Adaptation in Families of Children with Developmental Delay

by

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ABSTRACT

Family adaptation to child developmental disability is a dynamic transactional process that has yet to be tested in a longitudinal, rigorous fashion. In addition, although children with developmental delays frequently have behavior problems, not enough research has examined possible underlying mechanisms in the relation between child developmental delay, adaptation and behavior problems. In the current study, factor analysis examined how best to conceptualize the construct of family adaptation to developmental delay. Also, longitudinal growth curve modeling tested models in which child behavior problems mediated the relation between developmental risk and indices of family adaptation. Participants included 130 typically developing children and their families (Mental Development Index [MDI] > 85) and 104 children with developmental delays and their families (MDI < 85). Data were collected yearly between the ages of three and eight as part of a multi-site, longitudinal investigation examining the interrelations among children's developmental status, family processes, and the emergence of child psychopathology. Results of the current study indicated that adaptation is best conceptualized as a multi-index construct. Different aspects of adaptation changed in unique ways over time, with some facets of adaptation remaining stable while others fluctuated. Child internalizing and externalizing behavior problems were found to decrease over time for both children with developmental delays and typically developing children. Child behavior problems were also found to mediate the relation between developmental risk and family adaptation for over half of the mediation pathways. Significant mediation results indicated that children with developmental delays showed higher early levels of behavior problems, which in turn was associated with more maladaptive adaptation. These findings provide further evidence that families of children with developmental delays experience both positive and more challenging changes in their families over time. This study implies important next steps for research and clinical practice in the area of developmental disability.

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A family's adaptation to a child's developmental disability is a continuous process that evolves over time. Although this process has attracted much theoretical and empirical debate, only a small number of studies have explored family adaptation to a child's disability from a longitudinal perspective (Gath, 1977; Gowen, Johnson-Martin, Davis Goldman, & Applebaum, 1989; Hauser-Cram, Warfield, Shonkoff, & Krauss, 2001; Mink, Nihira, & Myers, 1983). Early theory suggested that parents would experience "chronic sorrow" (Olshansky, 1962) or a series of crises (Wolfsenberger & Menolascino, 1970) in response to discovering their child had a disability. Though later conceptualizations (Crnic, Friedrich, & Greenberg, 1983) and research have focused on a range of adaptive outcomes associated with having a child with disability in the family (Baker, Blacher, Kopp, & Kraemer, 1997; Blacher, Neece, & Paczkowski, 2005), less is known about how family adaptation changes over time and the mechanisms that influence this change. Adaptation is a dynamic transactional process and cannot effectively be captured at a single point in time or by focusing exclusively on single family members such as mothers. Indeed, few studies have included fathers, who bring unique perspectives to parenting and the family (Day, Lewis, O'Brien, & Lamb, 2005).

Defining family adaptation is key to developing a coherent perspective on family response to a child with a developmental disability. Although many studies have chosen single index markers of adaptation, a multi-faceted conceptualization better captures the complexity of this phenomenon (Crnic et al., 1983). In models to date, adaptation has incorporated a variety of parent and family factors, including parent stress (Thompson, Gustafson, Hamlett, & Spock, 1992), parent psychopathology (Counts, Nigg, Stawicki, Rappley, & Von Eye, 2005), marital discord (Friedman, Holmbeck, Jandasek, Zukerman, & Abad, 2004), and family relationship quality (Floyd & Saitzyk, 1992).

A more comprehensive understanding of family adaptation to children with developmental disabilities requires not only longitudinal approaches, but also identification of the mechanisms through which adaptation is determined. Child characteristics play a significant predictive role (Blacher et al., 2005; Hauser-Cram et al., 2001), and recent evidence has begun to suggest that child behavior problems may be more critical to family well-being than the oft-studied severity of intellectual impairment (Baker, Blacher, Crnic, & Edelbrock, 2002; Blacher et al., 2005; Hassal, Rose, & McDonald, 2005; Turnbull & Ruef, 1996). Too, the frequent co-occurrence of behavior problems with developmental disability (Baker et al., 1997), generally referred to as dual diagnosis, may represent a combined higher risk for poorer adaptation over time than either factor alone. Regardless, the extent to which emerging behavior problems in these children are tied to trajectories of family adaptation is largely unknown. But despite the apparent risks, there continues to be variability in family adaptational response that suggests that a variety of factors likely serve as buffers to family well-being. Coping models have implicated parental beliefs, particularly dispositional optimism and beliefs about locus of control, as two key factors that may exert some protective or buffering effect on adaptation (Baker, Blacher, & Olsson, 2005; Hassal et al., 2005), although whether parental beliefs are sufficiently powerful to serve a moderating role over time remains an open question.

The current study sought to explore adaptation over time in families of children with early developmental delay in several ways. First, by exploring whether adaptation is best construed as a global construct in which multiple aspects of family functioning are similarly affected, or one in which there is specificity of effect across time for individual adaptational domains. Second, by investigating the role of child developmental risk in predicting the longitudinal trajectories of adaptation (indexed by parent stress, parental psychological symptoms, marital satisfaction, and observed dyadic relationship quality) among families of children with and without developmental delays. Third, by determining whether longitudinal trajectories of child behavior problems mediate the link between child developmental level and trajectories of family adaptation.

To address these goals, data were drawn from a 7-year longitudinal, multi-site study exploring the complex interplay across time of child regulatory ability and family processes in explaining the relation between child developmental status and later child psychopathology. Measures included naturalistic home observations of family interaction style as well as parent self-report data regarding parent psychopathology, parenting beliefs, and child behavior problems from child ages 3 to 8 years. A total of 234 families participated, of which 104 had a child with developmental delays and 130 had a typically developing child. The data allowed extraordinary opportunities to explore the longitudinal relations between child characteristics and trajectories of family adaptation.

Literature Review

Early research conceptualized the presence of a child with developmental disabilities as a disruption of a family's equilibrium, causing stress and distress for the non-disabled family members (Farber, 1972; Olshansky, 1962; Wolfsenberger & Menolascino, 1970). Recently, research has shifted to explore not only pathological but also healthy coping responses to a child with disabilities (Baker et al., 1997), however research on family adaptation remains flawed. Adaptation research is too often narrowly focused on individual family members and unimodal investigations, as opposed to multi-method approaches that explore dynamic transactional processes between multiple family members (Crnic et al., 1983). In addition, although several potential mediators and moderators of adaptation have been explored, it remains unclear how family factors such as child behavior problems and parent beliefs intervene in family's adaptation over time. More thorough examination of the mechanisms of effect will help to explain how adaptation emerges, and a better understanding of the risks and protective factors will not only more clearly delineate important points of intervention, but will extend risk theory and add importantly to the empirical base of work that addresses family adaptation.

Family Adaptation: A Historical Perspective

Throughout the 20th century, research on family adaptation reported the negative impact of a child with disabilities on their family (Blacher & Baker, 2002). Examining case studies of several different families of mentally retarded children, Kanner (1953) found parents suffered from guilt, depression, stress, and self-blame. Likewise, Murray (1959) stated a litany of the potential negative impacts of a mentally retarded child on his or her family, including financial problems, emotional tension, religious doubts, and concerns about caretaking once the parents have died. Caldwell and Guze (1960) also found that parents and siblings of mentally retarded children alluded to several negative reactions to the child. Olshansky (1962) posited that discovering one's child was “defective” invoked a grieving process, in which the parent must progressively let go of the hopes and dreams that he or she had for the child. “Chronic sorrow” would occur, as at each developmental milestone parents would be reminded that their child was different from others. Similarly, Wolfensberger and Menolascino (1970) described the development of a series of crises in the family of a handicapped child: a “novelty shock crisis” as a first response to the news of their child's disability, followed by a “reality crisis” as the daily stresses of raising the child cause strain in the family, and finally a “value crisis” as parents realize that their child will never be like typically developing children. Later research found that parents of handicapped children had smaller social networks than other families (Kazak & Wilcox, 1984) and exhibited higher stress levels than comparison groups (Kazak, 1987). Only in the last several years has this largely negative perception of the child with delays’ impact on the family begun to change (Blacher & Baker, 2007).

Presently, family adaptation research has shifted from highlighting the negative impact of a child with delays to an exploration of the family’s positive and negative adaptation strategies (Baker et al., 1997; Blacher & Baker, 2007). In particular, several studies from the last several years have highlighted positive effects of a child with intellectual disability on the family (Blacher & Baker, 2007). A longitudinal study of maternal depression in adoptive and biological parents of children with intellectual disability found that, although biological mothers have high levels of depression at first, over time this depression decreases and approaches the non-clinical levels of adoptive mothers (Glidden & Schoolcraft, 2003). Although it is heartening that mothers of children with intellectual disability show non-clinical levels of depression, without a comparison to mothers of typically developing children it is difficult to determine whether families are truly adapting in a "typical" fashion to their children with intellectual disability. Qualitative investigations indicate families believe their child brings happiness to the family, facilitates family closeness, provides an opportunity to learn new information, and is a source of personal growth and inner strength (Hastings & Taunt, 2002; Sandler & Mistretta, 1998; Stainton & Besser, 1998). Although these are promising initial findings, Blacher and Baker (2007) highlight the importance of controlled, quantitative investigations that include comparison samples in order to make stronger predictions regarding a child's impact on the family. In their study, Blacher and Baker (2007) found that rather than disability status, parent distress was more strongly linked to behavior problems in the child. Parent-perceived positive impact of the child on the family buffered the effects of behavior problems on parent distress (Blacher & Baker, 2007). These studies are a promising first sign that parent beliefs and family perceptions of a child with developmental delays can buffer the potentially adverse effect of the child on his or her family. However, only a few studies such as Blacher and Baker's (2007) work begin to explore the mechanism of effect in the positive adaptation process.

Although there is no consistent use of one theoretical model to explore the adaptation process in general (Turnbull, Summers, Lee, & Kyzar, 2007), several studies of family adaptation have attempted to define it as an ongoing, dynamic process involving both a family's appraisal of the crisis event as well as their use of available coping resources to determine the level of stress that the family experiences (Azar & Badar, 2006; Lustig, 1999; Magaña, Schwartz, Rupert & Szapocznik, 2006; Thompson et al., 1992; Wallander & Varni, 1998). In particular, McCubbin and Patterson's (1983) "Double ABCX" model has served as one major guiding model in the conceptualization of family adaptation to children with developmental delays (Turnbull et al., 2007). The crisis event in this model is the presence of the child with delays in the family, accompanied by stressors such as financial and caregiving demands. In the Double ABCX model, the combination of a family's resources, coping skills, and perception of the severity of the stressor determine the family's level of adaptation, which involves an ongoing process of continual adjustment to the stressors in the family and surrounding environment.

Several studies build off of the ABCX model in conceptualizing adaptation. Lustig's (1999) resiliency model of family stress, adjustment and adaptation explored families' sense of coherence, flexibility, social support and cohesion in families of adults with mental retardation and maladaptive behavior. Families' feelings of coherence and cohesion were found to predict most strongly to overall positive adaptation, whereas social support, flexibility, and child maladaptive behavior did not predict to adaptation. In a similar study of families of adults with mental retardation, Magaña and colleagues (2006) found evidence for a stress-process model in which maladaptive behaviors in the individual with mental retardation were related to poorer family relationships and high perceived family burden, which in turn were related to higher family stress and poorer health. Unlike Lustig (1999), Magaña et al. found that maladaptive behaviors played an integral part in the prediction of important family factors (Magaña et al., 2006). Azar and Badr (2006) also used a resiliency process model in which family demands, resources, problem-solving skills and coping were each related to the well-being of siblings of children with Down Syndrome. Sibling well-being was related to each of the family factors, and overall, siblings were found to be socially competent with favorable self-concepts (Azar & Badr. 2006). Though these studies are promising signs of the utility of process models of adaptation, each has its flaws, including a focus on cross-sectional approaches and lack of comparison groups.

The Double ABCX model of adaptation implies the need for a comprehensive, longitudinal approach to understand the complexities of the adaptation process. However, the majority of research on adaptation is too limited in scope to fully test this model. Crnic and colleagues (1983) highlighted three major weaknesses in adaptation research which remain salient today: 1) the focus is too specifically on individual (frequently maternal) reaction to child disability, rather than the family subsystems or the unit as a whole, 2) investigations of family adaptation are primarily unimodal, concentrating on single measurement strategies (typically self-report data), with few observational methodologies, and 3) many investigations lack comparison groups, limiting what can be inferred from the data. In two decades, research on family adaptation has not progressed substantially across these areas and the majority of the work has been cross-sectional despite the dynamic nature of the adaptation process. The current study seeks to address these weaknesses and ultimately provide a more comprehensive view of family adaptation.

Fathers' Unique Contributions

Most of the family-related research cited here focuses on mothers, and only in recent years have fathers begun to gain prominence in family research (Day et al., 2005). Despite changing demographics over the years leading to a rise in single motherhood and non-traditional family composition, fathers are often an important part of the parenting team, and thus it is important to include their perceptions when studying the family. Evidence indicates that fathers have an equal influence on children as mothers: infants show similar signs of attachment to their fathers as they do to their mothers (Fox, Kimmerly & Schafer, 1991), and paternal warmth has been shown to be similar to maternal warmth in its effect of children's well-being (Lamb, 1986). Both mothers and fathers of children with intellectual disabilities perceive fathers as being significantly involved with playtime, discipline, nurturing, and decisions regarding service provision (Simmerman, Blacher, & Baker, 2001). This research suggests that fathers have an equally significant influence on their children as mothers do, though not necessarily similar responses to their children as compared to mothers.

In many ways, fathers of children with developmental delays perceive and respond to their families quite differently than mothers. For example, fathers of children with disabilities may experience stress differently: research indicates that fathers stress levels are more susceptible to the child's temperament (Krauss, 1993), child maladaptive behaviors (Frey et al., 1989; Krauss, 1993; Macias, Saylor, Haire, & Bell, 2007), and the father-child relationship (Krauss, 1993; Macias et al., 2007) than mothers. In addition, fathers show more concern regarding how others perceive the child (Frey Greenberg, & Fewell, 1989), and may show more stress related to lack of social support (Macias et al., 2007). Too, there is evidence that fathers perceive families as less cohesive and adaptive than mothers (Krauss, 1993), and that fathers may have more difficulty adjusting to their child's disabled status than mothers, particularly if the child has significant communication problems (Frey et al., 1989). This intriguing research suggests that both perceptions of a child with a disability as well as family relationships are more important to fathers' well-being than for mothers. The extent and degree of such differences between fathers and mothers of children with developmental disabilities are not well understood. The current study will consider both mothers' and fathers' beliefs about their families in an attempt to address this weakness in the extant literature.

Components of Family Adaptation

Previous research has conceptualized family response to a child's disability in multiple ways, with little consensus on definition, often focusing on single-point-in-time assessments of individual family attributes (Turnbull et al., 2007). Indeed, the terms used to describe family response vary widely; family well-being, family adaptation, family adjustment, and family functioning are used relatively interchangeably to refer to the adaptation process (Turnbull et al, 2007). Among the many attributes used to describe adaptation, parent stress, parent psychological symptoms, and marital functioning have been frequent indices of interest (Turnbull et al., 2007). Although some research has been more multidimensional in approach and has assessed several of these factors together, there has been relatively little attention to the quality of family relationships and interactions as a meaningful adaptation factor. Regardless, it seems apparent that broader multidimensional approaches to conceptualizing family adaptation are necessary to more fully explicate this construct.

Several studies have explored a multi-faceted approach to family adaptation (Britner, Morog, Pianta, & Marvin, 2003; Counts et al., 2005; Friedman et al., 2004; Kazak & Marvin, 1984), whereas other studies consider only specific measures of adaptation (Hassal et al., 2005; Hauser-Cram et al., 2001; Thomspon et al., 1992; Quittner & DiGirolamo, 1998). In a comparison study of families of children with cerebral palsy and families of typically developing children, Britner and colleagues (2003) created clusters of levels of family functioning using measures of parent stress, psychopathology, and marital satisfaction. Counts and colleagues (2005) constructed a family adversity composite (measured by parent stress, psychopathology and marital satisfaction) that was predicted by children's behavior problems. In contrast, Friedman and colleagues (2004) considered multiple aspects of family adaptation (again, parent stress, psychopathology, and marital satisfaction) though these indices were not composited, and each factor's relation to child functioning was considered separately. This is more in keeping with several other studies of family adaptation, which have considered only specific measures of functioning such as parent stress (Hassal et al., 2005) or parent psychopathology (Thomspon et al., 1992; Quittner & DiGirolamo, 1998). Both composited and specific approaches to conceptualizing adaptation have merit, as it is not yet clear whether adaptation is best considered globally or from a more domain-specific perspective.

Parent stress, parent psychological symptoms, and marital satisfaction have all been considered as elements of adaptation. Specifically, parenting stress has long been linked to child disability (Baker, et al., 1997), and in particular the pile-up of numerous minor daily stresses may be uniquely meaningful for the well-being of families of children with developmental delays (Crnic & Low, 2002; Minnes, 1988; Stoneman, 1997). In a study of families of children with cystic fibrosis, the stress associated with daily hassles of parenting predicted more strongly to maternal psychopathology than stress related to the child's illness (Thompson et al., 1992). But more generally, high levels of parent stress are associated with child externalizing behaviors (Friedman et al., 2004), poor maternal perceptions of the family (Dyson, 1997), poor satisfaction with parenting (Crnic, Greenberg, Ragozin, Robinson, & Basham, 1983), and less positive mother-child interactions (Crnic, Gaze, & Hoffman, 2005). Strong links between parent stress, multiple aspects of parenting perceptions and behaviors, and child behavior problems highlight the importance of including stress in the conceptualization of adaptation.

In addition to greater stress, parents of children with developmental delays have been shown to have more symptoms of depression than parents of typically developing children (Bristol, Gallagher, & Schopler, 1988; Fisman, Wolf, & Noh, 1989; Moes, Koegel, Schreibman, & Loos, 1992). Mothers suffering from depression may be more likely to interpret their children's behavior and developmental delay as having a negative impact on their lives, which in turn is associated with child stress (Emerson, 2003). Furthermore, parent psychopathology has been linked to childhood behavior problems such as oppositional-defiant behavior and conduct disorder (Counts et al., 2005). Like stress, parent psychological symptoms are significantly linked to amily and child well-being, indicating their vital role as a component to family adaptation.

Similarly, marital satisfaction has far-reaching effects on family well-being. In a meta-analysis exploring how marital satisfaction was related to child developmental level, parents of children with developmental delays were shown to have slightly lower marital adjustment than parents of typically developing children (Risdal & Singer, 2004). High marital satisfaction is related to lower parent stress and fewer depression symptoms (Kersh, Hedvat, Hauser-Cram & Warfield, 2006). And, as with parent psychopathology, child behavior problems have been associated with low marital satisfaction in at-risk families, including parents of children with spina bifida (Friedman et al., 2004), as well as families of children with ADHD (Counts et al., 2005) and families of children with developmental disabilities (Kersh et al., 2006). Though there is evidence for how marital adjustment is related to behavior problems as well as child developmental level, more research is needed to explore how these factors are related.

Although marital satisfaction contributes to family adaptation, broader family relationships are also key to understanding family well-being. Though few studies have examined how family relationships relate to adaptation, there is evidence that controlling and negative parenting behavior has been shown to be related to parent-reported feelings of caregiving burden and stress in families of children with mental retardation (Floyd & Saitzyk, 1992). As discussed previously, the trend in family adaptation literature has been to focus primarily on parent-report data, as well as to concentrate on individual family member reactions to children with disabilities rather than considering the family unit as a whole (Crnic et al., 1983). Including observational measures of family relationship quality ensures a multi-faceted approach to family adaptation.

In sum, each of the factors discussed above are important aspects of adaptation in families under conditions of risk, though how these indices of adaptation are specifically related to families of children with developmental delays is not yet known. It is also unclear whether it is best to conceptualize adaptation globally or more specifically. In addition, due to the cross-sectional nature of most of these studies, no predictive relations can be interpreted. A longitudinal examination of family adaptation will provide more insight into how developmental delay and behavior problems are related to adaptation over time.

Child Behavior Problems and Family Adaptation

A growing body of literature indicates that behavior problems may be associated with various indices of family adaptation under conditions of risk. Parent stress levels tend to be higher when children have behavior problems, whether or not children have other risks such as chronic illness (Friedman et al., 2004), learning disabilities (Lardieri, Blacher & Swanson, 2000) or developmental disorders (Donenberg & Baker, 1993; Noh, Dumas, Wolf & Fisman, 1989). In addition to parent stress, child behavior problems have been shown to be associated with other aspects of adaptation for families of children at risk including parent psychopathology and marital satisfaction (Counts et al., 2005; Friedman et al., 2004).

Given the high incidence of behavior problems in children with developmental delays (Baker et al., 1997; Dekker, Koot, van der Ende, & Verhulst, 2002), it is worthwhile to more fully examine the relation between behavior problems and adaptation in families of children with developmental delays. Baker and colleagues (2002) examined parenting stress and its predictors in families of preschool children with and without cognitive delays. Similar to previous studies (Baker et al., 1997), they found that children with developmental delays were more likely to have behavior problems, and that parents of children with developmental delays experienced more stress than parents of typically developing children. However, whereas early research suggested that higher parent stress levels are due to the child's developmental status (Farber, 1972), Baker and colleagues showed that behavior problems were a stronger predictor of parenting stress than the child's developmental status. A similar study examining the continuity and stability of behavior problems in 3 and 4 year old children found that parents' stress ratings, though higher in families of children with developmental delays, were again related more strongly to behavior problems than to developmental status alone (Baker, McIntyre, Blacher, Crnic, Edelbrock, & Low, 2003). These studies are an important first step in better understanding how behavior problems predict parent well-being when there is a child with developmental delays in the family, however the mechanisms that underlie this relation remains poorly understood.

Also, a developmental approach indicates the need to explore not only the change in family adaptation over time, but also how this change in adaptation is related to change in level of behavior problems. Some research suggests that as individuals age from middle childhood to adulthood, less demanding problem behaviors decrease while more challenging behaviors (i.e., self-injurious behavior) increase (Holden & Gitlesen, 2005). However, this research does not explore the many changes that may occur in levels of problem behavior during early and middle childhood. It stands to reason that, although child behavior problems may be stable in preschool (Baker et al., 2003), the many developmental changes a child experiences during early and mid-childhood may have a profound effect on the level of behavior problems they exhibit as time goes on. Given the evidence of the strength of association between behavior problems and parent adjustment as well as the prevalence of behavior problems in the developmentally delayed population, behavior problems should be included in an examination of family adaptation across time.

Intervening Variables in the Adaptation Process

Many factors other than child characteristics may moderate the link between child developmental status, behavior problems, and adaptation. According to the Double ABCX model, families' coping skills and resources affect how they adapt to the stress of a child with delays (McCubbin & Patterson, 1983). These coping skills and resources may include family members' health, energy, morale, problem-solving skills, social support network, financial resources and beliefs (Crnic et al., 1983). Considerable research supports the importance of a family's perceived social support in buffering the effects of stress on well-being (Erickson & Upshur, 1989; Manuel, Naughton, Balkrishnan, Paterson Smith, & Koman, 2003; Taanila, Syrjälä, Kokkonen, & Järvelin, 2002) however much less research has explored the moderating role that parental beliefs may play in adaptation.

In particular, parents' level of dispositional optimism and their locus of control may affect their adjustment to a child with delays. Both optimism and locus of control have been shown to be associated with the indices of adaptation that will be used in the proposed study: high optimism has been shown to be associated with parent-reported positive quality of the parent-child interaction (Jones, Forehand, Brody & Armistead, 2002), while parents with an external locus of control show higher stress levels (Hassall et al., 2005) as well as a higher perceived caregiving burden (Green, 2004). Despite this association between parental beliefs and family adaptation, little research as of yet has shown how parental beliefs modify the link between child characteristics and family adaptation. An exception to this is a study conducted by Baker and colleagues, (2005) in which parent optimism was found to moderate the link between child behavior problems and parent well-being for parents of young children with developmental delays, such that high child behavior problems and low optimism was associated with higher parent depression scores and lower marital satisfaction (Baker et al., 2005). Although the current study did not include intervening variables such as those mentioned above, an assumption of the study is that these variables likely play a role in any of the relations that are found.

