteristics in mothers of toddler-age children. In addition, there are only three studies that have examined parenting as a mediator of these relations. Since maternal personality is difficult to alter, it is imperative to find paths through which it may affect child behavior problems. Intervention programs teaching mothers more effective ways of parenting may help to alter associations between maternal personality

and child behavior problems. Before this idea can be confirmed, more evidence that parenting mediates the associations between maternal personality and child behavior problems is needed, especially in toddler-age children. As for maternal stress and child behavior problems, more consistent findings of their relations and what factors mediate those relations are needed before effective intervention programs are created.

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Appendix A: Parenting Behaviors Coding Manual (NICHD Study of Early Childcare and Youth Development)

Intrusiveness:

Intrusive and overcontrolling interaction is definitely adult centered rather than child centered. Prototypically, intrusive/overcontrolling others impose their agenda on the child despite signals that a different activity, level of play, or pace of interaction is needed. High arousal or a rapid pace are not, by themselves, indicative of intrusive overstimulation—if the child responds positively and does not engage in overt defensive behaviors (e.g., turning away, saying “no”, playing with other toys, or directly ignoring). Intrusiveness and overcontrol are apparent when the mother does not allow the child a “turn” or an opportunity to respond at his/her pace. Some intrusive/overcontrolling mothers overstructure their children’s play; they insist on their own agenda or play theme; they interrupt or redirect play; or they insist on particular uses for toys or props (e.g., “it’s an apron not a hat”; an oven cannot be a space shuttle), when such control is not necessary for the child’s safety or respect for others or their belongings. These mothers appear unable to relinquish control of the interaction in order to facilitate the child’s exploration or regulation of the activity. Another example of controlling, intrusive behavior is displayed by mothers overwhelming the child with a rapid succession of toys or suggestions, not allowing him/her time to react to one before another occurs. Extreme intrusiveness can be seen as overcontrol to a point where the child’s autonomy is at stake. It should be kept in mind that a mother can be involved in play with the child without being highly intrusive, if the mother

follows the child's interest, pace, and signals. If a mother elaborates on a child's agenda intrusively, it is seen as more low level than a complete redirect (e.g., go get this..., do this...).

Specific behaviors characterizing intrusive/overcontrolling interactions include (a) failing to modulate behavior that the child turns from, defends against, or expresses negative affect to; (b) offering a continuous barrage of stimulation, food, or toys; (c) not allowing the child to influence the pace or focus of play, interaction, or feeding; (d) taking away objects or food while the child still appears interested; (e) insisting that the child do something (play, eat, interact) in which he/she is not interested; (f) not allowing the child to make choices, and (g) by excessively or abruptly disciplining the child. Physical intrusiveness is seen to be more extreme than verbal intrusiveness.

1 – *Not at all characteristic.* This rating should be given to caregivers who display one or two mild signs of intrusive behavior.

2 – *Minimally characteristic.* This rating should be given to caregivers who display minimal intrusiveness. There is some evidence of intrusiveness, but it is not typical. The mother may initiate interactions with and offer suggestions to the child which occasionally are not welcome or ill timed.

3 – *Moderately characteristic.* This rating should be given to mothers who are often intrusive. Mother intrusiveness occurs in some interactions at a fairly high level, but are often totally absent; or moderately intrusive



behavior is evident more often; or for mothers who rarely interact, a substantial proportion of their interactions are intrusive.

4 – *Highly characteristic*. This mother's interactions with the child are consistently and typically intrusive. During their interaction, the mother controls the interaction, allowing the child little self-direction in his/her activities. During the time that they are interacting, the mother allows the child little autonomy, and essentially negates the child's experience.

Sensitivity/Responsiveness:

The sensitive mother demonstrates the ability to adapt his/her behavior to the child's mood and level of development. The mother neither over- nor underestimates the child's capacities. The mother knows when it is time to increase or reduce the amount of stimulation the child is experiencing. For example, the mother discontinues an activity that is beyond the child's capacity for response or introduces a new activity when the child appears bored.

Markers of sensitivity include (a) acknowledging the child's affect; (b) mother conversation that is responsive to the content of the child's talk and or activity; (c) facilitating, but not over controlling the child's play with objects or his/her motor activity; (d) evidence of good timing paced to the child's interest, activities, and arousal level; (e) changing the pace when the child appears understimulated, overexcited, or tired; (f) picking up on the child's interest in toys or games; (g) shared positive affect; (h) encouragement and praise of the child's efforts; (i) providing an appropriate level of stimulation and appropriate range and variety of activities; (j) timely discipline that matches the nature of the violation



under consideration and the child's ability to understand and benefit from whatever reprimand is offered (nailbiting and telling the child not to put the toys in his/her mouth were considered appropriate discipline); and (k) general flexibility in handling compliance and autonomy issues, including not reacting to noncompliance and supporting autonomy while permitting dependence.