The Current Study

Few studies have comprehensively explored family adaptation to child disability, as most studies of adaptation have been cross-sectional in nature and have focused on individual reactions to the disabled child rather than more complex family processes. Some evidence has shown that child behavior problems might be a stronger predictor of adaptation than developmental status. In order to better understand the development of adaptation over time, the predictive role of both child developmental status and child behavior problems must be considered. The current study addressed each of these issues by examining how child developmental level, mediated by development of child behavior problems over time, predict trajectories of family adaptation.

Hypotheses. The following aims and associated hypotheses guide this research (see Figure 1 for conceptual model).

First, the study examined the nature of family adaptation and how best to conceptualize and measure adaptation. Historically, adaptation has often been thought of as a global construct that reflects consistent functioning across multiple individual indices (one composite factor). The composite-factor construct was contrasted with a multi-index approach that suggests variability across individual indices of adaptive functioning. It was thought that adaptation may best be considered from a multi-index approach, where child behavioral characteristics are differentially associated with individual adaptation indices (i.e., parent psychopathology, parent-child relationship quality) across time. In this way, rather than more uniform change in adaptation, the way a family adapts to crisis may differ significantly depending on which particular aspect of adaptation is examined. For example, parents of children with developmental delays would show a decrease in marital satisfaction over time, but not show a change in overall stress levels.

Within this larger hypothesis, the study examined whether child risk group (TD or DD) differentially predicted to adaptation. It was expected that families of children with developmental delays would show more maladaptive early adaptive competence (intercept) and worsening adaptive competence over time, as compared to the TD group. For example, if adaptation was found to be a multi-index construct, it was expected that the DD group would show higher early levels of parent stress that increased more quickly over time than the TD group, and may show lower initial levels of parent-child pleasure than the TD group, which decreased over time.

Second, the study examined whether the trajectory of child behavior problems mediated the link between child developmental level and trajectories of family adaptation. It was anticipated that behavior problems would mediate the link for both TD and DD families. It was expected that these processes likely operated similarly for both TD and DD families. Specifically, both initial levels (at child age 3) of behavior problems as well as change in behavior problems over time were expected to predict trajectories of adaptation. It was expected that low levels of behavior problems at child age 3 would be associated with high levels of "good" family adaptation (i.e., marital satisfaction), and low levels at child age 3 of "bad" family adaptation (i.e., stress, psychological symptoms). Change in behavior problems over time was expected to be negatively associated with changes in adaptation over time, so that as behavior problems decreased over time, family adaptation improved over time. This association was expected to hold regardless of whether or not a child was developmentally delayed or typically developing.

Methods

Design Overview

Data for the current study were drawn from a multi-site, longitudinal investigation (The Collaborative Family Study), which prospectively examines the interrelations among children's developmental status, family processes, child characteristics, and the emergence of psychopathology in young children aged 3 to 9 years. The study specifically addresses the increased rate of psychopathology among children with developmental delays, known as dual diagnosis. Data for the larger study were collected using a multi-method approach involving structured parent interviews, independent observations of parent-child interaction in naturalistic and lab-based settings, as well as questionnaires assessing a wide-range of variables related to family functioning, parental psychopathology, and child behavior problems. Children's cognitive functioning was assessed at entry into the study, and again at ages 5 and 9 to determine developmental level of functioning. The current study incorporated longitudinal data collected during naturalistic home observations, parent interview and parent questionnaires across the preschool and elementary school period (ages 3 to 8).

Participants

As described above, the participants of the current study included typically developing children as well as children with developmental delays and their families who were part of the larger Collaborative Family Study. At 3 years of age, children's developmental status was determined by their Mental Development Index (MDI) scores on the Bayley scales of Infant Development

(BSID-II; Bayley, 1993). Children obtaining an MDI score below 75 were classified as developmentally delayed whereas children with an MDI score above 85 were classified as typically developing (TD). The MDI scores of a small number of children fell in between 75 and 85. The data for these children were included in the developmentally delayed (DD) sample. Participants for the larger study were recruited from community agencies, such as family resource centers, early intervention programs, preschools, and daycare centers, as well as via flyers posted throughout the community. Approximately one-third of the families were recruited from rural/suburban communities in Central Pennsylvania, and two-thirds of the families were recruited from the Los Angeles area. This multi-site design allowed for a more geographically and ethnically diverse sample. Exclusion criteria for the larger study included severe neurological impairment (e.g., cerebral palsy), autism, non-ambulation and a history of abuse.

The participants of the current study included consisted of 234 children, including 130 typically developing children and their families (Mean MDI = 104.71, SD = 11.68, Range: 85-139), 93 children with developmental delays and their families (Mean = 57.61, SD = 11.44, Range: 30-75), and 11 children and their families whose MDI fell between 75-85 (Mean = 80.18, SD = 2.32, Range: 76-84) and whose data were combined with the DD sample. Forty-one percent of children were female. Ethnicity was representative of the populations at each site. In the current study 60% of the children were Caucasian, 17% were Hispanic, 7% were African American, 3% were Asian and 14% identified as multi-racial. At age 3, 57% percent of the mothers were employed outside the home, and 48% of mothers had a college education or higher. The majority of the families earned less than $70,000 per year.

Procedure

Once identified as potential participants for the larger scale investigation, families were contacted by phone and an initial home-based visit was scheduled when the child was approximately 36 months old. During this visit, a trained graduate student administered the BSID-II, from which the child’s MDI was computed and used to determine whether the child met criteria for inclusion in the developmentally delayed or typically developing group. In addition, demographic information was obtained for the family during this initial visit. This information included family members’ ethnicity, employment status, income, education level, marital status and health history. Also, mothers and fathers were asked to complete several questionnaires to assess child functioning, family functioning, parental attitudes and beliefs, and the parent-child relationship. Parents were asked to complete these questionnaires independently of each other.

At the conclusion of the initial visit, the experimenter scheduled a naturalistic home observation session and an hour-long laboratory visit with the mother and child. Subsequent laboratory visits were conducted once per year around the time of the child’s birthday from age 3 to age 9. Naturalistic home observations took place every six months between child age 3 and 5 years, then subsequently were conducted yearly around the time of the child’s birthday from 5 to 9 years. Each year at the time of the home observation, demographic information was updated and parents were given another series of questionnaires to complete similar to the initial set given at 36 months. Additionally, at ages 5 and 9 children's cognitive ability and adaptive functioning was re-assessed. From age 5 to 9, mothers were interviewed yearly to assess child psychopathology.

For the current study, data were utilized from child ages that encompassed the multiple important developmental changes that children experience in early and middle childhood. In order to obtain the richest possible assessment of the change in child behavior problems over time, levels of behavior problems were used from child ages 3, 4, 5, 6, 7, and 8 years. Adaptation, as measured by parent-completed questionnaires regarding parent stress, parent psychopathology and marital satisfaction, as well as naturalistic home observations of dyadic relationship quality, were assessed each year from child age 3 to 8. These three time points capture important developmental stages in a young child's life: namely, preschool age, entry into kindergarten, and middle childhood, by which point family processes have become well-established.

Each family was reimbursed $20 for their participation in yearly lab visits and biannual home visits from age 3 to 5, and $50 for home observations (which included the lab tasks) from age 6 to 9. During each lab visit, parent-child interactions and independent child behaviors were observed during structured lab tasks designed to assess child regulatory behavior as well as parenting characteristics. All lab visits followed a standardized protocol. From child ages 3 to 5, the lab visits occurred in the CFS laboratory. From child ages 6 to 9, the lab visits occurred in the home and took place immediately following the naturalistic home observation.

Home observations took place when the entire family was in the home, usually at dinnertime. At child age 3, families were observed for 60 minutes, for 40 minutes at age 6, and for 20 minutes at age 8. During the observation, two trained graduate students coded children's, mothers', and fathers' emotional state and family interactions. Families were instructed to "act as they normally do" during the observation. The two observers stood in an unobtrusive area of the room that gave them a clear view of each of the family member's faces. Eye contact and verbal interaction with family members was avoided to avoid distraction. If the focal child left the room, the observers followed him or her to continue their observation.

The child and family were observed for 10 minutes, after which the observer would take five minutes to rate family interactions. Observers were trained through watching videotaped home observations and attending live home observations with an experienced coder until reliability was established. Reliability was defined as 70% exact agreement and 95% agreement within one point on the coding scale with the master coder. Once an observer reached reliability, individual observers conducted home observations. To maintain cross-site reliability (Los Angeles and Central Pennsylvania), a master coder was designated at each site. Reliability was collected regularly within site and across site to ensure that reliability was maintained. This inter-site reliability was based on videotaped home observations, and within-site reliability was assessed using videotapes as well as live home observations. Kappa for both within and inter-site reliability was .6 or higher each year, which has been recommended as a minimum level of inter-rater agreement (Fleiss, 1981).

Measures

Child developmental level. At 3 years of age, child Mental Development Index (MDI) was measured using the Bayley scales of Infant Development (BSID-II; Bayley, 1993). The child's score on the BSID was used to place them in either the typically developing (TD) or developmentally delayed (DD) groups for the study.

Child behavior problems. Every year as part of the larger study, parents filled out the Child Behavior Checklist (CBCL; Achenbach 1991) detailing the problem behaviors of the children in the study. The current study used parents' ratings from each year from child age 3 to 8. Responses were scored on 7 narrow-band factors and 2 broad band factors. The Internalizing and Externalizing broad band factors were of interest to the proposed study.

Adaptation. Four measures of adaptation will be used in the current study. The Parenting Daily Hassles questionnaire (PDH; Crnic & Greenberg, 1990) was given to each parent to complete at the beginning of the naturalistic home observation yearly from child age 3 to 8 years. It is a 20-item scale that asks the parent to rate the frequency and intensity of hassles associated with parenting tasks and typical yet challenging child behaviors. Adequate reliability for this measure (Cronbach's alpha = .90) has been previously reported (Crnic & Greenberg, 1990). Parents rated items on two separate 5-point scales: how often the hassle occurred (i.e., "never" to "often") and the intensity of the hassle (i.e., “no hassle” to “big hassle”). Only the “intensity” sum score was used for the current study, rather than ratings of stress frequency, as the intensity sum score is the best measure of parent’s appraisal of stress. High scores on this “intensity” subscale indicated that these daily events were a “big hassle”.

The Symptoms Checklist-35 (SCL-35; Derogatis, 1993) is a short form of the SCL-90 that measures perceived levels of parent distress as rated on a 5-point scale. Adequate reliability for this measure (Cronbach’s alpha = .84) has been previously reported (Cicirelli, 2000). Five subscales are calculated, including somatization, interpersonal sensitivity, depression, anxiety, and hostility as well as a total score of perceived distress. The current study used the total score of perceived distress as a measure of parent psychological symptoms each year from child age 3 to 8.

The Dyadic Adjustment Scale (DAS; Spanier, 1976), collected from parent questionnaires at child ages 3 through 5 years, is a 32-item questionnaire that assesses marital adjustment across several domains including handling family finances, household tasks, how often partners do things together, and how often the couple quarrels or discusses divorce. Adequate reliability for this measure (Cronbach’s alpha = .96) has been previously reported (Spanier, 1976). As part of the measure, each parent completes 7 items that rate his or her degree of happiness with the marital relationship on a 7-point scale from Extremely Unhappy to Perfect. These items have been used as a short form of the DAS, called the DS7. The DS7 has been shown to adequately differentiate couples’ marital satisfaction similarly to the DAS (Christopher & Rogers, 1984; Hunsley et al., 1995). For the current study, the DS7 was used from ages 3 to 8. For date from ages 3 to 5, the DS7 was extrapolated from the full DAS. The recoded DS7 met criteria for adequate validity as compared to the full DAS (Cronbach's alpha ≥ 0.80).

Data from the Home Observation Coding System (Belsky, Crnic, & Woodworth, 1995) were gathered during naturalistic home observations of family interaction style at each year from child age 3 to 8. The reliability of this measure was maintained at a Kappa of .6 or above. To obtain ratings on this measure, the experimenter coded the child and parent interactions after each of the two to six 10-minute observations, as described above. Each rating consisted of 26 items which were rated on a five point scale from 1 (low intensity/frequency) to 5 (high intensity/frequency). The coding system includes ratings of parent and child emotional state, parent sensitivity or detachment toward child, child attention and activity level, and ratings of relationship quality in dyadic family interactions. The current study focused on the measures of relationship quality. A total of 6 items were used, that served as an index of dyadic relationship quality. Specifically, level of pleasure and conflict in each of the 3 dyadic family interactions: mother/father, mother/child, and father/child, were used.

Results

Data Reduction

As the home observation data is based on up to six separate ratings at each time point, the mean of the six ratings was used to represent the behavior of interest, i.e. mother/father dyadic pleasure and conflict, mother/child pleasure and conflict, and father/child pleasure and conflict. Each variable met criteria for adequate reliability (Cronbach's alpha ≥ 0.70).

Analysis Plan

Sophisticated analytical methods were used to test the hypotheses outlined above, including latent growth curve modeling (LGCM), and parallel process growth curve modeling. SPSS (versions 17 and 18) was used to conduct factor analysis, correlate variables, and perform data reduction. Mplus (version 5.2) was used to obtain means and standard deviations of all variables, for all tests using LGCM and parallel process growth curve modeling, as well as for tests of the full mediation model.

Factor analysis. Factor analysis was used to assess whether adaptation is best conceptualized as a single-factor or multi-index construct. Both confirmatory factor analysis (CFA) as well as exploratory factor analysis (EFA) were used. Costello and Osborne (2005) note that many of the most common practices in factor analysis are not the most accurate. They recommend conducting factor analysis rather than principal components analysis (PCA), as PCA is primarily a data reduction method used to distill a group of items down to the most critical components, without relying on a specific theoretical foundation (Costello &

Osborne, 2005). Factor analysis, however, assumes a set of latent constructs underlies the data, and attempts to uncover these latent constructs by analyzing covariance of the manifest variables (Costello & Osborne, 2005). In the process of factor extraction, a variable's shared variance, unique variance, and error variance are separated from each other, and only shared variance is represented in the ultimate factor structure. PCA does not differentiate shared and unique variance, and in cases where factors are uncorrelated and have moderate communality values, PCA can inflate the variance accounted for by components in the factor solution (Costello & Osborne, 2005). There are multiple types of factor extraction, however maximum likelihood estimation has arisen as the most favored method (Costello & Osborne; Fabrigar, Wegener, MacCallum & Strahan, 1999). One strong benefit of maximum likelihood estimation is that it creates indices of model fit, which allow comparison of the unrotated factor structure to a null model.

Costello and Osborne (2005) also discuss best practices in choosing the number of factors to retain. While common practice is to retain all factors with eigenvalues above 1, the authors emphasize that it is far more meaningful to examine the scree plot of eigenvalues in order to obtain the most appropriate number of factors. In a typical scree plot, there is a noticeable point at which the eigenvalues flatten significantly, representing the steep descent of a mountainside. The number of eigenvalues that fall before that break point are the number of factors to retain in the solution. After choosing the number of factors to retain, it is then time to choose the method of rotation. Common practice is to test factors are correlated, and use either an orthogonal or oblique rotation accordingly. Costello & Osborne (2005) note that, in the social sciences, constructs represented by different factors are often expected to have some overlap, and it is rare that factors are truly expected to be orthogonal. Therefore, they recommend using oblique rotations to best capture the true structure of the factor solution.

Based on the best practices discussed here, in the current study factor analysis was used, rather than PCA, to extract factors from the data set in CFA and EFA. Maximum likelihood was chosen as the method of extraction in order to be able to assess model fit. When choosing the number of factors to retain in EFA, scree plots were examined. As scree plots did not indicate a distinct number of factors to retain, no rotation was completed. See below for further details.

Growth curve modeling. LGCM is an analysis technique that combines aspects of confirmatory factor analysis and structural equation modeling (Curran, Stice, & Chassin, 1997). LGCM is an ideal tool for the current longitudinal study as it maps how variables change over time (Muthén, 2002). By using the parallel process method, LGCM can also be used to explore how multiple growth curves are related to each other (Curran et al., 1997). LGCM uses 3 or more observed variables to create two or more latent constructs representing the growth curve. For example, in a linear growth model, an intercept (initial value), and a slope (rate of change over time) are created (see Figure 2). In a quadratic growth model, 3 latent variables are created: the intercept, linear slope, and quadratic slope (see Figure 3). A quadratic growth model is characterized by changing growth over time. Whereas a linear model has a fixed rate of growth, in a quadratic model the slope changes at a consistent rate over time. Linear slope is difficult to meaningfully conceptualize, as it represents instantaneous linear growth at the point of intercept. For example, in a quadratic growth curve with intercept set at child age 4, linear slope represents the rate of change at age 4 (only). Quadratic slope represents the rate at which the linear slope changes at each time point. For example, a mean quadratic slope of -5 indicates that the linear decreases by 5 at each time point.

Parallel process growth modeling uses LGCM to estimate growth curves on two different constructs simultaneously, allowing for exploration of the association between the change in two or more constructs over time (Curran et al., 1997). See figure 4 for an analysis model of parallel process using two linear growth models.

Differences on demographic variables were tested across risk groups (TD/DD; see Table 1). Results indicated that TD and DD children differed significantly at age 3 on three variables: family income (TD > DD), mother age (DD > TD), and mother education (TD > DD). Thus, these three variables were included as covariates in all LGCM analyses (e.g., Figure 4). Family income and mother education were coded as ordinal scales. Mother education codes ranged from 1 to 7 in which a code of 1 signified no education beyond grade school; 2 indicated high school diploma or GED; 3 indicated an Associate's degree; 4 indicated a vocational degree; 5 indicated a Bachelor's degree; 6 signified a Master's degree; and 7 indicated a Doctoral degree in any field, including medicine and law. The family income codes also ranged from 1 to 7, with a code of 1 signifying $0 to

$15,000 earned per year; 2 indicating $15,001 to $25,000; 3 indicating $25,001 to $35,000; 4 indicating $35,001 to $50,000; 5 signifying $50,001 to $75,000; 6 indicating $70,001 to $95,000; and 7 signifying income greater than $95,000.

Missing data. As in any longitudinal study, missing data is an issue that must be addressed statistically. Although listwise deletion (i.e., not including participants who do not have data at all time points) is the traditional method of addressing missing data, newer studies indicate that there are many other successful ways of addressing missing data that allow incomplete data to be included (Enders, 2006). For the current study, maximum likelihood estimation was used in all analyses that were conducted with Mplus (i.e., growth modeling and testing of the full mediation model). Listwise or pairwise deletion was used when conducting analyses with SPSS (such as factor analysis). Maximum likelihood estimates the mean and variance values that are most likely to have created the observed data. The “likelihood” value can therefore be considered a measure of model fit. Though the likelihood value that results from a particular model’s analysis does not have a meaning, when likelihood values resulting from the analyses of two separate models are compared, the likelihood value closest to zero indicates that there is a higher likelihood that the corresponding analysis model’s parameters fit the observed data.

Model fit. There has been considerable debate regarding how best to assess the fit of growth curve models (Hu & Bentler, 1999). Tests of model fit are primarily categorized into absolute and incremental fit indices (Hu & Bentler, 1999). Tests of absolute fit, such as chi-square, Root Mean Squared Residual

(SRMR; Bentler, 1985) and the Root Mean Squared Error of Approximation (RMSEA; Steiger & Lind, 1980), do not depend on model comparison, but rather how well an *a priori* model reproduces the sample data (Hu & Bentler, 1999).

Incremental fit indices such as the Tucker-Lewis Index (TLI; Tucker-Lewis, 1973), and the Comparative Fit Index (CFI; Bentler, 1990) compare the incremental improvement in fit of the test model as compared to the more restricted nested baseline model (Hu & Bentler, 1999). Importantly, incremental fit indices such as CFI and TLI are not calculated correctly by most statistical packages such as Mplus and SPSS (Wu & West, 2010; Wu, West, & Taylor, 2009). The baseline model used by these programs is not the actual null model; a correct null model for a longitudinal growth model is an “intercept-only” model in which the slope, its variance and its relation to all other variables is removed. Thus, to accurately calculate indices like CFI and TLI one must run an accurate null model, run the desired model, then compare the chi-squares from the two models with the following equations:

$$CFI = \frac{(\chi^2_{null} - df_{null}) - (\chi^2_{sat} - df_{sat})}{\chi^2_{null} - df_{null}} \qquad TLI = \frac{(\chi^2_{null} / df_{null}) - (\chi^2_{sat} / df_{sat})}{(\chi^2_{null} / df_{null}) - 1}$$

In which “df” indicates degrees of freedom for the indicated model “null” refers to the corrected null model, while “sat” refers to the saturated (or test) model. Although other absolute and incremental fit indices are used in some studies, the

TLI, CFI, RMSEA and SRMR are four of the more common indices, and research has shown these four indices to be robust measures of fit (Hu & Bentler, 1999).

Not only is it essential to pick appropriate fit indices, but it is also important to determine how to interpret those fit indices to indicate best model fit. For many years, Hu and Bentler's (1999) guidelines regarding proper cut-off values have been used as the gold standard in all SEM analyses. Hu and Bentler (1999) discuss the importance of using more than one fit index to determine overall model fit, as models using only one fit index have more frequent rates of Type I and II errors. Also, Hu and Bentler discuss the importance of considering both absolute (i.e., RMSEA, SRMR) and incremental (i.e., CFI, TLI) indices in order to make the most accurate interpretation. However, the SEM models used in Hu and Bentler's work were Confirmatory Factor Analysis (CFA) models, which are related to, but quite different from, longitudinal growth models. Although most if not all of current publications of longitudinal growth analyses use the cut-off values indicated by Hu and Bentler (1999), this is not necessarily the best course of action. Indeed, as longitudinal models are much more complicated than CFA models, particularly the parallel process model used in the current study, it may be that existing cut-off values for best model fit are no longer accurate (Bentler, 2007; Craig Enders, personal communication, April 17, 2009; Fan & Sivo, 2005; McIntosh, 2007; Miles & Shevlin, 2007; Millsap, 2007; Steiger 2007). Indeed, there has been a suggestion that fit indices should not be used to assess SEM models (Barrett, 2007). Though as of yet there is no consensus in the field on what is the best way to test model fit, incremental and absolute fit indices (such as

CFI, TLI, chi-square, and SRMR) are still used. Recent discussions of how best to evaluate SEM have also used other approaches, including using simulation studies to test how well fit indices detect model misspecification (Millsap, 2007; Wu & West, 2010; Wu et al., 2009) relying solely on chi-square tests (Barrett, 2007), or testing "not so close fit", i.e., choosing a threshold value on a particular fit index (such as RMSEA = .07), then requiring rejection of a null hypothesis that states that population fit is worse than this criterion (Steiger, 2007).

Another way of understanding model fit is to conduct a likelihood ratio (LR) test to compare the relative fit of different nested models. A likelihood ratio test compares a more complex model, such as a quadratic model, to a simpler model nested within it, such as a linear model or intercept-only model. The equation for the likelihood ratio test is as follows:

$$LR = [-2LL_{NESTED}] - [-2LL_{FULL}] = DEV_{NESTED} - DEV_{FULL}$$

In which the LL_{NESTED} represents the log likelihood of the simpler, nested model, LL_{FULL} represents the log likelihood of the more complex "full" model, and DEV represents the log likelihood made positive (or deviance). If the null hypothesis is true (the two models are equivalent), LR is distributed as a chi-square. The degrees of freedom used to calculate chi-square represent the difference in the number of estimated parameters in each model. A significant LR test indicates that the fit of the simpler, nested model is significantly worse than the more complex, full model, and that the full model is a better fit to the data.

For the current study, model fit was explored in several ways. Incremental fit indices were obtained (i.e., CFI and TLI), using the method described previously in which a correct intercept-only null model was created then compared to the test model. In addition, multiple different structural models were estimated for each adaptation index and behavioral outcome, including a baseline model (no change in mean over time), linear growth, and quadratic growth (in which slope changes at a constant rate over time). See figures 2 and 3 for samples of analysis models of linear and quadratic growth. Likelihood ratio tests were performed to determine which structural model was the best fit for each set of data. Finally, effect size was used to measure the magnitude of change in model-implied means over time for each adaptation variable that had a linear or quadratic growth structure. Cohen's *d*, a standard measure of effect size, has been characterized as having 3 levels of magnitude: "small" effect size of approximately 0.2, "medium" effect size of 0.5, and "large" effect size of 0.8 or larger (Cohen, 1988).

Family Adaptation as a Multi-Index Construct vs. a Single Factor Construct

In order to test the first hypothesis that adaptation is best conceptualized as a multi-index construct rather than a single-factor construct, factor analysis was conducted using SPSS. First, descriptive statistics and intercorrelations were examined among all adaptation variables (i.e., PDH, SCL, DS7, observed mother-father pleasure and conflict, and observed parent-child pleasure and conflict). Descriptive statistics for all time points were obtained using Mplus, which can be programmed to cite descriptive statistics when completing a longitudinal growth analysis. Means were grouped by child risk (TD vs. DD) and parent gender (see Tables 2 and 3). As these descriptive statistics were obtained with Mplus, missing data was treated with maximum likelihood estimation, which allows inclusion of incomplete data. Intercorrelations between adaptation variables were obtained with SPSS, using pairwise deletion (see Tables 4-15). As incomplete data are removed from the analysis in this method, there are notable reductions in analysis N over time (see notes of Tables 4-15). Results indicate few significant intercorrelations between parent-report measures and observed measures. The number of significant correlations between measures varies at each time point as well as in mothers versus fathers. In general, correlations between variables are small to moderate (absolute value of r ranges from 0.20 to 0.68), indicating that, although there is significant agreement among certain measures, there remains a considerable amount of variance to be explained.

Testing the single-construct conceptualization. Confirmatory Factor Analysis (CFA) was conducted as described previously: factor analysis in SPSS specified maximum likelihood extraction of only 1 factor, which contained all indices of adaptation. Pairwise deletion was used to address missing data. Chi-square tests of model fit were obtained from all analyses. Factors were created at each of the 6 time points (child age 3 through 8), within each group (TD and DD), and for each parent gender (mother and father). Thus, at each time point 4 CFAs were run, totaling 24 CFA analyses across all time points (see Tables 16 and 17). A factor loading with an absolute value greater or equal to 0.35 was considered to be an adequate loading onto the single-factor construct. Results of the single factor CFAs indicate that across all time points, both child risk groups, and both parent genders, the seven key measures of adaptation failed to load onto the factor at a level of .35 or more (See Tables 16 and 17).

It is important to note that over time analysis N reduced dramatically due to missing data (see Tables 16 and 17). Small sample size at later time periods could affect factor loadings and model fit. Correlations between time points are also an indicator of the impact of changing sample size over time (see Tables 18 to 22). Over the 6 time points in the study, parent-rated variables (i.e., PDH, SCL, and DS7) showed a moderate to high level of correlation between years, with r values ranging from 0.46 to 0.83 (see Tables 18 to 20). This suggests a small to moderate shift in sample characteristics over time. In contrast, correlations between time points for observed dyadic pleasure and conflict variables are small to moderate, with r values ranging from -0.04 to 0.51 (see Tables 21 and 22). Small correlations, which are likely a result of increasing amounts of missing data, may significantly impact factor loadings and model fit. Unfortunately, the SPSS packages used to conduct these factor analyses were not equipped to address missing data using maximum likelihood estimation or other data imputing methods.

As SPSS did not allow for maximum likelihood (ML) estimation to treat missing data, the CFA models were run again using Mplus, with ML specified to address missing data. However, despite different treatment of the missing data, adaptation measures did not load significantly on a single factor at any time point for either risk group (TD or DD).

Although loadings below 0.35 usually indicate an inaccurate factor structure for the data, it is important to fully evaluate the single-factor structure by examining model fit. As maximum likelihood estimation was used to extract factors, resulting chi-square tests of model fit were examined. In general, model fit was poor for both parent genders across most time points in the TD group (see Table 16). Model fit was acceptable only for mothers of TD children aged 6 and fathers of TD children aged 8. Although model fit was acceptable at these time points, factor loadings varied considerably across time, and at no one point did all factors load above 0.35. In the DD group, model fit was poor for mothers at most child ages, however model fit was adequate for fathers' adaptation at most child ages (see Table 17). Although fathers' model fit was adequate for most ages, however, these single factor structures did not show a consistent pattern of factor loadings across time, and at no point did all adaptation measures load on a single factor above 0.35. The results of the CFAs and tests of model fit suggest that a single factor construct is not the appropriate way to incorporate all of the indices of adaptation used in this study.

Exploratory Factor Analysis. In order to fully explore how best to conceptualize adaptation, Exploratory Factor Analyses (EFA) were then conducted for all time points, child risk groups, and parent genders using SPSS, as described previously. A total of 24 EFAs were run. Maximum likelihood estimation was used to extract factors, and in an attempt to follow best practices, scree plots were then examined to determine the appropriate number of factors to retain. However, at most child ages, scree plots for both risk groups and parent genders did not show a clear breaking point at which eigenvalues flattened out (see Figures 5-28). Arguably, the scree plots did suggest a certain number of factors for the following groups: fathers of DD children aged 4 (see Figure 12, 2 factors); mothers of TD children aged 5 (see Figure 13, 2 factors); fathers of DD children aged 6 (see Figure 20, 4 factors); and fathers of TD children aged 8 (see Figure 27, 5 factors). However, as the scree plots did not seem to consistently indicate a certain number of factors across time in any one group (i.e., fathers of TD children), the few scree plots that did suggest a certain number of factors to retain were not investigated further.

Scree plots that do not show a clear “flattening” point may be interpreted as indicating that factor analysis is not appropriate for the data. In order to confirm this, a different approach to retain factors was used. The number of eigenvalues above 1 was used as an indicator of how many factors to retain, then the factors were rotated using Oblimin rotation with Kaiser normalization. Results of this factor analysis method varied considerably depending on child risk group and parent gender (see Tables 23-26). At several time points, factor extraction or Oblimin rotation failed, or analyses of model fit did not converge. At those time points that factors were extracted and successfully rotated, model fit was acceptable, however factor structures were not consistent across time, and often factors did not resemble any theoretically logical structure (such as all parent-completed measures loading on one factor, and observed family relationship factors loading on another).

For example, factor structure for mothers of TD children fails at child ages 3, 4, and 8. When successful at ages 5, 6, and 7, the factor structure changes from a 2-factor solution at age 5, to a 3 factor solution at ages 6 and 7, each with different measures loading onto different factors (see Table 23). Likewise, for fathers of TD children, although factor extraction and rotation is successful at all child ages forming 3 factor structures, the factors are made up of different measures at each time point, and certain measures do not load on any factors at certain time points (see Table 24). For both mothers and fathers of DD children, factor extraction and rotation is unsuccessful at several child ages, and when successful factor structures are inconsistent and atheoretical (see Tables 25-26).

In summary, confirmatory factor analysis results indicate that adaptation measures did not load onto a single factor at any time point. Exploratory factory analysis yielded a variety of factor structures that did not show consistent loadings across time, and did not align with any theoretical model. Factor extraction was also unsuccessful at several time points. It is important to note that, given the low correlations between time points for observed dyadic pleasure and conflict (as described previously), a shifting sample base may explain the lack of significant factor loading. That is, the sample at age 3 may be very different from the sample at age 8. Despite a possibly shifting sample base for some measures of adaptation, data appear to support a lack of consistent factor structure across time points, parent genders, and child risk, the individual scale scores were retained for remaining hypothesis testing.

Testing the Link between Child Risk and Family Adaptation

Estimating growth curves of individual adaptation indices using the whole sample. It was posited that child developmental status (TD/DD) would predict adaptation, with TD families showing better initial adaptation and more quickly improving adaptation over time. For a preliminary view of how variables changed over time, whole-sample means of each adaptation variable were plotted at each child age (see Figures 29 to 37). Means were obtained from the outputs of Mplus growth modeling, and maximum likelihood estimation was used to address missing data. Then, structural equation modeling was used (via Mplus) to model a longitudinal growth curve for each index of adaptation. Growth curves used both TD and DD data, as developmental status was to be used as a predictor in further analyses. Though all time points were used (child ages 3-8), the intercept of each growth curve was set at child age 4 years, and the rate of change was set to one year. Thus the slope of a growth model represented the amount of change that occurred in a particular variable over a single year in the child's life, with the intercept of the growth model indicating child age 4 as the starting point of the growth estimation. Age 4 was chosen as the intercept of the growth model in order to allow prediction by the child behavior problem growth curve when fitting the full mediation model.

In most models, variance of latent variables was freely estimated, as was covariance between latent variables (if more than one). The only exception to this was the quadratic growth model of father marital satisfaction, in which linear slope variance was set to 0 (see Figure 43). Residual variances (i.e., variances of the individual manifest variables) were freely estimated in all growth models.

Model fit. Models were estimated in a progressively complex manner, and likelihood ratio tests and Cohen's *d* were used to determine which model fit the data best. Initially, baseline models were created for each index of adaptation, in which only an intercept (and no slope) was modeled. If this model fit the data best, it indicated that there was no change in mean values over time for that particular adaptation index. Next, linear growth models were estimated. These models estimated both an intercept and slope, implying constant change over time in a certain variable. Baseline and linear models were compared using likelihood ratio (LR) tests to determine which model fit the data better. As discussed previously, LR tests that result in non-significant chi squares indicate that there is not a significant difference between the two models, which implies that the more parsimonious, baseline model should be chosen. In contrast, significant chi squares indicate that the more complex model better represents the data. If LR tests indicated the linear growth models fit best, a quadratic growth model was also modeled, in order to determine if this more complex model fit the data better than the linear model.

Next, Cohen's *d* was calculated to check whether more complex models that LR tests indicated better represented the data than baseline models had meaningful effect sizes. For linear models, effect size was calculated by comparing the change in model-implied means between the first and last time point of the growth curve. For quadratic models, effect size was calculated in two ways: comparison of model-implied means from the first and last time points (first-last), as well as comparison of the minimum and maximum mean in the growth curve (min-max), whatever time point. Both of these methods of calculating Cohen's *d* were used in order to best capture the unique variation in the quadratic growth curve, as differentiated from the linear and baseline growth models. If LR tests indicated that a linear or quadratic model was the best fit to the data, and effect size of change over time was equal to 0.2 or greater, the linear or quadratic model was retained. In cases where two effect sizes were calculated (first-last and min-max), effect size of 0.2 or greater for either calculation method was accepted to indicate that the quadratic model was the best representation of the data. If effect size was smaller than 0.2, regardless of the result of LR tests, the baseline (intercept-only) model was retained.

Results of likelihood ratio tests indicated a baseline model fit the data best for most of the growth models, including mother stress (see Figure 38), father stress (see Figure 39), mother psychological symptoms (see Figure 40), and father psychological symptoms (see Figure 41), mother marital satisfaction (see Figure 42), mother-child conflict (see Figure 43), father-child conflict (see Figure 44), and mother-father conflict (see Figure 45). A quadratic model of growth, in which slope changes at a fixed rate over time, best fit the data for father marital satisfaction (first-last d = 0.13; min-max d = 0.20; see Figure 46), mother-child pleasure (first-last d = 0.40; min-max d = 0.60; see Figure 47), and mother-father pleasure (first-last d = 0.54; min-max d = 0.84; see Figure 48). Father-child pleasure presented a slightly more complicated picture: LR tests comparing the baseline and linear models were non-significant, indicating a baseline model was the best fit to the data. However, after plotting the observed means against the baseline and linear model-implied means (see Figure 49), it seemed worthwhile to model a quadratic growth curve and attempt to fit it to the data. LR tests indicated the quadratic model was significantly different from the baseline and linear models, better representing the data. Effect size was too small to be meaningful (d = 0.07) when comparing the first and last time point of the father-child pleasure quadratic growth curve, however, when comparing minimum and maximum points of the curve, effect size was small to moderate (d = 0.43). Given these results, a quadratic model was chosen as the best fit for the father-child pleasure data. After calculating LR and effect size, model-implied means were plotted against observed means for each adaptation index (see Figures 38 to 49). Each figure was qualitatively examined to determine which model seemed to provide the best fit to the observed means: baseline, linear or quadratic. This plotting method was particularly useful in the case of the father-child pleasure growth curve, as described above (see Figure 49). In most cases, qualitative assessment matched the results of likelihood ratio tests.

Though model fit was assessed via LR tests, calculating effect sizes, and plotting means, it may also be informative to examine fit indices for each model according to Hu and Bentler's (1999) criteria (see Notes for Figures 38 to 49 for fit indices). The baseline models for father stress (see Figure 39) and mother marital satisfaction (see Figure 42) had fit indices within Hu and Bentler's (1999) acceptable range. Several other baseline models had 2 out of 3 fit indices within acceptable ranges, including mother psychological symptoms (see Figure 40), father psychological symptoms (see Figure 41), and father-child conflict (see Figure 44). The other baseline models had one or no fit indices in acceptable ranges, including mother stress (see Figure 38), mother-child conflict (see Figure 43), and mother-father conflict (see Figure 45). As a reminder, CFI and TLI values were calculated in relation to the baseline, intercept-only model, therefore could not be calculated for the baseline model.

Adaptation indices which were best represented by quadratic growth models showed variable fit according to Hu and Bentler's criteria. All quadratic models had CFI and TLI below acceptable cut-offs. However, chi-square, RMSEA, and SRMR values were more likely to be within acceptable ranges. Father marital satisfaction (see Figure 46), mother-child pleasure (see Figure 47), and father-child pleasure (see Figure 48) had borderline-significant chi-square values, and RMSEA and SRMR values within acceptable ranges. Mother-father pleasure (see Figure 49) had non-significant chi-square and SRMR values within range, however RMSEA was higher than normally accepted.

Parent stress. Results indicate that mother stress is best represented as a baseline model with a significant intercept (see Figure 38). This significant intercept indicates that mother stress has a model-implied mean value at age 4 of approximately 48 points, which stays stable as the child ages from 3 to 8 years. Intercept variance is significant (see Notes for Figure 38 for parameter means and variance).

Similarly, father stress data is best represented by a baseline model (see Figure 39). The significant intercept indicates that the level of father stress remains the same across time at a model-implied mean of approximately 44 points. Intercept variance is also significant (see Figure 42).

Parent psychological symptoms. Results indicate that mother psychological symptoms (SCL) are best estimated as a baseline model (see Figure 40). The model has a significant intercept, which indicates that mother SCL remains relatively stable over time at a model-implied mean value of about 22 points. The variance of the intercept parameter is significant (see Figure 40).

Similarly, father SCL data best fit a baseline model, with a significant intercept indicating that father stress remains at a mean-implied stable value of about 17 points (see Figure 41). As with mother SCL, intercept variance is significant (see Figure 41).

Marital satisfaction. Results indicate that mother marital satisfaction (DS7) data best fit a baseline model, which has a significant intercept indicating that mother DS7 values remain at a model-implied mean value of about 23 points from child ages 3 to 8 (see Figure 42). Intercept variance was significant (see Figure 42).

The data for father marital satisfaction, unlike for mothers, best fit a quadratic curve, which has a significant intercept, significant negative linear slope, and significant positive quadratic slope (see Figure 46). This indicates that the mean father DS7 value, which has a model-implied mean of about 24 points at age 4, has a slope of about -0.75 points at age 4. That slope changes by 0.12 points each year. The resulting slope is first negative, but eventually becomes positive over time. Intercept and quadratic slope variance were significant, however linear slope variance had to be set to 0 in order for the model to run successfully. Lack of linear slope variance indicates that there is no variability in slope at age 4 across individuals. Also, this means that linear slope cannot be predicted by other variables as there is no variance to explain.

Dyadic pleasure. Results indicate that quadratic models best fit the data for all pleasure variables. The quadratic curve for mother-child pleasure has a significant intercept, linear slope, and quadratic slope. Model parameters imply that the mean value of approximately 1.6 points at age 4 decreases at age 4 by 0.17 points, a slope which changes by 0.05 points per year. The resulting slope is first negative, then becomes positive over time. Intercept variance was significant, however linear and quadratic slope variance was not significant. This indicates that mother-child pleasure changed in a similar way across individuals (see Figure 47).

Similarly, father-child pleasure data also fit a quadratic growth curve, with a significant intercept, linear slope, and quadratic slope (see Figure 48). The father DS7 mean at age 4 is approximately 1.8 points, and at 4 years old that value decreases by 0.24 points. The rate of decline becomes less steep each year by approximately 0.05 points, resulting in a slope that is negative at first, then eventually becomes positive. Similar to the growth curve of mother-child pleasure, intercept variance was significant, but linear and quadratic slope variance was not, suggesting that the slope of father-child pleasure is very similar across individuals.

Like the other two pleasure variables, mother-father pleasure data is best modeled with a quadratic growth curve that has a significant intercept, linear slope, and quadratic slope (see Figure 49). This means that mother-father pleasure has a mean value of about 1.6 points at age 4, decreases at age 4 by approximately .24 points, then has a change in slope each year of about .06 points. This results in a first negative, then eventually positive slope. Similar to the other two models of family pleasure, intercept variance was significant but linear and quadratic slope variance was not, suggesting that the slope of father-child pleasure is very similar across individuals.

Dyadic conflict. Results indicate that baseline models are the best fit for all conflict variables. In these models, only the intercept is estimated, and values are predicted to stay approximately the same over time. For mother-child conflict, values stay at approximately 1.18 over time, with significant intercept variance (see Figure 43). For father-child conflict, levels stay stable at an average of 1.09 points, with significant intercept variance (see Figure 44). For mother-father conflict, values are on average 1.12 across time, with significant intercept variance (see Figure 45).

Developmental status predicting growth curves. After whole-sample growth curves were modeled, status was included as a predictor of each of the growth curve models in order to test whether trajectories of adaptive competence were differentially predicted by child risk (TD or DD; see Tables 41 and 42). As a reminder, the hypothesis predicted that status would be a significant predictor of growth curves, with TD families showing more adaptive competence as compared to DD families. The status variable was coded as a binary variable in which DD children were coded as 1 and TD children were coded as 0. Thus, positive regression coefficients of adaptation intercept on status indicate that DD children (i.e., the code of 1 for DD children as opposed to 0 for TD children) have a higher mean value of the variable at age 4 than TD children. When interpreting regressions that involve slope, one must take into consideration whether the slope value is negative or positive. If the slope is a positive value, a significant positive regression of adaptation slope on status indicates that DD children have a faster rate of change in the variable's mean value than TD children, whereas if the regression is negative, DD children have a slower rate of change than TD children. If the slope value is negative, the interpretations are opposite: a significant positive regression of adaptation slope on status indicates that DD children have a slower rate of change in the variable's mean value than TD children, whereas if the regression is negative, DD children have a faster rate of change than TD children.

Parameter variance and covariance between parameters was freely estimated in most models. The exception was father marital satisfaction, in which the quadratic slope variance was set to 0 (see Table 27). Also, as the linear and quadratic slope variances for all dyadic pleasure variables were non-significant, status was not specified to predict those parameters. Residual variance (variance of manifest variables) was freely estimated in all models.

Parent-rated indices. Overall, child developmental status was not a significant predictor of the growth models for parent stress, psychological symptoms, and marital satisfaction (see Table 27). Regressions of status onto the different growth curve parameters were not significant at $p < .05$ for any adaptation index. However, there was evidence of a trend ($p < .10$) in the regression of the intercept of mother stress on status. The positive Beta value indicates that DD families have somewhat higher levels of mother stress as compared to TD families. These findings are partially supported by plots of sample means separated by group (see Figure 29), in which DD values of mother stress do seem slightly higher across all time points. Nevertheless, the failure of these findings to reach significance at $p < .05$ is important to keep in mind.

Observed dyadic variables. Similar to parent-rated variables, developmental status did not significantly predict any observed dyadic variables. There was evidence of a trend of status predicting the intercepts of mother-child pleasure and father-child conflict (see Table 28). This indicates that DD children may show a somewhat lower mean value of mother-child pleasure at age 4 than TD children, which does not seem to match with the plot of observed means (see Figure 32), in which TD and DD values seem to be very similar at age 4. Near-significant results of status predicting father-child conflict intercept indicate that DD children may show a higher mean value of father-child conflict as compared to TD children across ages 3 to 8. Again, it does not seem that these results are supported by the plot of TD versus DD means, in which mean values seem quite similar between groups (see Figure 36). Given that these predictions did not meet criteria for significance, it is important to interpret them with caution.

Fit statistics for models of status predicting adaptation growth curves. LR tests, effect sizes, and qualitative assessments of mean plots were not used to assess fit of models in which status predicted adaptation, as status was modeled to predict the best possible fitting growth model resulting from tests of model fit, as described previously. Nevertheless, it may be useful to evaluate individual fit indices for each model of status predicting adaptation. The absolute fit of baseline models varied considerably: status predicting father stress, father psychological symptoms (SCL), and mother marital satisfaction (DS7) all show acceptable values of chi-square, RMSEA, and SRMR (see Table 29). Status predicting mother SCL had a significant chi-square, but acceptable RMSEA and SRMR values. For the rest of the baseline models (i.e., status predicting mother stress and all dyadic conflict variables), fit indices were outside of acceptable ranges for at least 2 if not 3 of the fit indices. The quadratic models (i.e., father marital satisfaction and all dyadic pleasure variables) each had significant chi-squares but RMSEA and SRMR values within acceptable ranges. However, CFI and TLI were far below 0.95 for all models of status predicting quadratic growth curves (see Tables 29 and 30).

Testing Whether Parent-Rated Child Behavior Problems Mediate the Link Between Child Developmental Status and Family Adaptation

Modeling growth curves for child behavior problems. The second hypothesis posited that changes in behavior problems over time mediated the link between status and longitudinal adaptation trajectories. In order to test this hypothesis, first, means were plotted to provide insight into how values changed over time (see Figures 50 and 51 for mean plots, see Table 31 for descriptive statistics of child behavior problems). Means were obtained from the outputs of Mplus growth modeling, thus maximum likelihood estimation was used to address missing data. Then, structural equation modeling was used (via Mplus) to model a longitudinal growth curve for each index of adaptation. Growth curves used both TD and DD data, as developmental status was to be used as a predictor in further analyses. The intercept of each growth curve was set at child age 3 years, and the rate of change was set to one year. Thus the slope of a growth model represented the amount of change that occurred in a particular variable over a single year in the child's life, with the intercept of the growth model indicating child age 3 as the starting point of the growth estimation. Age 3 was chosen as the intercept of the growth model not only because it was the earliest age when data was collected, but also in order to allow prediction to the adaptation growth curve when fitting the full mediation model. In all models, variance of each latent variable was freely estimated, as was covariance with between latent variables. Residual variances (i.e., variances of the individual manifest variables) were also freely estimated in all growth models.

Model fit. As when modeling adaptation growth curves, growth curves of child behavior problems were estimated in a progressively complex manner, and likelihood ratio tests, effect size measures, and qualitative assessments were used to determine which model fit the data best. Initially, baseline models were created for each index of adaptation, in which only an intercept (and no slope) was modeled. Next, linear growth models were estimated. These models estimated both an intercept and slope, implying constant change over time in a certain variable. All LR tests indicated that linear models fit better than baseline models. Next, quadratic growth model were estimated and compared to the linear model. LR tests indicated that quadratic models fit best for mother and father-rated child externalizing behaviors (see Figures 52 and 53), whereas linear models fit best for mother and father-rated child internalizing behaviors (see Figures 54 and 55).

In order to ensure that a complex quadratic model was the best fit to the mother and father-rated child externalizing behavior data, both the quadratic model and linear model-implied means were plotted in comparison to observed data (see Figures 52 and 53). Qualitative assessment of the mean plots suggested the linear and quadratic plots were very similar, and given the minute differences in plots as compared to the standard deviation of the measure, it was best to use the more parsimonious linear model as opposed to the quadratic model. Calculations of Cohen's *d* supported the use of linear models, indicating moderate to large effect sizes when comparing means from the first and last time points (see Notes of Figures 52 through 55 for effect sizes).

Though model fit was assessed via LR tests and plotting means, it may also be informative to examine fit indices for the linear models according to Hu and Bentler's (1999) criteria. Fit indices indicate poor fit for all linear models of behavior problems (Table 32). Only SRMR values were within cut-offs (< .08), all other indices were far out of bounds.

Growth curve parameters. All models of child behavior problems showed significant intercepts and significant negative slopes over time (see Figures 52-55). This indicates that mothers' and fathers' ratings of child internalizing and externalizing behaviors decreased significantly over time. Both intercept and slope variance was significant for all growth curves as well (see Notes for Figures 52-55). These significant variance values indicate that, across individuals, there was a significant amount of variability in initial values of child behavior problems, and how quickly or slowly child behavior problems changed over time.