If the mom corrects the child for mislabeling a toy or object, and does so positively, her sensitivity measure should not change. If the mother picks up the child to move him/her so that they are facing the one-way mirror, this should not count against them since the experimenter instructed her to do so.

1 – *Not at all characteristic.* There are no signs of mother sensitivity.

The mother may be either predominantly intrusive or detached. The mother rarely responds appropriately to the child's cues, and does not manifest an awareness of the child's needs. Interactions, if they occur at all, are characteristically ill timed or inappropriate.

2 – *Minimally characteristic.* This should be given to mothers who display infrequent or weak sensitivity/responsiveness. While the mother is sometimes sensitive, the balance is clearly in the direction of insensitivity.

3 – *Moderately characteristic.* This rating should be given to mothers who are predominately sensitive/responsive. The mother demonstrates sensitivity in many interactions but not in others, or may show some insensitivity while being predominantly sensitive (e.g., available and responsive to child's needs but some responses are more adult-driven than child-driven).

4 – *Highly characteristic*. This rating should be given to mothers who are exceptionally sensitive and responsive. Instances of insensitivity are rare and never striking. Interactions are characteristically well timed and appropriate.

Positive Regard for the Child:

This scale rates the mother's positive feelings toward the child, expressed during interaction with him/her. Positive feelings are shown by (a) speaking in a warm tone of voice; (b) hugging or other expressions of physical affection; (c) smiling; (d) laughing with the child; (e) enthusiasm about the child; (f) praising the child; (g) general enjoyment of the child, and (h) using terms of endearment with the child. Positive regard is evident when the mother listens, watches attentively, looks into the child's face when talking to him/her, has affectionate physical contact, and is playful.

1 – *Not at all characteristic*. This rating should be given to mothers who display no positive regard. This rating can also be used for positive expressions (laughing, smiling) that appear to be inappropriate to the situation or an inaccurate reflection of the mother's feelings. The mother may be expressionless or flat, or negative.

2 – *Minimally characteristic*. This rating should be given to mothers who display infrequent or weak signals of positive regard. The intensity or frequency of behavior indicators are very low.

3 – *Moderately characteristic*. This rating should be given to mothers who typically display positive regard. More frequent and intense positive

affect is shown than in the 2 rating, but the mother is not as consistently positive as those scored as a 4. Most interactions are seen as positive.

4 – *Very characteristic*. This rating should be given to mothers who are exceptionally positive, in terms of facial and vocal expressiveness, and behavior. Affect is positive, spontaneous, and frequent. The mother shows a range of expressions and behaviors which are all clearly positive. He/she clearly “delights” in the child. Almost every interaction is seen as positive.

Cognitive Stimulation:

Behaviors that characterized cognitive stimulation were (a) describe, label, or ask questions about toys or objects (e.g., “What are you doing...”, “What do you do with the knife?”), or demonstrate how they work (e.g., modeling); (b) expand on the child’s verbalizations and/or read and recite/sing to the child; (c) encourage and reinforce the child’s attempts at mastery, or challenge the child to try something new (e.g., working the toaster, reading the book); (d) present activities in an organized sequence of steps; (e) explicitly teach the child concepts (e.g., colors, numbers, letters), this does not include simply labeling objects but pointing out similarities and differences between objects; (f) ask questions that require problem solving (e.g., “What are you going to do?”), this should not include asking what the child is doing right now because this would be a concrete answer, and (g) label and interpret the child’s current emotional experiences (e.g., “You think that’s funny”). If mother engages in one type of stimulation with little variation, it is seen as low frequency.

1 – *Not at all characteristic.* The mother makes almost no attempts to teach the child anything or provide any stimulation. She may provide routine care but does not use it as an opportunity for learning. The mother may ignore the child's activities or interact perfunctorily, providing no stimulation.

2 – *Minimally characteristic.* This rating should be given to mothers who provide infrequent or weak stimulation. Only one or two of the behaviors mentioned above were seen, or three to five of them at a very low level. The mother's conscious and purposeful attempts to engage in development-fostering experiences are limited. She may label or demonstrate materials, but does so perfunctorily and/or with minimal elaboration.