Status predicting behavior problem growth curves. After modeling the behavior problems growth curves, status was then used as a predictor in each model to evaluate whether child developmental status (TD/DD) predicted child behavior problems. For mother- and father-rated child externalizing behaviors, status significantly predicted the intercept, but not slope, of the growth curve (see Table 33). This indicates that DD children showed higher mean values of externalizing behaviors at age 3, but that their behaviors decreased at the same rate as TD children. These results seem to match with the plots of observed means of behavior problems separated by group (see Figure 50), as both TD and DD externalizing behaviors appear to decrease in a similar way over time, though DD levels start higher at age 3. In contrast, the linear models of both mother- and father-rated internalizing behaviors showed significant regressions of both intercepts and slopes on status (see Table 33). Results indicate that DD children showed higher mean values of internalizing behaviors at age 4 than TD children, and that DD children show faster decreases in behavior problems than TD children. Again, these results seem to be supported by plots of observed means separated by risk group, in which the DD group seems to start out with higher levels of internalizing behaviors and decrease faster (see Figure 51).

Fitting the full model. After modeling all growth curves separately, and then with status as a predictor, full mediation models were created. These models consisted of a parallel process model in which the growth parameters (i.e., for a linear model, the intercept and slope) of each individual's adaptation growth curve were regressed onto the intercept and/or slope of the child behavior problem

(BP) growth curves. Note that the intercept of the BP growth curves was set at 3 years, while the adaptation growth curves had an intercept of 4 years, in order to be able to interpret prediction across time. See Figure 56 for one example of a structural model of how the relations of these growth curves were modeled; BP intercept was a predictor for intercept and slope (if estimated) of each adaptation growth curve, and BP slope was a predictor for the slope (only) of each adaptation curve in which slope was estimated. For quadratic adaptation models, as linear and quadratic slope variance was non-significant in most original models, BP intercept and slope were only specified to predict father DS7 quadratic slope. As mentioned above, developmental status was included as a predictor in the model, and all parameters of both the adaptation and BP growth curves were regressed onto status.

Mediation. Baron & Kenny's (1986) definition of complete mediation outlines a series of causal steps that must be met: a predictor (status) should initially be related to the outcome variable (adaptation). When the mediator (behavior problems) is included, both the predictor and the predicted variables should be related to the mediator. Finally, the relation between predictor and outcome should cease to be significant when the mediator is included in the model. However, in the case of the current study, status does not consistently predict the growth parameters of the adaptation models (the outcome variable). One could thus make the conclusion that mediation is impossible to prove.

However, MacKinnon and colleagues (2004) have suggested another interpretation of mediation, in which a predictor does not necessarily have to significantly predict the outcome in order for mediation to still be significant (MacKinnon, Lockwood, & Williams, 2004). MacKinnon's approach relies instead on the significance of the product of the $\hat{a}\hat{b}$ coefficients in the mediation process (see Figure 57).

In MacKinnon's approach, it is the significance of the $\hat{a}\hat{b}$ product that decides mediation, rather than a series of causal steps. MacKinnon's PRODCLIN program (MacKinnon, Fritz, Williams, & Lockwood, 2007), uses the standard error of a and b, the correlation between the two paths (usually 0), and the desired alpha level (in the current study, 0.05), to compare the product of the coefficients for a particular model to the critical values of significance for that model, then calculates the asymmetric confidence limits of the product of the coefficients. If a confidence interval includes 0 (i.e., has a negative integer for the lower limit and positive integer for the upper limit) then significance – and thus mediation – have not been obtained. Confidence intervals that do not include 0 are considered significant, and a sign of mediation. Given the results of the current study, MacKinnon's method of testing mediation was used (MacKinnon, Lockwood, & Williams, 2004).

Each possible pathway of prediction (i.e., status to BP intercept to adaptation intercept) was tested for mediation using PRODCLIN (MacKinnon et al., 2007). See Figures 58 through 105 for a graphical representation of each model and the results of mediation. Growth parameter variance and covariance between parameters was freely estimated for most models, with exceptions detailed below. Residual variances (variances of manifest variables) were freely estimated for all models. Note that covariates, manifest variables, and growth curve parameter covariances are not included in these figures for the sake of clarity, however they were estimated in the actual analyses.

Models with mother-rated externalizing behaviors as a mediator. Trajectories of mother-rated child externalizing behaviors were found to significantly mediate the relation between status and adaptation for several adaptation outcomes (see Figures 58 to 69 for all models, including fit indices). Specifically, the intercept of the BP growth curve significantly mediated the relation between status and adaptation intercept for the following outcome variables: mother and father stress (PDH; see Figures 58 and 59), mother and father psychological symptoms (SCL; see Figures 60 and 61), mother marital satisfaction (DS7; see Figures 62), mother-child pleasure (see Figure 64), mother-father pleasure (see Figure 66), and mother-child conflict (see Figure 67). For the models including mother DS7 and dyadic pleasure, the results indicated that DD children had higher values of externalizing behaviors at age 3, and that this in turn was associated with lower levels of mother marital satisfaction, mother-child pleasure, and mother-father pleasure at age 4. For all other significant mediation models, results indicated that DD children showed higher levels of externalizing behaviors at age 3, which in turn predicted higher levels of the adaptation variable at age 4 (mother and father PDH, mother and father SCL, mother-child conflict).No other significant mediation by mother-rated externalizing behavior was found.

Models with mother-rated internalizing behaviors as a mediator. Mother-rated child internalizing behaviors were found to significantly mediate the relation between status and adaptation for several adaptation outcomes (see Figures 70 to 81 for all models, including fit indices). Somewhat similarly to mediation models including mother-rated externalizing behaviors, the intercept of the BP growth curve significantly mediated the relation between status and adaptation intercept for the following outcome variables: mother and father PDH (see Figures 70 and 71), mother SCL (see Figure 72), mother DS7 (see Figure 74), mother-child pleasure (see Figure 76), and mother-child conflict (see Figure 79). For the models including mother DS7 and mother-child pleasure as outcomes, the results indicated that DD children had higher values of internalizing behaviors at age 3, and that this in turn was associated with lower levels of the adaptation variable at age 4 (mother DS7 and mother-child pleasure). For other significant mediation models where BP intercept predicted adaptation intercept, results indicated that DD children showed higher levels of internalizing behaviors at age 3, which in turn predicted higher levels of the adaptation variable at age 4 (mother and father PDH, mother SCL, and mother-child conflict).

In addition to the mediation pathway in which BP intercept predicted adaptation intercept, the intercept of mother-rated internalizing behaviors also mediated the link between status and father DS7 quadratic slope (see Figure 75). Results indicate that DD children show higher mean levels of internalizing behavior at age 3, which was associated with a faster increase in father marital satisfaction in later years. As a reminder, the quadratic growth curve of father marital satisfaction indicated an initial decrease which slowly changed to an increase in marital satisfaction over time.

Models with father-rated externalizing behaviors as a mediator. The intercept of father-rated externalizing behaviors significantly mediated the link between status and adaptation intercept for several outcomes (see Figures 82 to 93 for all models, including fit indices). Father-rated child externalizing behavior intercept was found to significantly mediate the relation between status and adaptation intercept for the following outcome variables: mother and father PDH (see Figures 82 and 83), mother and father SCL (see Figures 84 and 85), mother and father DS7 (see Figures 86 and 87), mother-child conflict (see Figure 91), and father-child conflict (see Figure 92). For the models including mother and father DS7, the results indicated that DD children had higher values of externalizing behaviors at age 3, and that this in turn was associated with lower levels of mother and father marital satisfaction at age 4. For all other significant mediation models, results indicated that DD children showed higher levels of externalizing behaviors at age 3, which in turn predicted higher levels of the adaptation variable at age 4 (mother and father PDH, mother and father SCL, mother-child conflict, and father-child conflict). No other significant mediation by father-rated externalizing behavior was seen.

Models with father-rated internalizing behaviors as a mediator. Similar to other parent ratings of child behaviors, the intercept of father-rated internalizing behaviors was found to significantly mediate the relation between status and adaptation for several adaptation outcomes (see Figures 94 to 105 for all models, including fit indices). Note that in several models, variance of BP slope was non-significant. In models where BP slope was not significant, predictive pathways include BP slope were not estimated. The intercept of the BP growth curve significantly mediated the relation between status and adaptation intercept for the following outcome variables: mother and father PDH (see Figures 94 and 95), mother and father SCL (see Figures 96 and 97), mother and father DS7 (see Figures 98 and 99), mother-child pleasure (see Figure 100), and mother-father pleasure (see Figure 102). For the models including mother and father DS7 and dyadic pleasure, the results indicated that DD children had higher values of internalizing behaviors at age 3, and that this in turn was associated with lower levels of mother and father marital satisfaction and lower mother-child pleasure at age 4. For all other significant mediation models, results indicated that DD children showed higher levels of behavior problems at age 3, which in turn predicted higher levels of the adaptation variable at age 4 (mother and father PDH, and mother SCL).

In summary, behavior problems were found to mediate the link between status and adaptation in several instances. There were 55 possible pathways where either intercept or slope of the behavior problems growth curve could mediate the link between status and the intercept or slope of the adaptation growth curve. Of those 55 possible pathways, mediation was significant for 31 pathways (56%). In all but one case of significant mediation, levels of behavior problems at age 3 predicted levels of adaptation at age 4. In other words, the intercepts of the growth curves for parent-rated behavior problems were found to mediate the link between status and adaptation growth curve intercepts. In addition, intercept of mother-rated internalizing behaviors was found to mediate the quadratic slope of father marital satisfaction.

Fit statistics for the full mediation model. Fit statistics for most of the full mediation models indicated poor model fit based on Hu and Bentler's (1999) standards (see Figures 58 through 105). Although certain indices of several models were within acceptable ranges, the majority of fit indices for each model were outside of accepted norms. As discussed previously, efforts were made to find the best possible structural model for each growth curve before estimating the full mediation model, including LR tests comparing increasingly complex models, calculations of effect sizes to assess meaningful change over time, and qualitative assessment of model-implied mean plots as compared to plots of observed means. Despite efforts to achieve best possible model fit, the full mediation model appears to not meet existing criteria for good absolute and incremental model fit based on Hu and Bentler's (1999) criteria. However, given the stringent and multi-faceted efforts to obtain best possible model fit through other methods, these models are considered to be accurate representations of the data.

Discussion

The findings of the current study provide new insight into how families of children with developmental delays adapt over time, filling many holes left by previous research (Crnic et al., 1983). The longitudinal nature of the study builds on the more common cross-sectional research from recent years (Blacher & Baker, 2007; Britner et al., 2003; Counts et al., 2005; Turnbull et al., 2007; Magaña et al., 2006), providing a deeper understanding of growth and change within the family over time, and also allowing inferences to be made about long-term family adjustment to child developmental disability. In addition, unlike previous studies that focused primarily on mothers (Day et al., 2005), results of the current study provide information about fathers' adjustment to their child with delays, as well as how parent-child relationships and marital relationships change and grow over time within the family. Comparison of families of children with developmental delays to families of typically developing children allows a better understanding of how similarly these families change over time, regardless of child risk. Ultimately, although results of this study indicate that families of children with delays do show higher early levels of behavior problems and some maladaptive aspects of adaptation, results also indicate that families of children with delays adjust to their child in some similar ways to how families of typically developing children grow and change over time.

Summary of Findings

One of the initial hypotheses for this study predicted that family adaptation could best be conceived as a multi-factorial concept, rather than the more uniform concept that has been used or assumed in previous research (Britner et al., 2003; Counts et al., 2005). Results support the hypothesis that family adaptation is a complex and multi-factorial concept. Whereas some studies have combined aspects of parent adaptation such as marital satisfaction, stress, and psychological symptoms (Britner et al., 2003; Counts et al., 2005), results of the current study suggest that such an approach to adaptation is not an appropriate treatment of adaptation data. Further, the results provide emerging support for the complexity of adaptation, and indicate that, given the many ways adaptation can be characterized, it is likely best to focus on particular indices of adaptation (such as mother stress or father-child pleasure) rather than attempt to study adaptation in a more global, uniform sense.

Results of longitudinal growth modeling of adaptation indices further elucidate the varied nature of adaptation. Indeed, the current study provides evidence that while most facets of adaptation remain stable over time, other aspects of adaptation change in complex ways. Eight of the twelve adaptation indices of interest remain stable over time: mother and father stress, mother and father psychological symptoms, mother marital satisfaction, mother-child conflict, father-child conflict, and mother-father conflict. In contrast, four of the 12 adaptation indices show quadratic growth: father marital satisfaction, mother-child pleasure, father-child pleasure, and mother-father pleasure. Each of these quadratic curves involved positive adaptational factors that first tended to worsen immediately following identification of the child's developmental delay, then rebounded to show increasing positive functioning as the child transitioned to school age.

Results for models testing how child developmental risk predicted adaptation indicated that, contrary to hypotheses, developmental risk does not predict change in adaptation over time. A preliminary interpretation of this finding may be that developmental risk is therefore not related to change in adaptation over time, in rather stark contrast to reports from earlier literature (Caldwell & Guze, 1960; Olshansky, 1962; Wolfsenberger & Menolascino, 1970). However, without completing the mediation analysis, it cannot yet be inferred that the two constructs are unrelated.

Interestingly, models in which developmental risk predicted parent-rated child behavior problems did show meaningful associations. Parents of children with delays initially rated their children as having higher externalizing behavior than typically developing children, however externalizing behaviors decreased at a similar rate over time across both risk groups. For families of children with developmental delays, parents' ratings of child internalizing behavior were initially higher than for typically developing children, but decreased faster over time than the ratings of internalizing behavior for typically developing children.

The second hypothesis addressed the full mediation model, positing that trajectories of child behavior problems would mediate the relations between child developmental status and family adaptation. Significant mediation was found for approximately 56% of all possible mediation pathways. All but one of the mediation pathways consisted of early levels of behavior problems mediating the link between child developmental risk and the early levels of adaptation. In other words, children with developmental delays were rated by their parents as having higher levels of behavior problems at age three, which in turn predicted more maladaptive adaptation, including higher parent stress, parent psychological symptoms, and family conflict, as well as lower levels of marital satisfaction and family pleasure. In only one instance was change in adaptation mediated by behavior problems: children with developmental delays showed higher mean levels of mother-rated internalizing behavior at age 3, which was associated with a faster increase in father marital satisfaction at later ages.

The Current Study's Findings within the Context of Existing Literature

The adaptation construct. The current study's findings provide strong support for the conceptualization of family adaptation as a complex, multi-faceted construct. Given family adaptation's complicated conceptualization, it is important to more concretely and consistently define the concept than has been done in most adaptation research (Turnbull et al.,2007). Though the terms family adjustment, well-being, functioning, and adaptation are used relatively interchangeably (Turnbull et al., 2007), the findings of the current study add to evidence suggesting that, depending on the factor(s) examined, very different conclusions may be reached. This calls into question whether more global approaches to family adaptation truly capture the variations inherent in the ways that families may adapt. For example, two relatively recent studies referred to family adaptation as a global construct measured by a single measure. In one, "family adjustment" referred to a family's response on the Family Assessment

Measure (FAM; Skinner, Steinhauer, & Sitarenios, 2000), a process-oriented measure that focuses on how a family functions in terms of relationships between members and individual members' personalities (Trute, Benzies, Worthington, Reddon, & Moore, 2007). The other study defined "family adaptation" as taken from the Family Adaptability and Cohesion Evaluation Scales, version II (FACES-II; Olson, Bell, & Portner, 1982), in which "adaptability" refers to the family's ability to modify their roles and interactions when faced with stress (Lin, Orsmond, Coster, & Cohn, 2011). Though each of these measures addresses facets of the larger concept of family adaptation, these studies, as well as the field of family adaptation in general, would benefit from a clearer definition of which particular components of adaptation will be the focus of a study. With such definition in place across future studies, focal constructs (i.e., maternal depression, relationship pleasure) can be better understood, and parallels can more easily be drawn between studies that examine similar constructs.

The current study also spurs debate on which components actually comprise or are well reflected in the adaptation construct. Although both the current study's findings as well as past research indicate that parenting stress (Thompson et al., 1992), parent psychological symptoms (Counts et al., 2005), and marital satisfaction (Friedman et al., 2004) are important components of family adaptation, the current study also emphasizes the importance of including observed family relationships when evaluating family functioning. Observed family relationships, though expensive and time-consuming to measure, showed interesting relations to behavior problems in the current study, and merit more attention in the literature of child disability and family process. Recently, Sturge-Apple, Davies, and Cummings (2010) used observations of dyadic and triadic family relationships to create three typologies of family functioning: cohesive, disengaged, and enmeshed. Disengaged and enmeshed families were associated with increases in young children's behavior problems from age 6 to 9 (Sturge-Apple et al., 2010).

Sturge-Apple and colleagues' (2010) work is reminiscent of Mink and colleagues' (1983) seminal study, which used observation and family responses on questionnaires to create typologies of interaction style among families of children with "trainable mental retardation" (IQs ranging from 12 to 70). Mink and colleagues (1983) found that families tended to cluster into 5 unique environments (including "cohesive, harmonious", "low-disclosure, unharmonious", and "child-oriented, expressive") whose family interaction style was related to the child's social and academic adjustment, with best outcomes linked to cohesive and harmonious families. Mink and colleagues (1983) noted that the direction of effect could not be assumed, and posited that children could affect their own home environments as much as they could be affected by them (Mink et al., 1983). Results of the current study highlight the other side of this transactional process of family interaction, in which children's behaviors have an impact on their parents' emotional adjustment.

Changes in family adaptation and behavior problems over time. The current study is one of very few that has explored long-term changes in family adaptation and child problem behaviors. The finding that parent stress, parent psychological symptoms, mother marital satisfaction, and observed family conflict stay relatively stable over time is unprecedented in the literature, although early disability literature did posit that parent stress and sorrow would be "chronic" and unrelenting (Caldwell & Guze, 1960; Olshansky, 1962; Wolfsenberger & Menolascino, 1970). The somewhat U-shaped curve shown in the current study by father marital satisfaction and observed family pleasure is even more unique in the field (Blacher & Baker, 2001). Also, the finding that behavior problems decrease over time is in contrast to the small amount of preexisting literature longitudinally studying families of children with developmental delays, which indicated that behavior problems were stable in early childhood (Baker et al., 2003). The difference in findings may be related to the longer span of time in the current study (6 years as opposed to 2). The findings also contrast with a study of typically developing children, in which behavior problems increased significantly from age 6 to 9 (Sturge-Apple et al., 2010). It is possible that differences in behavior problem trajectories between the current study and Sturge-Apple and colleagues' (2010) study is due in part to Sturge-Apple et al's choice to measure child behavior problems with the Teacher Report Form (Achenbach, 1991) as opposed to the CBCL used in the current study (Achenbach, 1991). If replicated, the marked difference between teacher and parent-perceived child behavior trajectories merits more investigation. Despite findings of other studies, the significant decrease in both externalizing and internalizing behavior problems found in this study is another hopeful sign that children with developmental delays may not cause as much strife in their families as was previously assumed.

Developmental delay, behavior problems, and family adaptation. In some ways, the findings of this study support predictions in early literature that families of children with developmental delays would be more likely to experience maladjustment (Murray, 1959; Olshansky, 1962). Specifically, it appears that families of children with delays have stably higher parent stress, parent psychological symptoms, and mother-child conflict, as well as lower mother marital satisfaction when compared to families of typically developing children. However, contrary to early research (Murray, 1959; Olshansky, 1962), the relation between developmental risk and adaptation was not found to be explicit in the current study: rather, the link between risk and adaptation was only observed when child behavior problems were included as a mediator. This reiterates recent findings that behavior problems are a key mechanism in the transactional processes affecting adaptation in families of children with delays (Baker et al., 1997, 2002, 2003; Magaña et al., 2006). Initial levels of behavior problems at age 3 may hold the most power in the mediation process, as found in several previous studies (Baker et al. 1997, 2002, 2003).

The current study's results also indicate that families of children with delays may resemble families of typically developing children in some ways. Specifically, the families of both children with developmental delays and typically developing children show the same change over time in father marital satisfaction, mother-child pleasure, father-child pleasure, and mother-father pleasure. Although families of typically developing children cannot truly be said to be “adapting” to the same kind of crisis as a family of a child with developmental delays, results of the current study suggest that families of all kinds show waxing and waning of father marital satisfaction and family relationship pleasure, perhaps simply as a result of the typical trials and successes that are inherent in family life.

Differences between mothers and fathers. The differences and similarities in how mothers and fathers perceive their families that were found in the current study are further evidence for the importance of including both fathers and mothers in studies of families of children with disabilities. In keeping with other research (Frey et al., 1989; Krauss, 1993; Macias et al., 2007), fathers did show higher stress when children showed more maladaptive behaviors, though this relation was also seen in mothers. Previous findings that fathers had more difficulty than mothers adapting to their child with disabilities (Frey et al., 1989) were arguably not replicated; neither mothers’ nor fathers’ adaptation was directly linked to child developmental delay. When behavior problems were included as a mediator, fathers of children with developmental delay were likely to have higher stress, more psychological symptoms, more father-child conflict, and lower marital satisfaction than fathers of typically developing children. However, mothers also showed similar relations between developmental delay, behavior problems, and adaptation, so it is difficult to say that fathers experienced any more distress than mothers when adapting to their children with disabilities. Fathers did show several important differences from mothers, however, including a different trajectory of marital satisfaction (an initial decrease followed by eventual increase, as opposed to stable levels for mothers), as well as unique instances of mediation from mothers. Future involvement of fathers in studies of family adaptation will broaden our understanding of the ways in which fathers' experience differs from mothers' in families of children with disabilities.

Next Steps in Research on Families of Children with Developmental Delays

The findings of this study, though an intriguing beginning, are just the first step to a more complete understanding of families of children with developmental delays. Though the current study attempted to assess the experience of the family unit through a combination of parent-completed measures and dyadic relationship quality, no measures were used that captured how the family interacted as a whole. Further development of measures that capture a more holistic sense of the family, such as the Home Observation for Measure of the Environment (HOME; Caldwell & Bradley, 1984), may provide a more comprehensive view of transactional processes within the family unit. In addition, it is crucial to continue longitudinal study of families over time. In this way transactional processes can be observed and quantified. Observational measures must also continue to be an important part of any study of family development, as these measures provide another view of family interactions that is independent of family members' unique perceptions of themselves.

As was shown in the current study, it is also essential for a comparison group to be included when studying children with developmental delays. Without a typically developing comparison, potentially negative findings (such as higher relationship conflict in families of children with delays) might seem to be unique to this population, rather than similar to the experience of typical families. Continued inclusion of comparison samples may provide further evidence that families of children with developmental delays are more similar to typical families than different. Finally, continued research must attempt to uncover more information about the underlying mechanisms of the relation between family adaptation and child developmental delay. Though this study explored mediation of family adaptation by behavior problems, there are surely many other predictors, mediators and moderators that can help explain how families of children with delays adjust over time. Current sophisticated statistical packages allow many opportunities to test complex mechanisms of change. Better understanding of underlying mechanisms will also help identify points of intervention to best help families of children with developmental disabilities.

Implications for Clinical Practice

Parents of children with developmental delays are given few reasons to hope for the future. Despite recent findings that families of children with delays show a variety of positive and negative outcomes (Baker et al., 1997; Blacher & Baker, 2007), popular opinion continues to offer dire predictions of a child's development, with very few opportunities for positivity. To be sure, having a child with developmental delays in the family is a significant stress for a family, but the findings of the current study add to existing evidence that families of children with developmental delays will be able to cope with the challenges. It is important that families of children with developmental delays learn that child behavior problems may improve over time, although their own well-being may waver, and that the family will likely still find pleasure in each other throughout their child's early and middle childhood. With this information, families may be better able to face the future knowing that they are capable of coping in many ways with challenges that will surely arise.

Study Limitations

The current study had several limitations that will be important to address in future research. As in all longitudinal studies, attrition was an important problem, leading to a large amount of missing data that had to be statistically managed. Ideally, attrition would be less marked, and comparisons of families who left the study to those who remained would highlight any significant differences between groups. In almost all growth models and full mediation models, indices of model fit were outside Hu and Bentler's (1999) accepted criteria. There are several possible reasons for this, including small sample size relative to the complicated research questions, a highly complex analysis plan that tested mediation in a parallel process model, and the fact that Hu & Bentler's (1999) criteria were created for much simpler CFA models. Also, it is possible that the models were misspecified and simply were a poor fit to the data. However, it seems unlikely that this is the case, given that fit was assessed in multiple ways. Likelihood ratio tests were used to compare fit of increasingly complex models, effect sizes provided information about meaningful change over time, and plots of model-implied means were compared to plots of observed sample means to determine the best fit to the data. The best test of model validity may be whether or not the current study’s findings are replicated in future research. In any case, future research will benefit from a larger sample size, allowing greater generalizability, more variability of responses, and more power for statistical analyses.

Conclusion

The current study sought to better understand how families adjust to their child with developmental delays. Also, a sense of how best to conceptualize adaptation was sought. Findings indicate that adaptation is a complex, multi-faceted construct. Different aspects of adaptation change in unique ways over time, some remaining stable while others change at different rates over time. Child developmental risk does predict higher behavior problems at an early age, which in turn predicts more maladaptive levels of certain adaptation indices including parent stress, psychological symptoms, marital satisfaction, and parent-child conflict. However, findings also suggest that families of both typically developing children, as well as children with developmental delays, seem to grow and change in similar ways over time. Namely, pleasure observed in the family relationship appears to be quite similar across risk groups. Also, observed conflict between mothers and fathers appears to be similar in families of both typical children and children with delays. Importantly, child behavior problems decrease over time independent of risk, and although children with delays show higher early levels of behavior problems as compared to their peers, their behavior problems either decrease at a similar rate to their peers or decrease faster.

Results of the current study provide further evidence that children with developmental delays are associated with both positive and negative family adjustment. These findings are an exciting beginning to a better understanding of the complex transactional processes of family adaptation to child developmental delay. The findings have implications for future research, including attempting to gain a more holistic understanding of family interaction style, and continuing to conduct longitudinal research in order to best capture transactional processes across time. Findings that families of children with developmental delay resemble typically developing families in some ways are also important to convey to families seen in clinical practice. As hope is often so limited for these families, it is important that they understand possible competencies they can achieve. It is hoped that the results of help bring about a better understanding of how best to help and support families of children with developmental delays.

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Table 1

Significantly Different Sample Demographics at Child Age 3: TD vs. DD

	TD			*DD*			t
	Mean	SD	Range	Mean	SD	Range	
Mother Age (years)	34.3	5.6	32	32.5	6.3	32	2.03*

		Mean	SD	Range		≤ $35K	> $35K	Chi Sq
Family Income	TD	4.8	1.7	6	TD	21	86	10.82**
	DD	3.9	1.9	6	DD	33	46	

		Mean	SD	Range		< B.A.	≥ B.A.	Chi Sq
Mother Education (% BA or higher)	TD	4.3	1.6	6	TD	41	67	23.02***
	DD	3.3	1.6	6	DD	58	21	

Note. $35K = $35,000. B.A. = Bachelor of Arts degree.
*p<.05. **p <.005. ***p <.001.

Table 2

Descriptive Statistics for Adaptation Variables: TD Children

		Child Age (years)					
Mother-Rated Measures		3	4	5	6	7	8
Marital Satisfaction (DS7)	Mean	23.47	23.20	23.20	23.26	22.97	22.88
	SD	5.91	5.98	5.38	5.29	5.50	5.72
Stress (PDH)	Mean	45.77	48.09	47.41	47.61	46.16	47.25
	SD	10.64	12.05	10.97	11.81	12.42	12.08
Psychological Symptoms (SCL)	Mean	20.88	20.20	22.11	18.65	19.84	18.14
	SD	19.79	19.30	18.68	16.53	16.79	18.66
Father-Rated Measures							
Marital Satisfaction (DS7)	Mean	23.73	22.91	23.30	22.85	22.72	23.17
	SD	5.36	5.44	5.81	6.12	5.59	5.65
Stress (PDH)	Mean	43.06	44.90	43.58	43.73	44.13	43.65
	SD	10.16	13.51	12.18	10.39	12.48	11.78
Psychological Symptoms (SCL)	Mean	17.88	18.46	20.06	16.37	17.1	18.01
	SD	16.17	16.19	18.18	15.14	15.24	15.93
Measure							
Mother-Child Pleasure	Mean	1.86	1.57	1.57	1.64	1.94	2.03
	SD	0.77	0.54	0.5	0.59	0.76	0.81
Mother-Child Conflict	Mean	1.22	1.10	1.13	1.17	1.17	1.13
	SD	0.34	0.21	0.24	0.30	0.34	0.30
Father-Child Pleasure	Mean	1.91	1.59	1.61	1.45	1.67	1.84
	SD	0.84	0.58	0.65	0.57	0.69	0.69
Father-Child Conflict	Mean	1.12	1.07	1.07	1.07	1.05	1.06
	SD	0.21	0.13	0.20	0.17	0.16	0.18
Mother-Father Pleasure	Mean	1.72	1.53	1.50	1.45	2.02	2.06
	SD	0.74	0.55	0.47	0.46	0.78	0.83
Mother-Father Conflict	Mean	1.13	1.14	1.16	1.11	1.08	1.17
	SD	0.28	0.34	0.21	0.22	0.23	0.36

Table 3

Descriptive Statistics for Adaptation Variables: DD Children

		Child Age (years)					
Mother-Rated Measures		3	4	5	6	7	8
Marital Satisfaction (DS7)	Mean	23.55	23.5	22.98	22.05	21.67	22.42
	SD	7.00	7.08	6.61	7.13	7.45	7.16
Stress (PDH)	Mean	47.48	50.24	50.06	50.19	48.43	48.82
	SD	15.58	14.45	13.98	14.87	14.69	15.5
Psychological Symptoms (SCL)	Mean	24.31	26.07	27.14	23.43	24.26	24.37
	SD	18.37	22.34	25.20	21.40	21.28	22.21
Father-Rated Measures							
Marital Satisfaction (DS7)	Mean	24.36	23.79	23.47	22.20	22.71	23.33
	SD	6.10	6.39	6.40	5.96	5.82	5.23
Stress (PDH)	Mean	44.86	44.7	45.74	45.98	43.71	45.95
	SD	12.23	14.11	13.43	12.79	12.19	11.99
Psychological Symptoms (SCL)	Mean	17.11	16.50	15.61	17.23	14.96	19.69
	SD	15.57	14.88	14.78	18.98	14.59	24.78
Observed Dyadic Measures							
Mother-Child Pleasure	Mean	1.55	1.51	1.48	1.60	1.64	1.77
	SD	0.64	0.55	0.54	0.53	0.55	0.72
Mother-Child Conflict	Mean	1.18	1.17	1.30	1.29	1.27	1.16
	SD	0.37	0.4	0.55	0.45	0.49	0.34
Father-Child Pleasure	Mean	1.62	1.46	1.48	1.45	1.59	1.86
	SD	0.68	0.54	0.62	0.58	0.58	0.79
Father-Child Conflict	Mean	1.07	1.09	1.10	1.21	1.11	1.16
	SD	0.15	0.22	0.30	0.41	0.24	0.36
Mother-Father Pleasure	Mean	1.58	1.40	1.42	1.46	1.79	1.82
	SD	0.67	0.49	0.53	0.50	0.83	0.75
Mother-Father Conflict	Mean	1.11	1.08	1.10	1.14	1.09	1.18
	SD	0.20	0.16	0.23	0.34	0.21	0.52

Table 4

Intercorrelations Between Maternal Adaptation Measures: Child Age 3 Years

Measures	1	2	3	4	5	6	7
1. Marital Satisfaction (DS7)	1	-.36***	-.36***	.15	-.13	.19†	.10
2. Parent Stress (PDH)	-.20*	1	.61***	-.11	.23*	-.09	-.16
3. Parent Psych. Symp. (SCL)	-.46***	.18†	1	-.09	.07	-.13	-.19†
4. Mother-Child Pleasure	.03	-.03	-.17†	1	.02	.59***	-.10
5. Mother-Child Conflict	.13	-.02	-.08	.10	1	-.09	.00
6. Mother-Father Pleasure	.09	-.08	-.13	.70***	.08	1	-.08
7. Mother-Father Conflict	-.08	-.01	.02	-.08	.17†	-.12	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variable. Shaded cells = DD group, Non-shaded cells = TD group. Psych. Symp. = Psychological Symptoms. Analysis N for TD correlations ranges from 122 to 135. Analysis N for DD correlations ranges from 86 to 107.
† $p < .10$. * $p < .05$. *** $p < .005$.

Table 5

Intercorrelations Between Paternal Adaptation Measures: Child Age 3 Years

Measures	1	2	3	4	5	6	7
1. Marital Satisfaction (DS7)	1	-.36***	-.14	.13	.10	.21†	-.11
2. Parent Stress (PDH)	-.23*	1	.20†	.03	-.15	.00	-.15
3. Parent Psych. Symp. (SCL)	-.47***	.31***	1	-.04	.07	.04	-.11
4. Father-Child Pleasure	.06	.07	-.08	1	-.01	.48***	-.14
5. Father-Child Conflict	.00	.03	.04	.04	1	-.05	.17
6. Mother-Father Pleasure	.16†	-.02	-.06	.67***	-.01	1	-.08
7. Mother-Father Conflict	-.01	.02	.09	-.10	.30***	-.12	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variable. Shaded cells = DD group, Non-shaded cells = TD group. Psych. Symp. = Psychological Symptoms. Analysis N for TD correlations ranges from 118 to 127. Analysis N for DD correlations ranges from 81 to 89.
† $p < .10$. * $p < .05$. *** $p < .005$.

Table 6

Intercorrelations Between Maternal Adaptation Measures: Child Age 4 Years

Measures	1	2	3	4	5	6	7
1. Marital Satisfaction (DS7)	1	-.24*	-.42***	-.09	-.10	.23†	-.04
2. Parent Stress (PDH)	-.22*	1	.55***	-.12	.17	-.12	-.04
3. Parent Psych. Symp. (SCL)	-.37***	.22*	1	-.27*	.13	-.24*	.08
4. Father-Child Pleasure	-.05	-.12	-.04	1	.06	.58***	-.12
5. Father-Child Conflict	.11	-.05	-.10	.02	1	.01	.00
6. Mother-Father Pleasure	.05	-.12	.06	.59***	-.09	1	-.19
7. Mother-Father Conflict	-.17†	.07	.08	-.11	.26**	-.14	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variable. Shaded cells = DD group, Non-shaded cells = TD group. Psych. Symp. = Psychological Symptoms. Analysis N for TD correlations ranges from 106 to 124. Analysis N for DD correlations ranges from 76 to 97.
† $p < .10$. * $p < .05$. *** $p < .005$.

Table 7

Intercorrelations Between Paternal Adaptation Measures: Child Age 4 Years

Measures	1	2	3	4	5	6	7
1. Marital Satisfaction (DS7)	1	-.18	-.39***	.27*	-.21†	.28*	-.09
2. Parent Stress (PDH)	-.21*	1	.33***	-.02	-.07	.07	-.06
3. Parent Psych. Symp. (SCL)	-.29***	.31***	1	-.13	.16	-.12	-.15
4. Father-Child Pleasure	-.06	-.10	.02	1	-.04	.54***	-.11
5. Father-Child Conflict	-.03	-.32***	.01	.11	1	-.09	.14
6. Mother-Father Pleasure	.06	-.07	-.01	.39***	.05	1	-.19
7. Mother-Father Conflict	-.19*	.24*	.17†	.14	.14	-.14	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variable. Shaded cells = DD group, Non-shaded cells = TD group. Psych. Symp. = Psychological Symptoms. Analysis N for TD correlations ranges from 106 to 113. Analysis N for DD correlations ranges from 75 to 80.
† $p < .10$. * $p < .05$. *** $p < .005$.

Table 8

Intercorrelations Between Maternal Adaptation Measures: Child Age 5 Years

Measures	1	2	3	4	5	6	7
1. Marital Satisfaction (DS7)	1	-.18	$-.23^{*}$	.04	$-.34^{***}$	.15	.07
2. Parent Stress (PDH)	$-.31^{***}$	1	$.63^{***}$	-.06	.14	-.04	-.04
3. Parent Psych. Symp. (SCL)	$-.29^{***}$	.10	1	-.16	.06	-.19	.09
4. Mother-Child Pleasure	.11	$-.29^{***}$	-.06	1	-.17	$.44^{***}$	-.13
5. Mother-Child Conflict	-.05	.02	$.22^{*}$	.07	1	-.18	.08
6. Mother-Father Pleasure	$.24^{*}$	$-.18^{\dagger}$	-.05	$.32^{***}$	-.06	1	-.13
7. Mother-Father Conflict	$-.21^{*}$	-.01	$.34^{***}$	-.07	$.33^{***}$	-.08	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variable. Shaded cells = DD group, Non-shaded cells = TD group. Psych. Symp. = Psychological Symptoms. Analysis N for TD correlations ranges from 102 to 125. Analysis N for DD correlations ranges from 72 to 92.
† $p < .10$. $^{*}p < .05$. *** $p < .005$.

Table 9

Intercorrelations Between Paternal Adaptation Measures: Child Age 5 Years

Measures	1	2	3	4	5	6	7
1. Marital Satisfaction (DS7)	1	-.45***	-.24*	-.08	-.14	.17	.07
2. Parent Stress (PDH)	-.16	1	.40***	-.10	.09	-.07	.06
3. Parent Psych. Symp. (SCL)	-.38***	.30***	1	-.11	.04	-.05	-.10
4. Father-Child Pleasure	.01	-.15	.10	1	-.18	.25*	-.20†
5. Father-Child Conflict	-.09	.06	.10	.12	1	-.01	.00
6. Mother-Father Pleasure	.06	.06	.02	.30***	.10	1	-.13
7. Mother-Father Conflict	-.01	-.10	.13	.05	.02	-.08	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variable. Shaded cells = DD group, Non-shaded cells = TD group. Psych. Symp. = Psychological Symptoms. Analysis N for TD correlations ranges from 101 to 105. Analysis N for DD correlations ranges from 70 to 73.
† $p < .10$. * $p < .05$. *** $p < .005$.

Table 10

Intercorrelations Between Maternal Adaptation Measures: Child Age 6 Years

Measures	1	2	3	4	5	6	7
1. Marital Satisfaction (DS7)	1	-.20	-.39***	.01	.03	.21	.13
2. Parent Stress (PDH)	-.15	1	.63***	-.21†	.13	-.17	-.16
3. Parent Psych. Symp. (SCL)	-.16	.12	1	-.03	.00	-.20	-.16
4. Mother-Child Pleasure	-.09	-.07	-.08	1	-.15	.44***	.05
5. Mother-Child Conflict	.01	-.12	-.12	.04	1	-.19	.15
6. Mother-Father Pleasure	.10	-.14	-.07	.49***	.07	1	-.01
7. Mother-Father Conflict	-.15	.02	-.08	.16	.13	-.02	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variable. Shaded cells = DD group, Non-shaded cells = TD group. Psych. Symp. = Psychological Symptoms. Analysis N for TD correlations ranges from 82 to 104. Analysis N for DD correlations ranges from 57 to 76.

*** $p < .005$.

Table 11

Intercorrelations Between Paternal Adaptation Measures: Child Age 6 Years

Measures	1	2	3	4	5	6	7
1. Marital Satisfaction (DS7)	1	$-.44^{***}$	$-.22^{\dagger}$	.22	-.05	$.42^{***}$	.05
2. Parent Stress (PDH)	-.13	1	$-.43^{***}$	-.10	.10	$-.28^{*}$	-.06
3. Parent Psych. Symp. (SCL)	$-.45^{***}$	$.25^{*}$	1	-.01	.22	$-.27^{\dagger}$	-.13
4. Father-Child Pleasure	$-.30^{**}$	-.14	-.06	1	-.20	$.23^{\dagger}$	-.05
5. Father-Child Conflict	.16	-.05	.02	.04	1	$-.23^{\dagger}$	.05
6. Mother-Father Pleasure	.14	-.05	-.13	$.39^{***}$	$.22^{*}$	1	-.01
7. Mother-Father Conflict	-.04	.09	.13	-.10	.14	-.02	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variable. Shaded cells = DD group, Non-shaded cells = TD group. Psych. Symp. = Psychological Symptoms. Analysis N for TD correlations ranges from 80 to 88. Analysis N for DD correlations ranges from 55 to 59.
$^{\dagger}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .005$.

Table 12

Intercorrelations Between Maternal Adaptation Measures: Child Age 7 Years

Measures	1	2	3	4	5	6	7
1. Marital Satisfaction (DS7)	1	-.44***	-.51***	.17	-.10	.23	-.13
2. Parent Stress (PDH)	-.08	1	.55***	-.12	.26*	.02	.07
3. Parent Psych. Symp. (SCL)	-.09	.21*	1	-.20	.19*	.05	.37
4. Mother-Child Pleasure	-.01	-.20†	-.01	1	-.03	.30***	-.28*
5. Mother-Child Conflict	.12	.02	.03	-.16	1	-.16	.34*
6. Mother-Father Pleasure	.02	-.17	-.14	.45***	-.08	1	-.20
7. Mother-Father Conflict	-.14	.03	.01	-.10	.33***	-.16	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variable. Shaded cells = DD group, Non-shaded cells = TD group. Psych. Symp. = Psychological Symptoms. Analysis N for TD correlations ranges from 76 to 99. Analysis N for DD correlations ranges from 52 to 71.

† $p < .10$. * $p < .05$. *** $p < .005$.

Table 13

Intercorrelations Between Paternal Adaptation Measures: Child Age 7 Years

Measures	1	2	3	4	5	6	7
1. Marital Satisfaction (DS7)	1	-.33*	-.44***	.38**	-.03	.27†	-.12
2. Parent Stress (PDH)	-.26*	1	.40***	-.21	-.10	-.16	-.08
3. Parent Psych. Symp. (SCL)	-.42***	.32***	1	-.15	-.12	-.11	.02
4. Father-Child Pleasure	.21†	-.27*	-.06	1	-.03	.28	-.11
5. Father-Child Conflict	-.11	.08	.05	-.15	1	.02	.03
6. Mother-Father Pleasure	.06	-.11	-.11	.58***	-.13	1	-.20
7. Mother-Father Conflict	-..07	-.12	.00	-.06	.13	-.16	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variable. Shaded cells = DD group, Non-shaded cells = TD group. Psych. Symp. = Psychological Symptoms. Analysis N for TD correlations ranges from 76 to 87. Analysis N for DD correlations ranges from 49 to 53.
† $p < .10$. $^{*}p < .05$. $^{**}p < .01$. *** $p < .005$.

Table 14

Intercorrelations Between Maternal Adaptation Measures: Child Age 8 Years

Measures	1	2	3	4	5	6	7
1. Marital Satisfaction (DS7)	1	-.38**	-.47***	.09	-.14	.16	.28†
2. Parent Stress (PDH)	-.22†	1	.72***	-.11	-.02	-.02	-.12
3. Parent Psych. Symp. (SCL)	-.17	.34***	1	-.02	-.09	.04	-.10
4. Mother-Child Pleasure	-.23†	-.10	-.14	1	.06	.33*	-.05
5. Mother-Child Conflict	.01	-.08	.00	-.08	1	-.23	.05
6. Mother-Father Pleasure	-.08	.09	-.09	.43***	-.23*	1	-.01
7. Mother-Father Conflict	-.10	.21†	.04	-.08	.14	-.10	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variable. Shaded cells = DD group, Non-shaded cells = TD group. Psych. Symp. = Psychological Symptoms. Analysis N for TD correlations ranges from 80 to 88. Analysis N for DD correlations ranges from 41 to 67.

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .005$.

Table 15

Intercorrelations Between Paternal Adaptation Measures: Child Age 8 Years

Measures	1	2	3	4	5	6	7
1. Marital Satisfaction (DS7)	1	-.30	-.18	.31*	.18	.01	.19
2. Parent Stress (PDH)	-.03	1	.43*	-.23	-.06	-.05	.14
3. Parent Psych. Symp. (SCL)	-.47***	.17	1	-.09	.09	-.09	.06
4. Father-Child Pleasure	-.01	-.03	-.09	1	.31*	.39**	-.01
5. Father-Child Conflict	.02	.05	.01	.04	1	-.28†	-.04
6. Mother-Father Pleasure	.03	.04	-.10	.42***	.02	1	-.01
7. Mother-Father Conflict	.07	.39***	.00	-.09	-.03	-.10	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variable. Shaded cells = DD group, Non-shaded cells = TD group. Psych. Symp. = Psychological Symptoms. Analysis N for TD correlations ranges from 55 to 77. Analysis N for DD correlations ranges from 28 to 46.
$^{\dagger}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .005$.

Table 16

Factor Loadings for Single-Factor Confirmatory Factor Analyses: TD Children

	Mother						Father					
Child Age (years)	3	4	5	6	7	8	3	4	5	6	7	8
Analysis N	122	106	102	82	76	64	117	106	100	80	76	55
Chi-square (df)	41.53*** (14)	37.41*** (14)	35.44*** (14)	17.42 (14)	23.30† (14)	27.58 * (14)	65.90*** (14)	40.31*** (14)	40.31 (14)	35.93*** (14)	30.77** (14)	18.56 (14)
Parent Stress (PDH)	-.06	-.11	.23	-.14	-.24	1.00	-.03	.72	.30	.30	-.32	.20
Parent Psych. Symp. (SCL)	-.20	.07	.70	-.07	-.06	.52	-.06	.40	1.00	.77	-.14	1.00
Marital Satisfaction (DS7)	.10	.05	-.36	.10	.03	-.31	.16	-.28	-.38	-.51	.23	-.47
Parent-Child Pleasure	.82	.60	.51	.49	.74	.17	.69	-.01	.12	-.02	.79	-.14
Parent-Child Conflict	.10	-.09	.51	.08	-.28	-.03	-.01	.36	.07	-.04	-.16	-.03
Mother-Father Pleasure	.85	1.00	-.16	1.00	.64	.17	1.00	-.06	.04	-.21	.71	-.10
Mother-Father Conflict	-.12	-.14	.51	-.08	-.27	.26	-.15	.37	.04	.17	-.19	.00

Note. Values noted are unrotated factor loadings. Psych. Symp. = Psychological Symptoms.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .005$.

Table 17

Factor Loadings for Single-Factor Confirmatory Factor Analyses: DD Children

	Mother						Father					
	3	4	5	6	7	8	3	4	5	6	7	8
Analysis N	86	75	72	57	52	41	80	75	69	55	49	26
Chi-square (df)	42.65*** (14)	23.13† (14)	32.69*** (14)	18.75 (14)	25.37* (14)	16.41 (14)	34.36*** (14)	16.75 (14)	14.91 (14)	8.84 (14)	8.25 (14)	14.14 (14)
Parent Stress (PDH)	.85	.65	.72	.78	.58	.68	-.16	-.26	.81	-.65	-.45	-.33
Parent Psych. Symp. (SCL)	.81	1.00	.86	.85	.78	1.00	-.08	-.50	.45	-.47	-.48	-.32
Marital Satisfaction (DS7)	-.49	-.40	-.30	-.38	-.52	-.42	.52	.75	-.57	.61	.73	.74
Parent-Child Pleasure	-.15	-.31	-.12	-.21	-.21	.06	.79	.38	-.13	.24	.49	.64
Parent-Child Conflict	.20	.12	.17	.06	.43	-.06	-.12	-.27	.15	-.23	.07	.28
Mother-Father Pleasure	-.16	-.24	-.20	-.27	-.10	.04	.80	.38	-.15	.60	.38	.14
Mother-Father Conflict	-.20	.08	.07	-.20	.43	-.10	-.35	-.10	.05	.05	-.12	.10

Note. Values noted are unrotated factor loadings. Numbered column headings refer to child age in years. Psych. Symp. = Psychological Symptoms.
† $p < .10$. * $p < .05$. *** $p < .005$.

Table 18

Intercorrelations Between Time Points: Parent Stress

Measure	Child Age (years)	3	4	5	6	7	8
Mother PDH	3	1					
	4	0.66***	1				
	5	0.67***	0.76***	1			
	6	0.59***	0.73***	0.80***	1		
	7	0.53***	0.69***	0.77***	0.78***	1	
	8	0.58***	0.69***	0.71***	0.73***	0.83***	1
Father PDH	3	1					
	4	0.53***	1				
	5	0.59***	0.61***	1			
	6	0.61***	0.63***	0.66***	1		
	7	0.42***	0.47***	0.63***	0.64***	1	
	8	0.49***	0.62***	0.62***	0.67***	0.64***	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variable. Analysis N ranges from 159 to 222 for Mother PDH. Analysis N ranges from 123 to 197.
*** $p < .005$.