3 – *Moderately characteristic.* This rating should be given to mothers who provide adequate stimulation but could reasonably be expected to provide more and higher-quality stimulation. Three to five of the behaviors mentioned above were seen at an average to high level, or six to seven at a very low level. The mother does make some effort to provide stimulation, but does not consistently take advantage of opportunities to do so. Stimulation is not the main agenda. The mother may find some new ways to engage the child with toys, for example, but these ways are limited in number. Actions are likely to be simply repeated rather than thoughtfully varied. Mothers who provide a rich linguistic environment

but do not demonstrate the potential of toys or objects would receive this rating.

4 – *Very characteristic*. This rating should be given to the mother who is consistently stimulating and takes advantage of many activities as opportunities for stimulation. Six to seven of the behaviors mentioned above were seen at a moderate level. The mother provides frequent stimulation through “lessons”, explanations, activities, or toys. Teaching or fostering development is a primary intent of the mother’s frequent interactions with the child. The mother thoughtfully varies and elaborates on these activities, providing numerous opportunities which are exceptionally advantageous to the child. She provides rich stimulation in terms of language, and embellishment of the potential of the physical world.



Appendix B: Questionnaires Filled Out by the Mother



## Parenting Daily Hassles SCALE

The statements below describe a lot of events that routinely occur in families with young children. These events sometimes make life difficult. Please read each item and circle how often it happens to you (rarely, sometimes, a lot, or constantly) and then circle how much of a 'hassle' you feel that it has been for you FOR THE PAST 6 MONTHS. If you have more than one child, these events can include any or all of your children.

EVENT	How often it happens				Hassle (low to high)
	Rarely	Sometimes	A lot	Constantly	
1. Continually cleaning up messes of toys or food	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
2. Being nagged, whined at, complained to	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
3. Meal-time difficulties with picky eaters, complaining etc.	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
4. The kids won't listen or do what they are asked without being nagged	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
5. Baby-sitters are hard to find	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
6. The kids schedules (like pre-school or other activities) interfere with meeting your own household needs	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
7. Sibling arguments or fights require a 'referee'	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
8. The kids demand that you entertain them or play with them	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
9. The kids resist or struggle with you over bed-time	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
10. The kids are constantly underfoot, interfering with other chores	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
11. The need to keep a constant eye on where the kids are and what they are doing	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
12. The kids interrupt adult conversations or interactions	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
13. Having to change your plans because of unprecedented child needs	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
14. The kids get dirty several times a day requiring changes of clothing	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
15. Difficulties in getting privacy (eg. in the bathroom)	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
16. The kids are hard to manage in public (grocery store, shopping centre, restaurant)	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
17. Difficulties in getting kids ready for outings and leaving on time	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
18. Difficulties in leaving kids for a night out or at school or day care	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
19. The kids have difficulties with friends (eg. fighting, trouble, getting along, or no friends available)	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5
20. Having to run extra errands to meet the kids needs	Rarely	Sometimes	A lot	Constantly	1 2 3 4 5

Questionnaire completed by *mother/father/adoptive parent/foster carer* (please specify)

**NEO**

This questionnaire contains 60 statements. Read each statement carefully. For each statement, circle the response that best represents your opinion.

Circle **SD** if you *Strongly Disagree* or the statement is definitely false.

Circle **D** if you *Disagree* or the statement is mostly false.

Circle **N** if you are *Neutral* on the statement, you cannot decide, or the statement is about equally true or false.

Circle **A** if you *Agree* or the statement is mostly true.

Circle **SA** if you *Strongly Agree* or the statement is definitely true.

- |   |    |   |   |   |    |
|---|----|---|---|---|----|
| 1. I am not a worrier.  | SD | D | N | A | SA |
| 2. I like to have a lot of people around me.  | SD | D | N | A | SA |
| 3. I don't like to waste my time daydreaming.   | SD | D | N | A | SA |
| 4. I try to be courteous to everyone I meet.  | SD | D | N | A | SA |
| 5. I keep my belongings clean and neat.   | SD | D | N | A | SA |
| 6. I often feel inferior to others.   | SD | D | N | A | SA |
| 7. I laugh easily.  | SD | D | N | A | SA |
| 8. Once I find the right way to do something, I stick to it.                                  | SD | D | N | A | SA |
| 9. I often get into arguments with my family and co-workers.                                  | SD | D | N | A | SA |
| 10. I'm pretty good about pacing myself so as to get things done on time.                     | SD | D | N | A | SA |
| 11. When I'm under a great deal of stress, sometimes I feel like I'm going to pieces.         | SD | D | N | A | SA |
| 12. I don't consider myself especially "light-hearted."                                       | SD | D | N | A | SA |
| 13. I am intrigued by the patterns I find in art and nature.                                  | SD | D | N | A | SA |
| 14. Some people think I'm selfish and egotistical.  | SD | D | N | A | SA |
| 15. I am not a very methodical person.  | SD | D | N | A | SA |
| 16. I rarely feel lonely or blue.   | SD | D | N | A | SA |
| 17. I really enjoy talking to people.   | SD | D | N | A | SA |
| 18. I believe letting students hear controversial speakers can only confuse and mislead them. | SD | D | N | A | SA |
| 19. I would rather cooperate with others than compete with them.                              | SD | D | N | A | SA |
| 20. I try to perform all the tasks assigned to me conscientiously.                            | SD | D | N | A | SA |
| 21. I often feel tense and jittery.   | SD | D | N | A | SA |