Table 19

Intercorrelations Between Time Points: Parent Psychological Symptoms

Measure	Child Age (years)	3	4	5	6	7	8
Mother SCL	3	1					
	4	0.71***	1				
	5	0.58***	0.72***	1			
	6	0.68***	0.71***	0.70***	1		
	7	0.70***	0.70***	0.73***	0.69***	1	
	8	0.64***	0.61***	0.62***	0.71***	0.72***	1
Father SCL	3	1					
	4	0.69***	1				
	5	0.65***	0.75***	1			
	6	0.71***	0.73***	0.73***	1		
	7	0.67***	0.72***	0.75***	0.80***	1	
	8	0.64***	0.73***	0.63***	0.78***	0.75***	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variable. Analysis N for Mother SCL correlations ranges from 145 to 216. Analysis N for Father SCL correlations ranges from 90 to 188.
*** $p < .005$.

Table 20

Intercorrelations Between Time Points: Parent Marital Satisfaction

Measure	Child Age (years)	3	4	5	6	7	8
Mother DS7	3	1					
	4	0.70***	1				
	5	0.66***	0.64***	1			
	6	0.66***	0.68***	0.73***	1		
	7	0.67***	0.70***	0.68***	0.73***	1	
	8	0.68***	0.69***	0.68***	0.74***	0.77***	1
Father DS7	3	1					
	4	0.75***	1				
	5	0.74***	0.76***	1			
	6	0.74***	0.77***	0.74***	1		
	7	0.60***	0.69***	0.62***	0.77***	1	
	8	0.60***	0.68***	0.67***	0.83***	0.79***	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variable. Analysis N for mother DS7 correlations ranges from 123 to 192. Analysis N for father DS7 correlations ranges from 113 to 186.
*** $p < .005$.

Table 21

Intercorrelations Between Time Points: Observed Dyadic Pleasure

Measure	Child Age (years)	3	4	5	6	7	8
M-C Pleasure	3	1					
	4	0.50***	1				
	5	0.44***	0.44***	1			
	6	0.37***	0.41***	0.51***	1		
	7	0.31***	0.38***	0.44***	0.45***	1	
	8	0.24***	0.14†	0.30***	0.26***	0.37***	1
F-C Pleasure	3	1					
	4	0.38***	1				
	5	0.40***	0.28***	1			
	6	0.28***	0.23**	0.47***	1		
	7	0.28***	0.36***	0.24***	0.32***	1	
	8	0.36***	0.30***	0.37***	0.30***	0.36***	1
M-F Pleasure	3	1					
	4	0.35***	1				
	5	0.29***	0.20*	1			
	6	0.40***	0.34***	0.40***	1		
	7	0.32***	0.33***	0.27***	0.40***	1	
	8	0.12	0.19*	0.03	0.18†	0.25**	1

Note. Values noted are zero-order correlations. Numbered column headings refer to child age (in years). Analysis N for mother-child pleasure correlations ranges from 156 to 219. Analysis N for father-child pleasure correlations ranges from 118 to 189. Analysis N for mother-father pleasure correlations ranges from 112 to 186.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .005$.

Table 22

Intercorrelations Between Time Points: Observed Dyadic Conflict

Measure	Child Age (years)	3	4	5	6	7	8
M-C Conflict	3	1					
	4	0.24***	1				
	5	0.14*	0.42***	1			
	6	0.39***	0.31***	0.33***	1		
	7	0.31***	0.25***	0.24***	0.41***	1	
	8	0.05	0.02	0.09	0.10	0.06	1
F-C Conflict	3	1					
	4	0.07	1				
	5	0.11	0.16*	1			
	6	0.03	0.10	0.09	1		
	7	0.13	0.02	0.10	0.31***	1	
	8	-0.05	0.07	0.08	0.33***	0.19*	1
M-F Conflict	3	1					
	4	0.18*	1				
	5	0.20*	0.36***	1			
	6	0.34***	0.35***	0.32***	1		
	7	0.06	0.27***	0.07	0.18*	1	
	8	0.16†	0.09	-0.04	0.21*	0.15	1

Note. Values noted are zero-order correlations. Numbered column headings refer to corresponding variabl8e. Shaded cells = DD group, Non-shaded cells = TD group. Psych. Symp. = Psychological Symptoms. Analysis N for mother-child conflict correlations ranges from 156 to 219. Analysis N for father-child conflict correlations ranges from 117 to 189. Analysis N for mother-father conflict correlations ranges from 112 to 186.

† $p < .10$. * $p < .05$. *** $p < .005$.

Table 23

Factor Loadings for Exploratory Factor Analyses: Mothers of TD Children

	3 [a]	4 [a]	5		6			7			8 [a]
Analysis N	122	106	102		82			76			64
Chi-square (df)	--	--	10.62 (8)		0.95 (3)			1.70 (3)			--
	--	--	A	B	A	B	C	A	B	C	--
PDH	--	--	.03	-.52	-.05	.37	-.03	-.01	-.23	.32	--
SCL	--	--	.63	-.14	.01	.37	-.24	-.08	-.06	.49	--
DS7	--	--	-.20	.43	-.06	-.56	-.24	-.08	.04	-.37	--
M-C Pleas.	--	--	.13	.51	.54	.08	.19	-.23	.99	.00	--
M-F Pleas.	--	--	.00	.45	1.00	-.10	-.25	-.19	.52	-.26	--
M-C Conf.	--	--	.65	.15	.07	-.14	.37	.45	-.21	-.12	--
M-F Conf.	--	--	.52	-.04	-.03	.10	.44	.98	-.14	.17	--

Note. Values noted are rotated (Oblimin with Kaiser normalization) factor loadings. Lettered headings refer to individual factors. Numbered headings refer to child ages in years. Chi-square values result from goodness-of-fit tests of unrotated factor matrix. M-C = Mother-Child. M-F = Mother-Father.
[a] Attempt to extract 3 unrotated factors unsuccessful after maximum iterations (25). Analyses of model fit did not converge.

Table 24

Factor Loadings for Exploratory Factor Analyses: Fathers of TD Children

	3			4			5			6			7			8		
Analysis N	117			106			100			80			76			55		
Chi-square (df)	1.83 (3)			4.52 (3)			0.94 (3)			1.26 (3)			3.05 (3)			0.94 (3)		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
PDH	.03	.38	.02	.20	.96	-.11	.32	.01	.52	-.11	-.28	-.01	-.15	.14	.34	.18	.98	.16
SCL	.06	.85	.07	.06	.06	-.39	.84	.12	-.02	.00	-.68	.10	.18	-.08	.88	.50	.13	-.09
DS7	.09	-.61	.09	-.01	.07	.51	-.45	.05	.02	-.35	.67	.16	.07	.02	-.53	-1.00	.14	-.17
F-C Pleas.	.69	.00	-.01	-1.00	-.10	-.24	.01	.67	-.34	1.01	-.11	.00	1.06	.15	.07	.02	-.13	.74
M-F Pleas.	1.00	.01	-.02	-.45	.08	.15	-.08	.51	.12	.35	.21	.35	.58	-.06	-.02	.01	.13	.59
F-C Conf.	.06	-.01	.65	-.09	.34	-.01	.05	.20	.04	.05	.01	.67	-.08	.07	.07	.01	.07	-.03
M-F Conf.	-.08	.02	.55	-.07	.06	-.44	.06	-.02	-.23	-.11	-.18	.19	.08	1.04	-.08	-.13	.25	.04

Note. Values noted are rotated (Oblimin with Kaiser normalization) factor loadings. Lettered headings refer to individual factors. Numbered headings refer to child ages in years. Chi-square values result from goodness-of-fit tests of unrotated factor matrix. F-C = Father-Child. M-F = Mother-Father.

Table 25

Factor Loadings for Exploratory Factor Analyses: Mothers of DD Children

	3			4 [a]	5 [a]	6 [a]	7		8 [b]
Analysis N	86			75	72	57	52		41
Chi-square (df)	1.01 (3)			--	--	--	13.93 (8)		--
	A	B	C	--	--	--	A	B	--
PDH	.11	.81	-.03	--	--	--	.91	.35	--
SCL	-.03	.84	-.07	--	--	--	.62	-.17	--
DS7	-.04	-.46	.18	--	--	--	-.43	.10	--
M-C Pleas.	.06	-.05	.73	--	--	--	.01	.44	--
M-F Pleas.	-.02	-.03	.82	--	--	--	.01	.33	--
M-C Conf.	.11	.03	.07	--	--	--	.43	-.15	--
M-F Conf.	.03	-.24	-.13	--	--	--	.16	-.66	--

Note. Values noted are rotated (Oblimin with Kaiser normalization) factor loadings. Lettered headings refer to individual factors. Numbered headings refer to child ages in years. Chi-square values result from goodness-of-fit tests of unrotated factor matrix. M-C = Mother-Child. M-F = Mother-Father.

[a] Attempt to extract unrotated factors unsuccessful after maximum iterations (25). Analyses of model fit did not converge. [b] Unsuccessful attempt to extract 3 unrotated factors. No local minimum was found after maximum iterations (25).

Table 26

Factor Loadings for EFA: Fathers of DD Children

	3 [a]	4		5 [b]	6			7 [c]	8 [c]
Analysis N	80	75		69	55			49	26
Chi-square (df)	--	3.50 (8)		1.84 (3)	0.21 (3)			--	--
	--	A	B	--	A	B	C	--	--
PDH	--	.38	-.01	--	.45	.31	-.09	--	--
SCL	--	.82	-.15	--	.08	.79	-.13	--	--
DS7	--	-.32	.50	--	-.84	.10	.11	--	--
F-C Pleas.	--	-.02	.48	--	-.28	.06	-.31	--	--
M-F Pleas.	--	.04	.57	--	-.50	-.15	-.13	--	--
F-C Conf.	--	.09	-.27	--	-.01	.33	.41	--	--
M-F Conf.	--	-.27	-.35	--	-.04	-.09	.32	--	--

Note. Values noted are rotated (Oblimin with Kaiser normalization) factor loadings. Lettered headings refer to individual factors. Numbered headings refer to child age in years. Chi-square values result from goodness-of-fit tests of unrotated factor matrix. F-C = Father-Child. M-F = Mother-Father.
[a] Unsuccessful attempt to extract 4 factors due to non-positive definite Hessian matrix. Analyses of model fit did not converge. [b] Three unrotated factors extracted. Oblimin rotation failed to converge after maximum iterations (25). [c] Unsuccessful attempt to extract 3 factors after maximum iterations (25). Analyses of model fit did not converge.

Table 27

Status Predicting to Family Adaptation Indices: Parent-Completed Measures

	Mother Stress	Father Stress	Mother Psych. Symptoms	Father Psych. Symptoms	Mother Mar. Satisfaction	Father Marital Satisfaction		
Model	Baseline	Baseline	Baseline	Baseline	Baseline	Quadratic		
Predicted Parameter	Int	Int	Int	Int	Int	Int	Slp	Quad
Mean	39.61***	48.07***	15.84*	32.86***	26.86***	24.58***	-0.48***	0.21
Variance	111.79***	87.26***	245.99***	180.13***	26.19***	25.12***	0.00	0.05***
Beta	2.97†	1.17	3.08	-2.88	-0.14	0.76	--	-0.02

Note. Values noted are unstandardized means, variances, and regression coefficients resulting from status predicting growth curve parameters. Linear slope of growth curve for father psychological marital satisfaction not predicted by status as slope variance was not significant in original model. Int = Intercept. Slp = Slope.
†$p < .10$. *$p < .05$. ***$p < .005$.

Table 28

Status Predicting to Family Adaptation Indices: Observed Dyadic Variables

	Mother-Child Pleasure			Father-Child Pleasure			Mother-Father Pleasure			Mother-Child Conflict	Father-Child Conflict	Mother-Father Conflict
Model	Quadratic			Quadratic			Quadratic			Baseline	Baseline	Baseline
Predicted Parameter	Int	Slp	Quad	Int	Slp	Quad	Int	Slp	Quad	Int	Int	Int
Mean	1.44***	-0.08***	0.05***	1.46***	-0.14***	0.05***	1.53***	-0.11***	0.06***	1.39***	1.17***	1.19***
Variance	0.14***	0.00	0.00	0.12***	0.00	0.00	0.09	0.00	0.00	0.03***	0.004***	0.01***
Beta	-0.12†	--	--	-0.09	--	--	-0.09	--	--	0.05	0.01†	-0.04

Note. Values noted are unstandardized means, variances, and regression coefficients. Linear and quadratic slopes of growth curve for dyadic pleasure variables not predicted by status because slope variances were not significant in original quadratic model. Int = Intercept. Slp = Slope.
† $p < .10$. *** $p < .005$.

Table 29

Fit Statistics for Models in which Child Developmental Status (TD/DD) Predicts Parent-Rated Variables

	Mother Stress	Father Stress	Mother Psych. Symptoms	Father Psych. Symptoms	Mother Marital Satisfaction	Father Marital Satisfaction
Model	Baseline	Baseline	Baseline	Baseline	Baseline	Quadratic
Chi Square (df)	105.00*** (39)	46.46 (39)	60.81* (39)	66.26 (39)	60.81 (39)	52.47* (31)
RMSEA	0.08	0.03	0.05	0.05	0.05	0.05
SRMR	0.08	0.07	0.04	0.05	0.04	0.06
CFI	--	--	--	--	--	0.61
TLI	--	--	--	--	--	0.50

Note. * $p < .05$. *** $p < .005$.

Table 30

Fit Statistics for Models in which Child Developmental Status (TD/DD) Predicts Observed Dyadic Variables

	Mother-Child Pleasure	Father-Child Pleasure	Mother-Father Pleasure	Mother-Child Conflict	Father-Child Conflict	Mother-Father Conflict
Model	Quadratic	Quadratic	Quadratic	Baseline	Baseline	Baseline
Chi Square (df)	69.02^{***} (37)	54.80^{*} (37)	64.92^{***} (37)	96.90^{***} (39)	56.41^{*} (39)	70.46^{***} (39)
RMSEA	0.06	0.04	0.05	0.08	0.04	0.06
SRMR	0.06	0.06	0.08	0.13	0.09	0.09
CFI	0.66	0.47	0.73	--	--	--
TLI	0.64	0.44	0.72	--	--	--

Note. $^{*}p < .05$. $^{***}p < .005$.

Table 31

Descriptive Statistics for Mediation Variables

			Child Age (years)					
	Mother-Rated Measures		3	4	5	6	7	8
TD	Externalizing Behaviors	Mean	13.14	11.42	10.64	7.53	7.59	6.99
		SD	7.84	7.68	8.32	6.00	7.27	6.93
	Internalizing Behaviors	Mean	7.88	7.96	7.5	5.80	5.75	6.00
		SD	5.98	6.23	5.99	5.30	5.07	6.25
	Father-Rated Measures							
	Externalizing Behaviors	Mean	12.46	11.26	10.54	6.26	6.75	5.78
		SD	7.16	7.66	8.26	6.55	6.54	6.83
	Internalizing Behaviors	Mean	7.68	8.25	8.4	5.64	5.72	4.95
		SD	5.88	6.25	7.75	5.19	5.75	3.67
			Child Age (years)					
	Mother-Rated Measures		3	4	5	6	7	8
DD	Externalizing Behaviors	Mean	17.31	16.79	15.90	9.98	11.12	9.84
		SD	8.81	9.93	10.43	8.54	9.35	8.01
	Internalizing Behaviors	Mean	12.22	12.80	11.97	6.99	7.31	6.74
		SD	8.58	9.07	8.94	5.93	6.81	6.27
	Father-Rated Measures							
	Externalizing Behaviors	Mean	16.88	16.08	16.11	9.52	10.08	9.07
		SD	9.35	9.64	9.73	7.69	8.17	8.10
	Internalizing Behaviors	Mean	11.47	11.3	12.81	6.12	6.16	5.99
		SD	7.21	7.53	8.88	6.59	5.15	5.66

Table 32

Fit Statistics for Linear Growth Models of Parent-Rated Behavior Problems

	Mother-Rated Child Externalizing	Mother-Rated Child Internalizing	Father-Rated Child Externalizing	Father-Rated Child Internalizing
Model	Linear	Linear	Linear	Linear
Chi Square (df)	95.16*** (28)	95.51*** (28)	102.25*** (28)	115.62*** (28)
RMSEA	0.10	0.10	0.11	0.12
SRMR	0.07	0.07	0.06	0.08
CFI	0.82	0.69	0.42	0.63
TLI	0.79	0.62	0.28	0.56

Note. ***$p < .005$.

Table 33

Status Predicting to Parent-Rated Child Behavior Problems

	Mother-Rated Externalizing		Mother-Rated Internalizing		Father-Rated Externalizing		Father-Rated Internalizing	
Model	Linear		Linear		Linear		Linear	
Predicted Parameter	Int	Slp	Int	Slp	Int	Slp	Int	Slp
Mean	12.37***	-1.70***	8.50***	-1.19*	12.44***	-1.39†	10.43***	-0.98†
Variance	52.38***	1.13***	28.88***	0.58***	51.14***	1.29***	28.96***	0.63***
Beta	4.05***	-0.29	4.06***	-0.70***	4.58***	-0.36	2.90***	-0.51**

Note. Values noted are unstandardized regression coefficients. Int = Intercept. Slp = Slope.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .005$.

Table 34

Fit Statistics for Models in which Child Developmental Status (TD/DD) Predicts Parent-Rated Child Behavior Problems

	Mother-Rated Externalizing	Mother-Rated Internalizing	Father-Rated Externalizing	Father-Rated Internalizing
Model	Linear	Linear	Linear	Linear
Chi Square (df)	101.00*** (32)	102.45*** (32)	105.52*** (32)	123.02***(32)
RMSEA	0.09	0.09	0.10	0.11
SRMR	0.06	0.06	0.05	0.07
CFI	0.82	0.69	0.81	0.63
TLI	0.78	0.63	0.83	0.55

Note. *** $p < .005$.

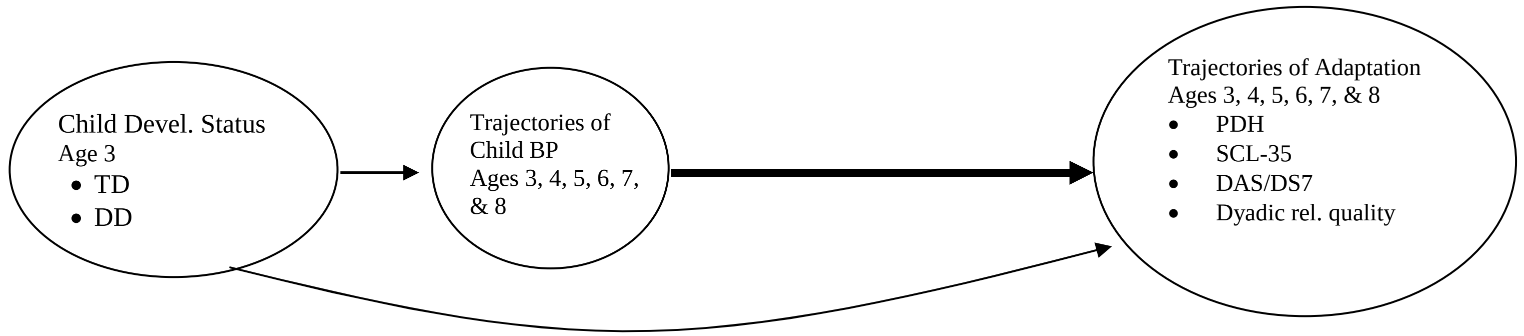


Figure 1. Conceptual model of associations between child characteristics and adaptation.
Note: TD = Typically Developing; DD = Developmentally Delayed; BP = Behavior Problems.

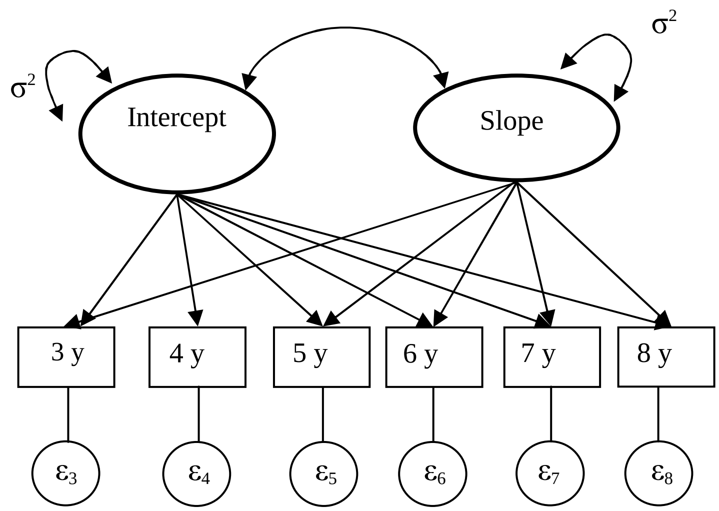


Figure 2. Sample analysis model of linear growth.
Note: y = years. Rectangular boxes represent observed variables. Two-headed arrows represent variance or covariance. Ovals represent latent constructs. ε = error variance of observed variables. σ^2 = variance of latent variable.

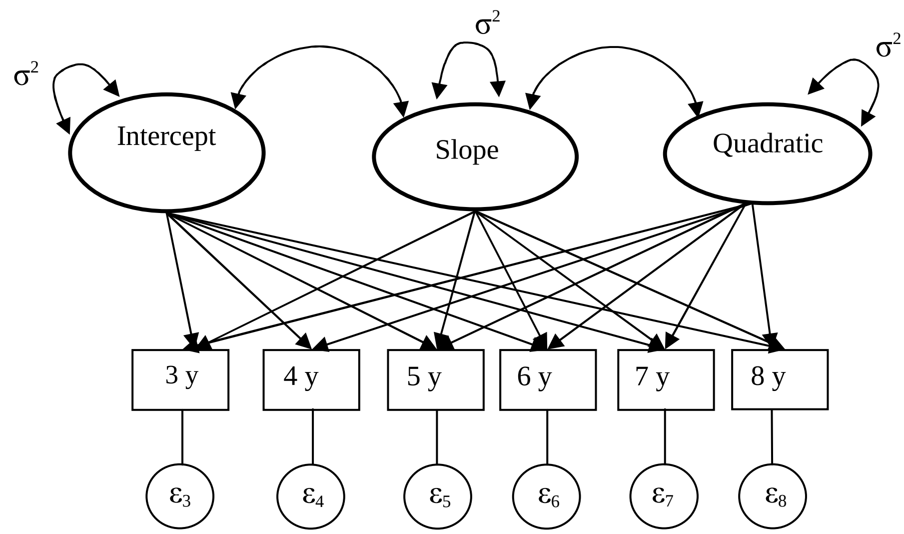


Figure 3. Sample analysis model of quadratic growth.
Note: y = years. Rectangular boxes represent observed variables. Two-headed arrows represent variance or covariance. Ovals represent latent constructs. ε = error variance of observed variables. σ^2 = variance of latent variable.

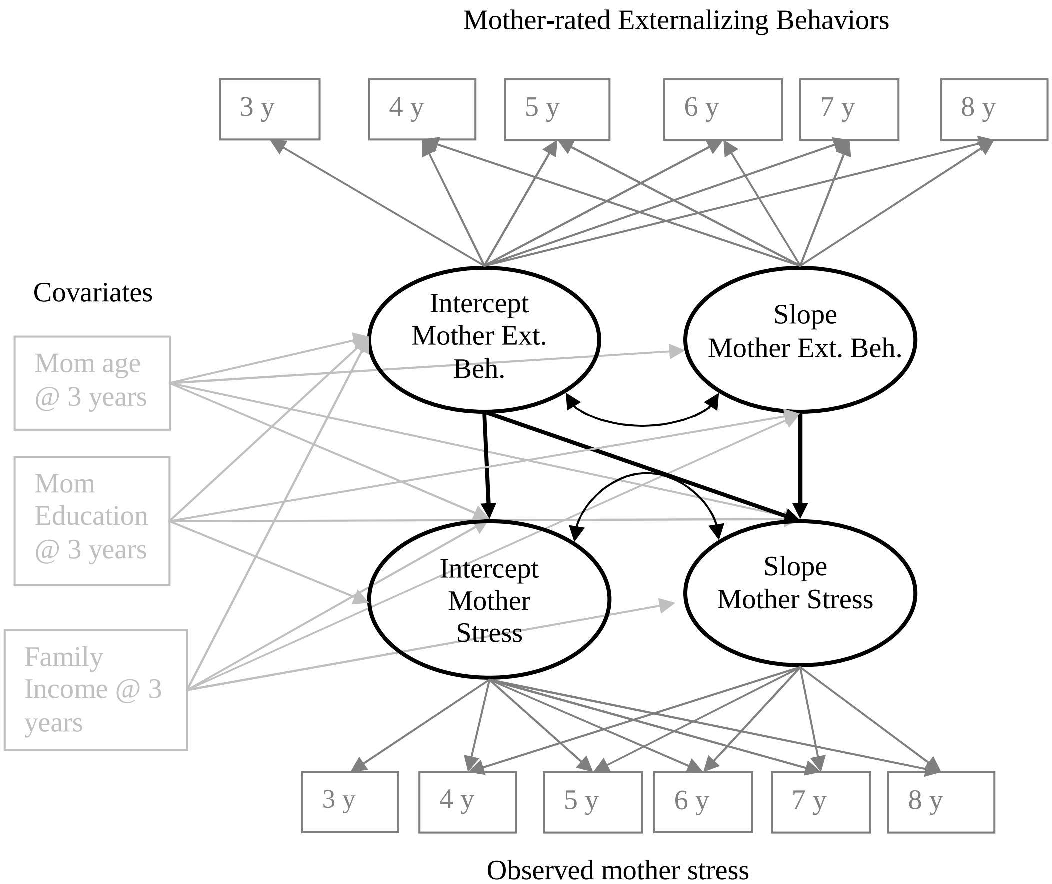


Figure 4. Sample analysis model of parallel process: mother-rated externalizing behaviors predicting mother stress.
Note: y = years. Ext. Beh. = externalizing behaviors. Rectangular boxes represent observed variables. Ovals represent latent constructs.

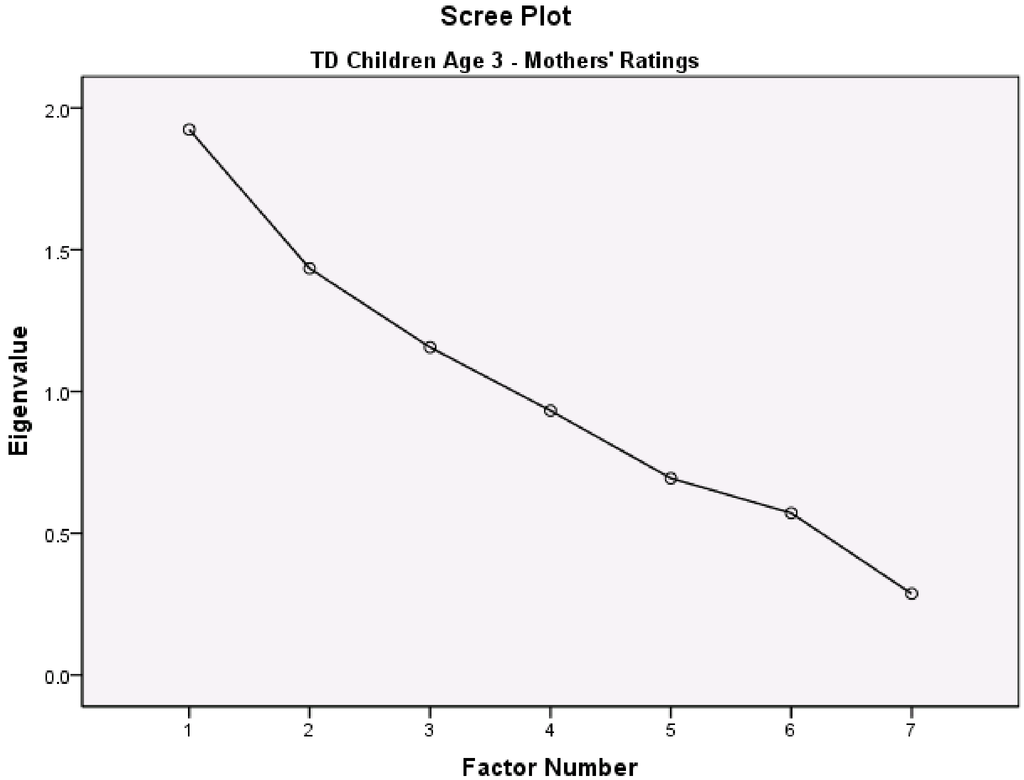


Figure 5. Scree plot of eigenvalues for exploratory factor analysis: TD mother-related adaptation at child age 3. Adaptation variables in analysis include mother stress, mother marital satisfaction, mother psychological symptoms, mother-child pleasure, mother-child conflict, mother-father pleasure, and mother-father conflict.

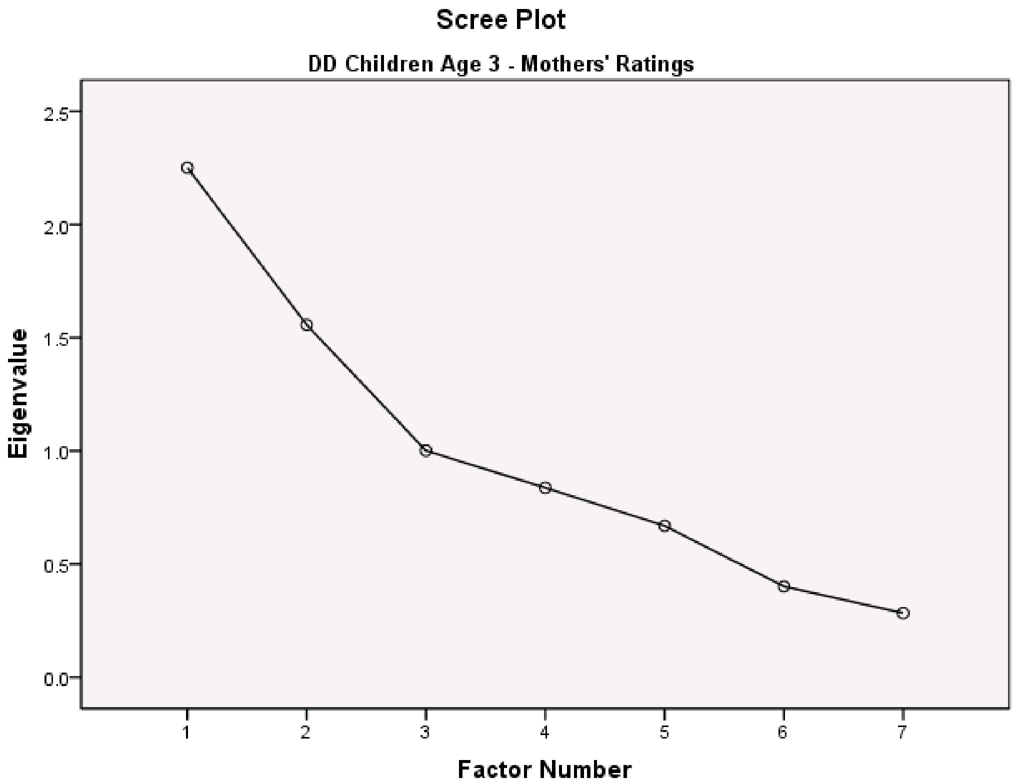


Figure 6. Scree plot of eigenvalues for exploratory factor analysis: DD mother-related adaptation at child age 3. Adaptation variables in analysis include mother stress, mother marital satisfaction, mother psychological symptoms, mother-child pleasure, mother-child conflict, mother-father pleasure, and mother-father conflict.

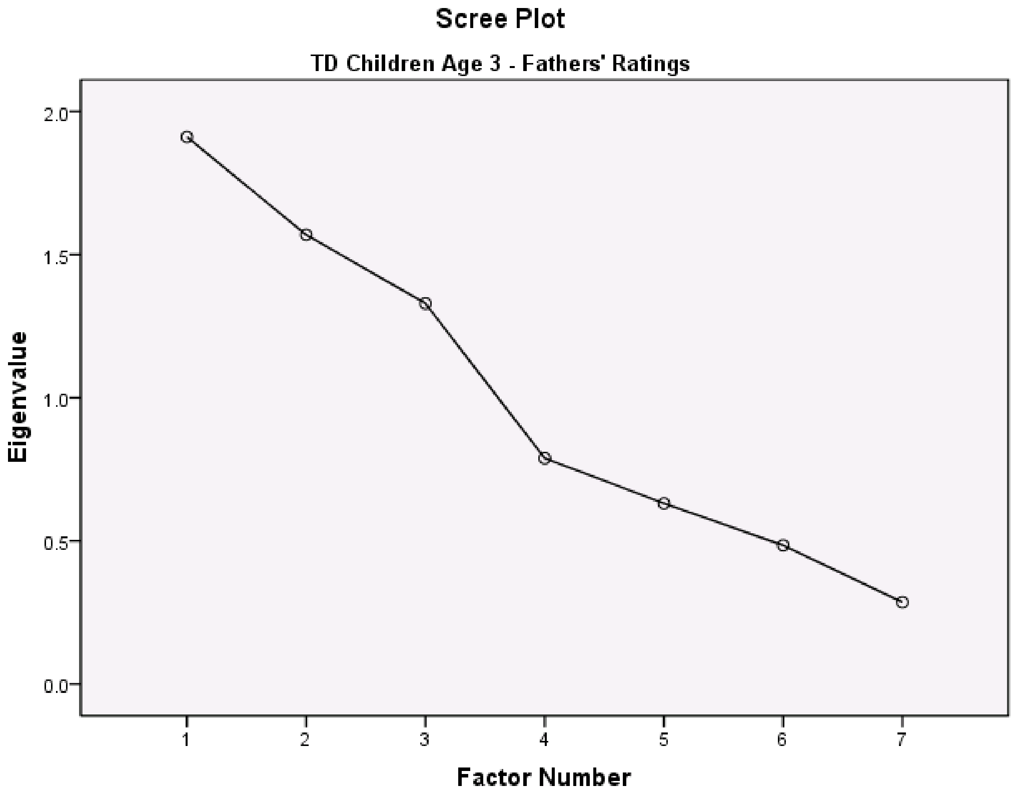


Figure 7. Scree plot of eigenvalues for exploratory factor analysis: TD father-related adaptation at child age 3. Adaptation variables in analysis include father stress, father marital satisfaction, father psychological symptoms, father-child pleasure, father-child conflict, mother-father pleasure, and mother-father conflict.

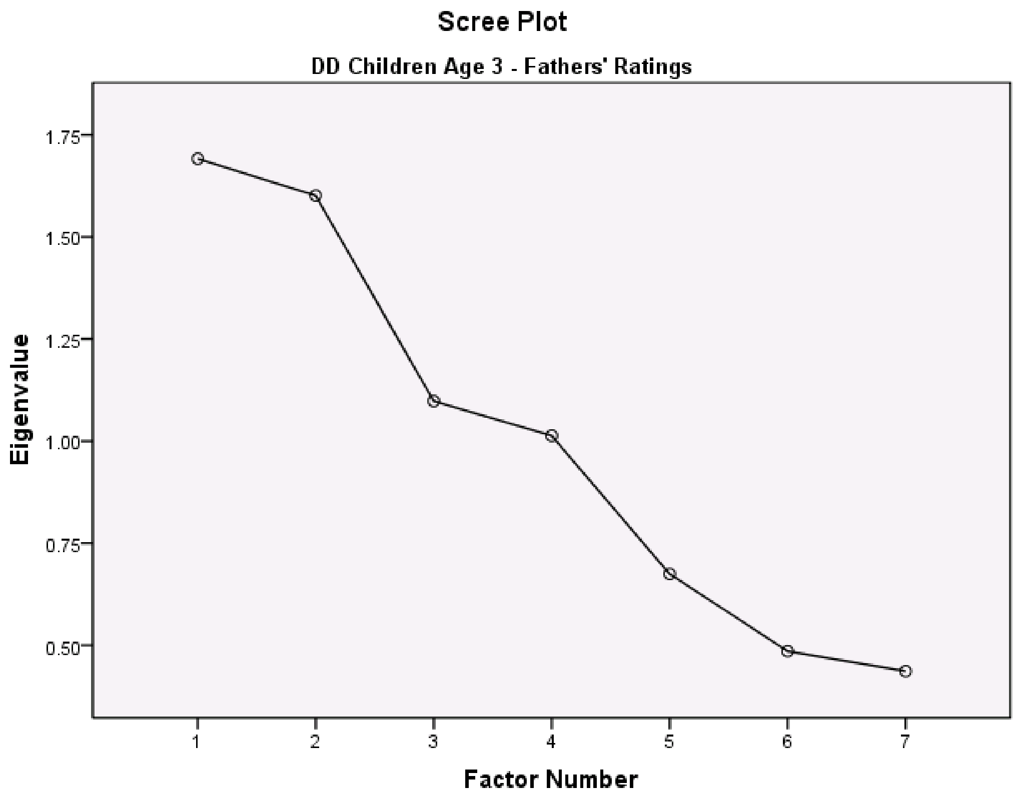


Figure 8. Scree plot of eigenvalues for exploratory factor analysis: DD father-related adaptation at child age 3. Adaptation variables in analysis include father stress, father marital satisfaction, father psychological symptoms, father-child pleasure, father-child conflict, mother-father pleasure, and mother-father conflict.

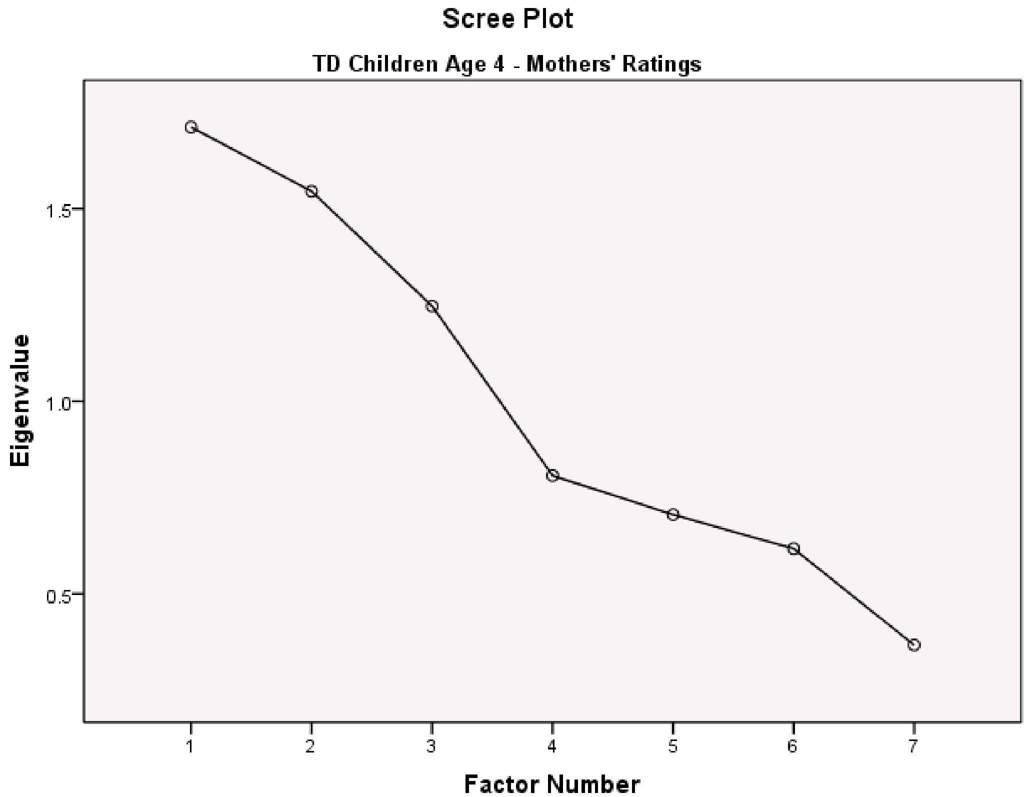


Figure 9. Scree plot of eigenvalues for exploratory factor analysis: TD mother-related adaptation at child age 4. Adaptation variables in analysis include mother stress, mother marital satisfaction, mother psychological symptoms, mother-child pleasure, mother-child conflict, mother-father pleasure, and mother-father conflict.

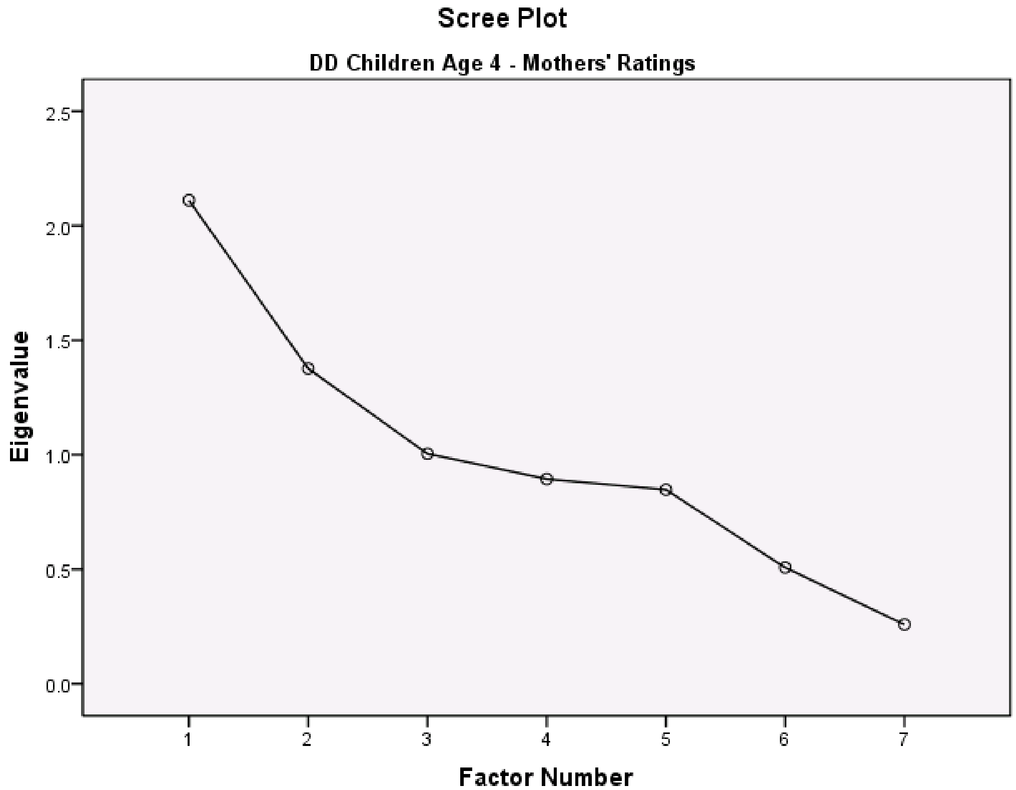


Figure 10. Scree plot of eigenvalues for exploratory factor analysis: DD mother-related adaptation at child age 4. Adaptation variables in analysis include mother stress, mother marital satisfaction, mother psychological symptoms, mother-child pleasure, mother-child conflict, mother-father pleasure, and mother-father conflict.

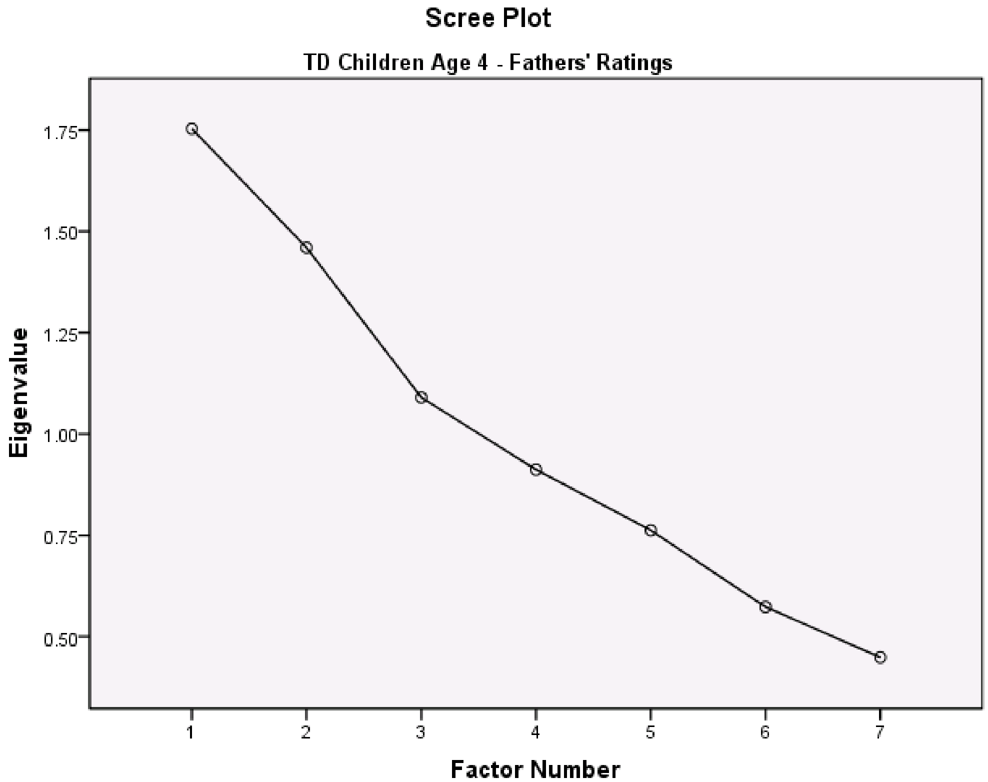


Figure 11. Scree plot of eigenvalues for exploratory factor analysis: TD father-related adaptation at child age 4. Adaptation variables in analysis include father stress, father marital satisfaction, father psychological symptoms, father-child pleasure, father-child conflict, mother-father pleasure, and mother-father conflict.

Figure 12. Scree plot of eigenvalues for exploratory factor analysis: DD father-related adaptation at child age 4. Adaptation variables in analysis include father stress, father marital satisfaction, father psychological symptoms, father-child pleasure, father-child conflict, mother-father pleasure, and mother-father conflict.

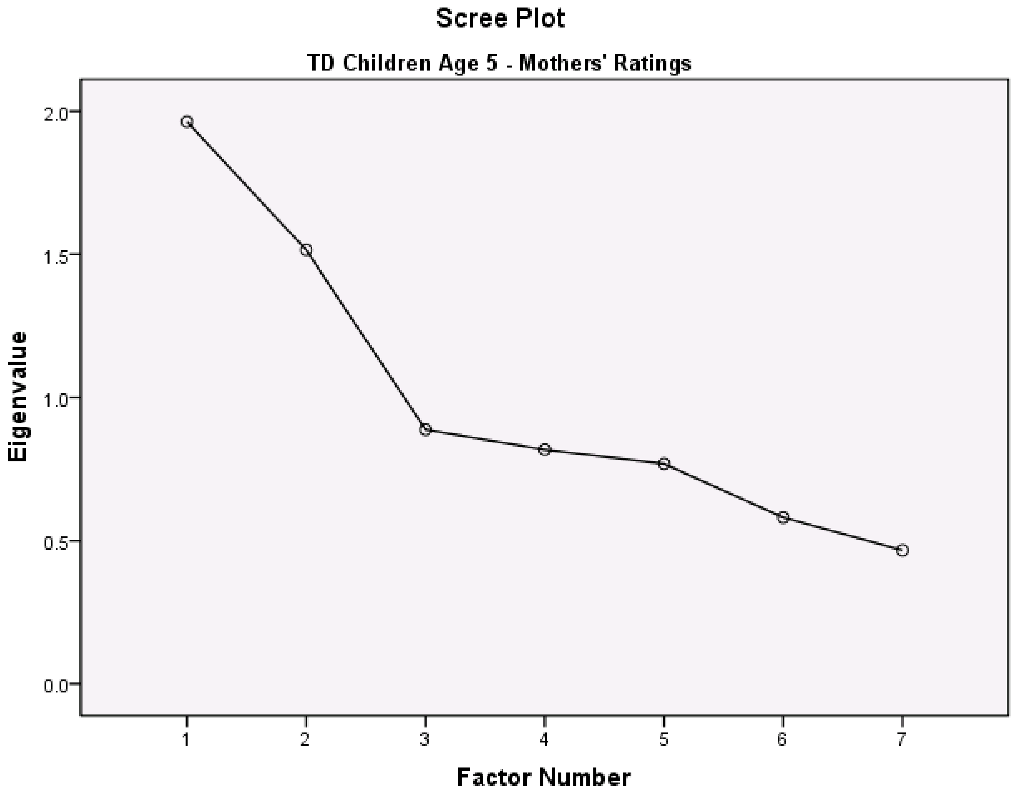


Figure 13. Scree plot of eigenvalues for exploratory factor analysis: TD mother-related adaptation at child age 5. Adaptation variables in analysis include mother stress, mother marital satisfaction, mother psychological symptoms, mother-child pleasure, mother-child conflict, mother-father pleasure, and mother-father conflict.