22. I like to be where the action is.	SD	D	N	A	SA
23. Poetry has little or no effect on me.	SD	D	N	A	SA
24. I tend to be cynical and skeptical of others' intentions.	SD	D	N	A	SA
25. I have a clear set of goals and work toward them in an orderly fashion.	SD	D	N	A	SA
26. Sometimes I feel completely worthless.	SD	D	N	A	SA
27. I usually prefer to do things alone.	SD	D	N	A	SA
28. I often try new and foreign foods.	SD	D	N	A	SA
29. I believe that most people will take advantage of you if you let them.	SD	D	N	A	SA
30. I waste a lot of time before settling down to work.	SD	D	N	A	SA
31. I rarely feel fearful or anxious.	SD	D	N	A	SA
32. I often feel as if I'm bursting with energy.	SD	D	N	A	SA
33. I seldom notice the moods or feelings that different environments produce.	SD	D	N	A	SA
34. Most people I know like me.	SD	D	N	A	SA
35. I work hard to accomplish my goals.	SD	D	N	A	SA
36. I often get angry at the way people treat me.	SD	D	N	A	SA
37. I am a cheerful, high-spirited person.	SD	D	N	A	SA
38. I believe we should look to our religious authorities for decisions on moral issues.	SD	D	N	A	SA
39. Some people think of me as cold and calculating.	SD	D	N	A	SA
40. When I make a commitment, I can always be counted on to follow through.	SD	D	N	A	SA
41. Too often, when things go wrong, I get discouraged and feel like giving up.	SD	D	N	A	SA
42. I am not a cheerful optimist.	SD	D	N	A	SA
43. Sometimes when I am reading poetry or looking at a work of art, I feel a chill or wave of excitement.	SD	D	N	A	SA
44. I'm hard-headed and tough-minded in my attitudes.	SD	D	N	A	SA
45. Sometimes I'm not as dependable or reliable as I should be.	SD	D	N	A	SA
46. I am seldom sad or depressed.	SD	D	N	A	SA
47. My life is fast-paced.	SD	D	N	A	SA

48. I have little interest in speculating on the nature of the universe or the human condition.	SD	D	N	A	SA
49. I generally try to be thoughtful and considerate.	SD	D	N	A	SA
50. I am a productive person who always gets the job done.	SD	D	N	A	SA
51. I often feel helpless and want someone else to solve my problems.	SD	D	N	A	SA
52. I am a very active person.	SD	D	N	A	SA
53. I have a lot of intellectual curiosity.	SD	D	N	A	SA
54. If I don't like people, I let them know it.	SD	D	N	A	SA
55. I never seem to be able to get organized.	SD	D	N	A	SA
56. At times I have been so ashamed I just wanted to hide.	SD	D	N	A	SA
57. I would rather go my own way than be a leader of others.	SD	D	N	A	SA
58. I often enjoy playing with theories or abstract ideas.	SD	D	N	A	SA
59. If necessary, I am willing to manipulate people to get what I want.	SD	D	N	A	SA
60. I strive for excellence in everything I do.	SD	D	N	A	SA



**IDEAS ABOUT RAISING CHILDREN**

Here are some statements other people have made about rearing and educating children. For each one, please circle the number that best indicates how you feel in general about raising children.

ID NUMBER						REL
0	0	0	0	0	0	0
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9

- 1- Strongly Disagree
- 2- Mildly Disagree
- 3- Not Sure
- 4- Mildly Agree
- 5- Strongly Agree

- |     |  |   |   |   |   |   |
|-----|--|---|---|---|---|---|
| 1.  | Since parents lack special training in education, they should not question the teacher's teaching methods. | 1 | 2 | 3 | 4 | 5 |
| 2.  | Children should be treated the same regardless of the differences among them.                              | 1 | 2 | 3 | 4 | 5 |
| 3.  | Children should always obey the teacher.   | 1 | 2 | 3 | 4 | 5 |
| 4.  | Preparing for the future is more important for a child than enjoying today.                                | 1 | 2 | 3 | 4 | 5 |
| 5.  | Children will not do the right thing unless they must.   | 1 | 2 | 3 | 4 | 5 |
| 6.  | Children should be allowed to disagree with their parents if they feel their own ideas are better.         | 1 | 2 | 3 | 4 | 5 |
| 7.  | Children should be kept busy with work and study at home and at school.                                    | 1 | 2 | 3 | 4 | 5 |
| 8.  | The major goal of education is to put basic information into the minds of the children.                    | 1 | 2 | 3 | 4 | 5 |
| 9.  | In order to be fair, a teacher must treat all children alike.  | 1 | 2 | 3 | 4 | 5 |
| 10. | The most important thing to teach children is absolute obedience to whoever is in authority.               | 1 | 2 | 3 | 4 | 5 |
| 11. | Children learn best by doing things themselves rather than listening to others.                            | 1 | 2 | 3 | 4 | 5 |
| 12. | Children must be carefully trained early in life or their natural impulses will make them unmanageable.    | 1 | 2 | 3 | 4 | 5 |
| 13. | Children have a right to their own point of view and should be allowed to express it.                      | 1 | 2 | 3 | 4 | 5 |
| 14. | Children's learning results mainly from being presented basic information again and again.                 | 1 | 2 | 3 | 4 | 5 |
| 15. | Children like to teach other children.   | 1 | 2 | 3 | 4 | 5 |

1- Strongly Disagree  
 2- Mildly Disagree  
 3- Not Sure  
 4- Mildly Agree  
 5- Strongly Agree

- |     |  |   |   |   |   |   |
|-----|--|---|---|---|---|---|
| 16. | The most important thing to teach children is absolute obedience to parents.                 | 1 | 2 | 3 | 4 | 5 |
| 17. | The school has the main responsibility for a child's education.                              | 1 | 2 | 3 | 4 | 5 |
| 18. | Children generally do not do what they should unless someone sees to it.                     | 1 | 2 | 3 | 4 | 5 |
| 19. | Parents should teach their children that they should be doing something useful at all times. | 1 | 2 | 3 | 4 | 5 |
| 20. | It's all right for a child to disagree with his/her parents.                                 | 1 | 2 | 3 | 4 | 5 |
| 21. | Children should always obey their parents.   | 1 | 2 | 3 | 4 | 5 |
| 22. | Teachers need not be concerned with what goes on in a child's home.                          | 1 | 2 | 3 | 4 | 5 |
| 23. | Parents should go along with the game when their child is pretending something.              | 1 | 2 | 3 | 4 | 5 |
| 24. | Parents should teach their children to have unquestioning loyalty to them.                   | 1 | 2 | 3 | 4 | 5 |
| 25. | Teachers should discipline all the children the same.  | 1 | 2 | 3 | 4 | 5 |
| 26. | Children should not question the authority of their parents.                                 | 1 | 2 | 3 | 4 | 5 |
| 27. | What parents teach their child at home is very important to his/her school success.          | 1 | 2 | 3 | 4 | 5 |
| 28. | Children will be bad unless they are taught what is right.                                   | 1 | 2 | 3 | 4 | 5 |
| 29. | A child's ideas should be seriously considered in making family decisions.                   | 1 | 2 | 3 | 4 | 5 |
| 30. | A teacher has no right to seek information about a child's home background.                  | 1 | 2 | 3 | 4 | 5 |

**Demographic Information**

Mother's Name \_\_\_\_\_

Mother's Age \_\_\_\_\_

Father's Name \_\_\_\_\_

Father's Age \_\_\_\_\_

Parents living in same household? \_\_\_\_\_

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

Phone Number \_\_\_\_\_

Mother's Education (Highest Degree Completed) \_\_\_\_\_

Father's Education (Highest Degree Completed) \_\_\_\_\_

Mother's Occupation \_\_\_\_\_

Father's Occupation \_\_\_\_\_

Child's Name \_\_\_\_\_

Child's Birth Date \_\_\_\_\_

Mother's Ethnicity \_\_\_\_\_

Father's Ethnicity \_\_\_\_\_

Child's Ethnicity \_\_\_\_\_

Birth Complications? If yes, please explain: \_\_\_\_\_

Other Children? (If yes, please list their sex and birthdates) \_\_\_\_\_

Please provide the names and phone numbers of two people who will know how to reach you in the event that we lose contact with you (for example, because of a move).

Name \_\_\_\_\_

Phone Number \_\_\_\_\_

Name \_\_\_\_\_

Phone Number \_\_\_\_\_