Figure 14. Scree plot of eigenvalues for exploratory factor analysis: DD mother-related adaptation at child age 5. Adaptation variables in analysis include mother stress, mother marital satisfaction, mother psychological symptoms, mother-child pleasure, mother-child conflict, mother-father pleasure, and mother-father conflict.

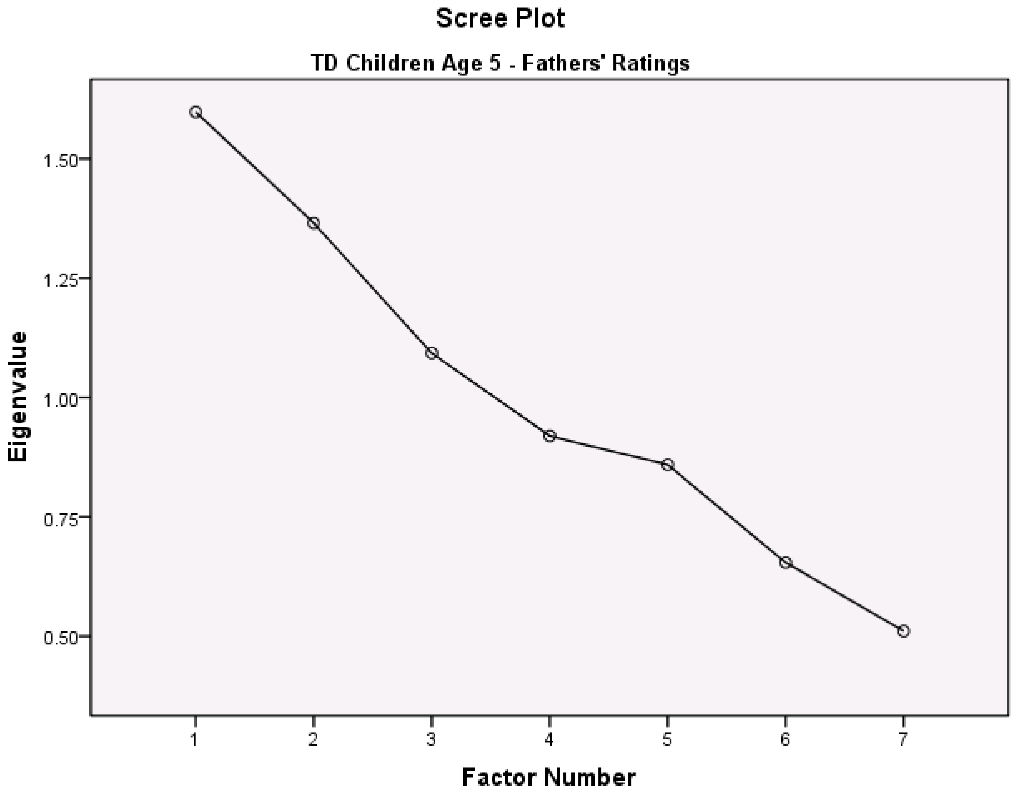


Figure 15. Scree plot of eigenvalues for exploratory factor analysis: TD father-related adaptation at child age 5. Adaptation variables in analysis include father stress, father marital satisfaction, father psychological symptoms, father-child pleasure, father-child conflict, mother-father pleasure, and mother-father conflict.

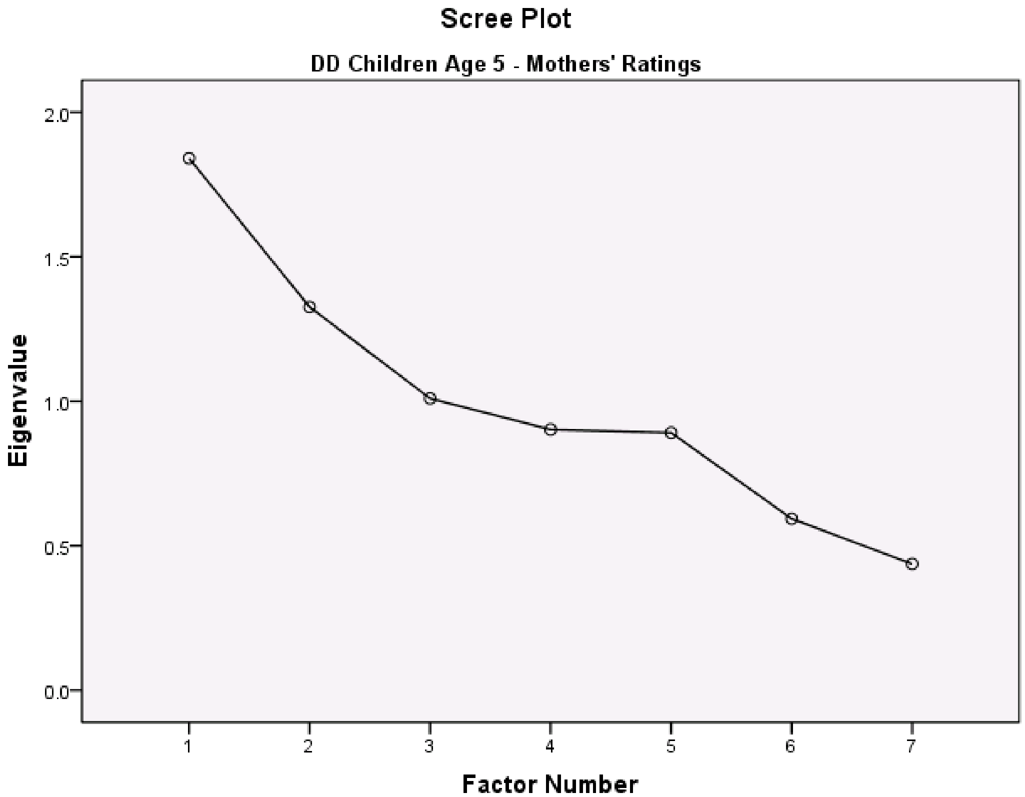


Figure 16. Scree plot of eigenvalues for exploratory factor analysis: DD father-related adaptation at child age 5. Adaptation variables in analysis include father stress, father marital satisfaction, father psychological symptoms, father-child pleasure, father-child conflict, mother-father pleasure, and mother-father conflict.

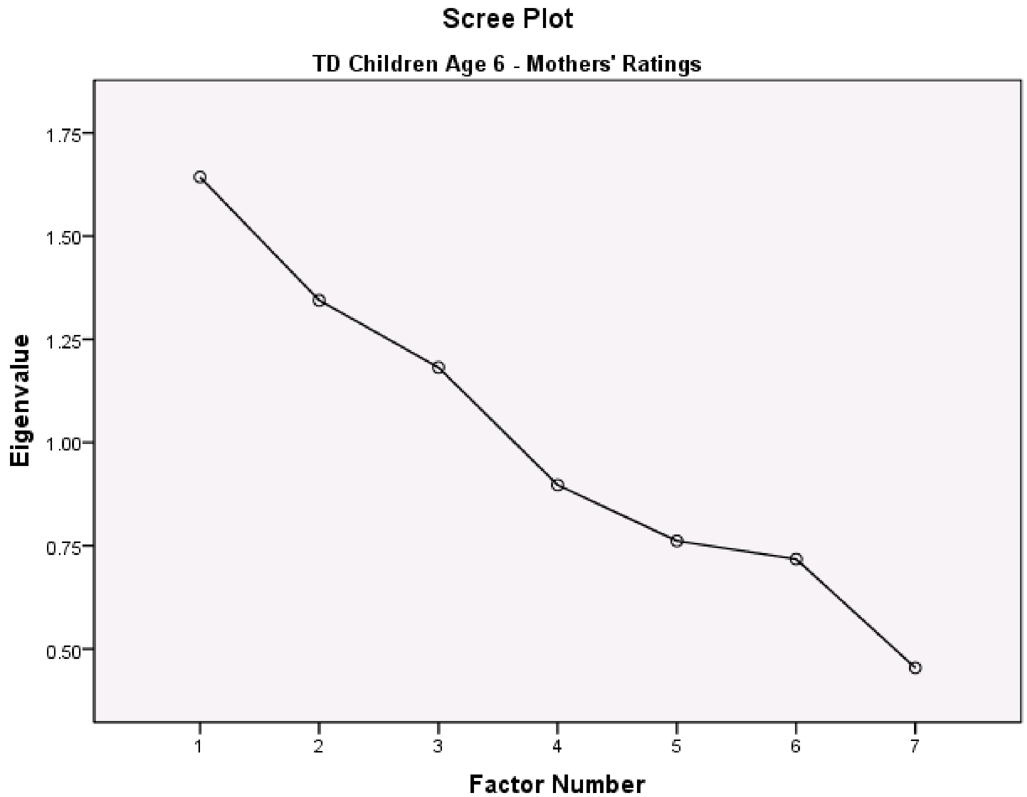


Figure 17. Scree plot of eigenvalues for exploratory factor analysis: TD mother-related adaptation at child age 6. Adaptation variables in analysis include mother stress, mother marital satisfaction, mother psychological symptoms, mother-child pleasure, mother-child conflict, mother-father pleasure, and mother-father conflict.

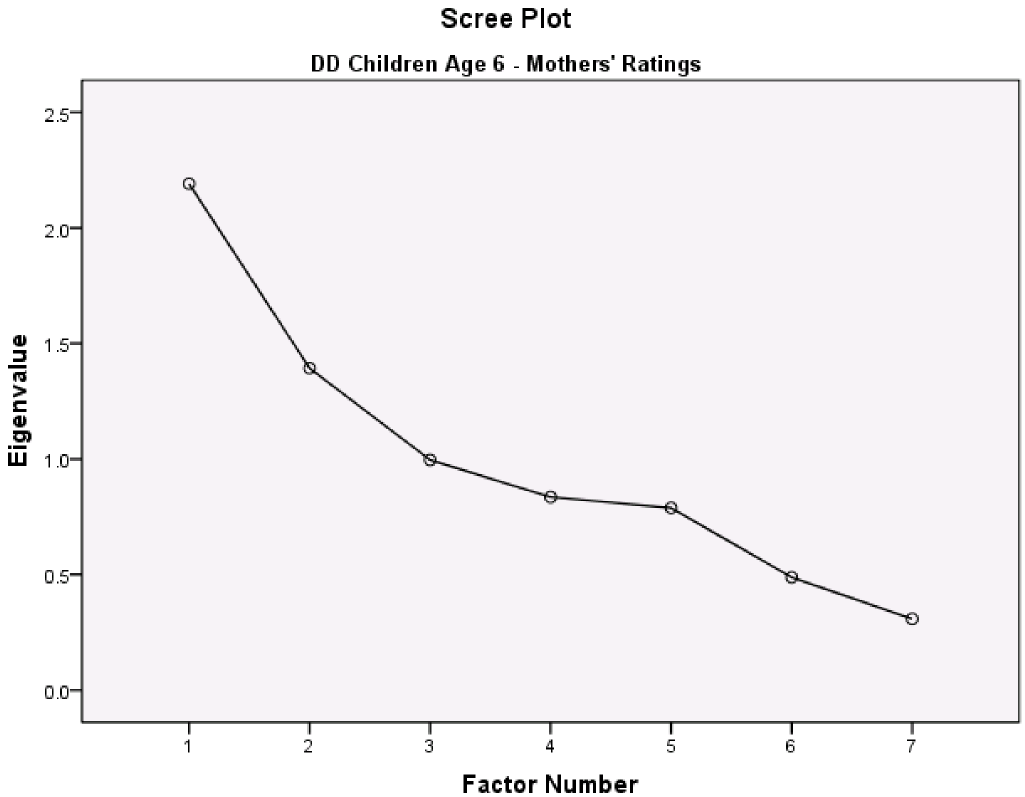


Figure 18. Scree plot of eigenvalues for exploratory factor analysis: DD mother-related adaptation at child age 6. Adaptation variables in analysis include mother stress, mother marital satisfaction, mother psychological symptoms, mother-child pleasure, mother-child conflict, mother-father pleasure, and mother-father conflict.

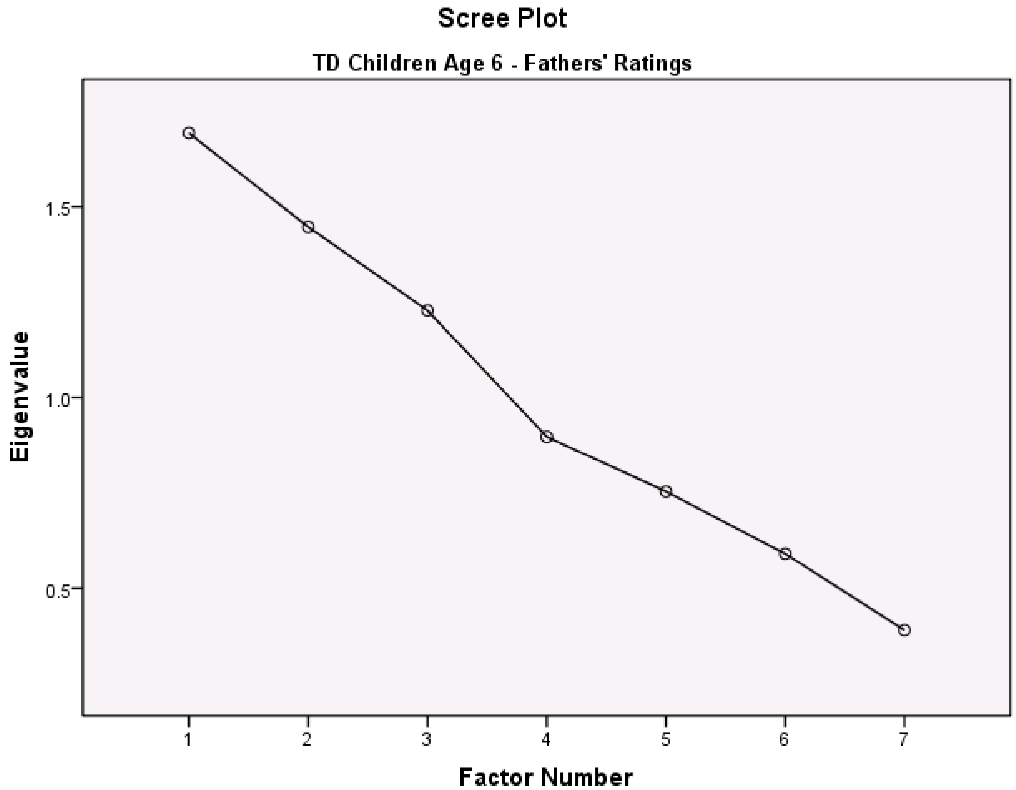


Figure 19. Scree plot of eigenvalues for exploratory factor analysis: TD father-related adaptation at child age 6. Adaptation variables in analysis include father stress, father marital satisfaction, father psychological symptoms, father-child pleasure, father-child conflict, mother-father pleasure, and mother-father conflict.

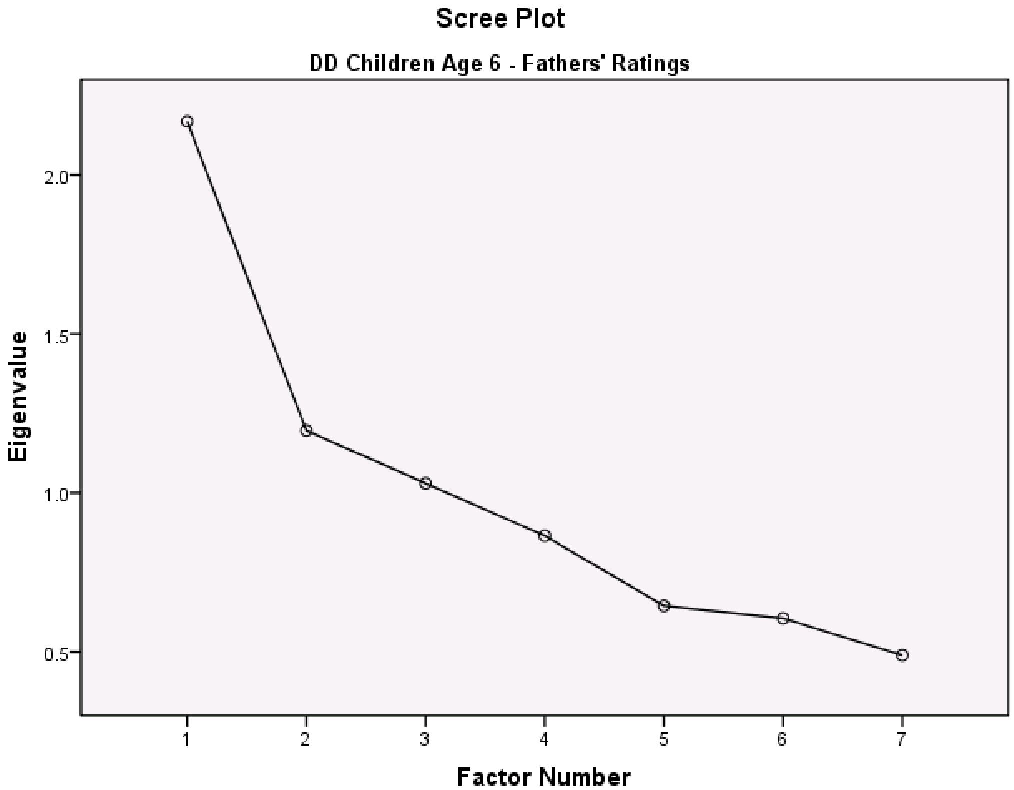


Figure 20. Scree plot of eigenvalues for exploratory factor analysis: DD father-related adaptation at child age 6. Adaptation variables in analysis include father stress, father marital satisfaction, father psychological symptoms, father-child pleasure, father-child conflict, mother-father pleasure, and mother-father conflict.

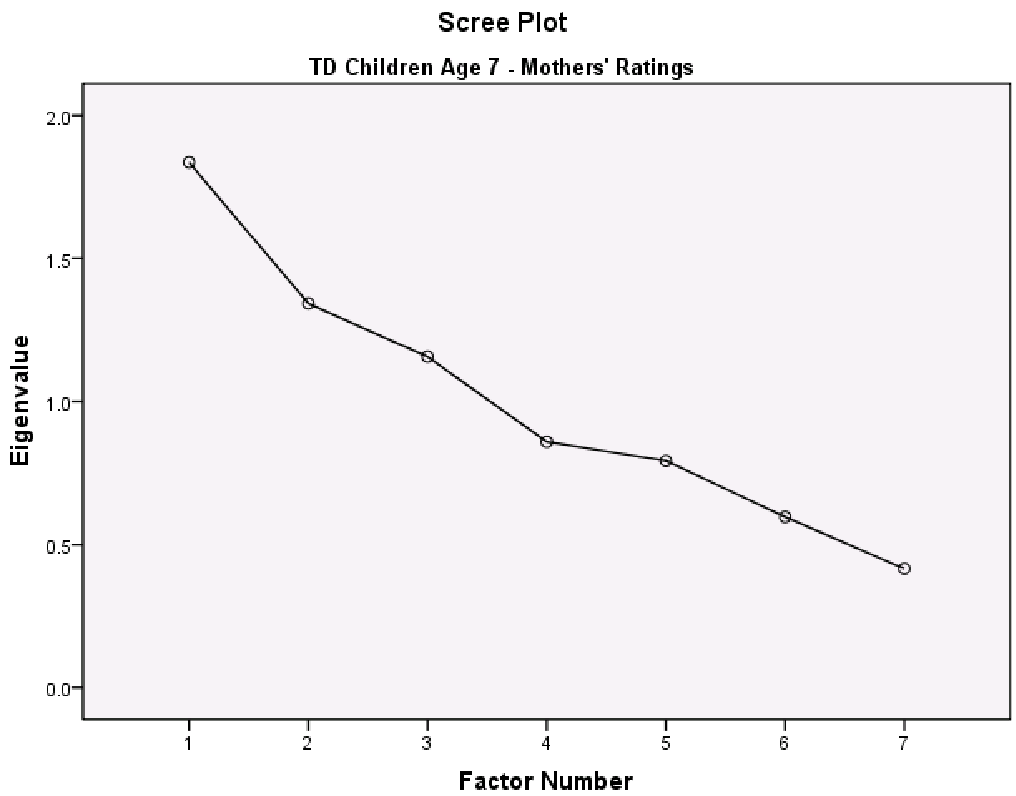


Figure 21. Scree plot of eigenvalues for exploratory factor analysis: TD mother-related adaptation at child age 7. Adaptation variables in analysis include mother stress, mother marital satisfaction, mother psychological symptoms, mother-child pleasure, mother-child conflict, mother-father pleasure, and mother-father conflict.

Figure 22. Scree plot of eigenvalues for exploratory factor analysis: DD mother-related adaptation at child age 7. Adaptation variables in analysis include mother stress, mother marital satisfaction, mother psychological symptoms, mother-child pleasure, mother-child conflict, mother-father pleasure, and mother-father conflict.

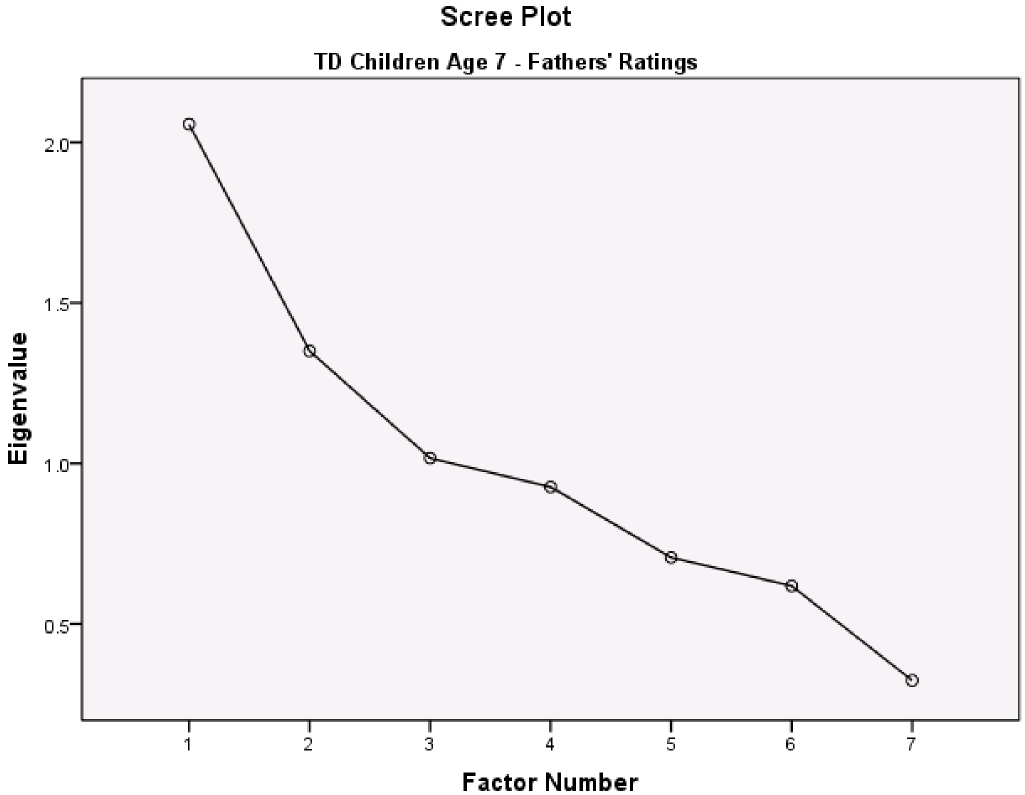


Figure 23. Scree plot of eigenvalues for exploratory factor analysis: TD father-related adaptation at child age 7. Adaptation variables in analysis include father stress, father marital satisfaction, father psychological symptoms, father-child pleasure, father-child conflict, mother-father pleasure, and mother-father conflict.

Figure 24. Scree plot of eigenvalues for exploratory factor analysis: DD father-related adaptation at child age 7. Adaptation variables in analysis include father stress, father marital satisfaction, father psychological symptoms, father-child pleasure, father-child conflict, mother-father pleasure, and mother-father conflict.

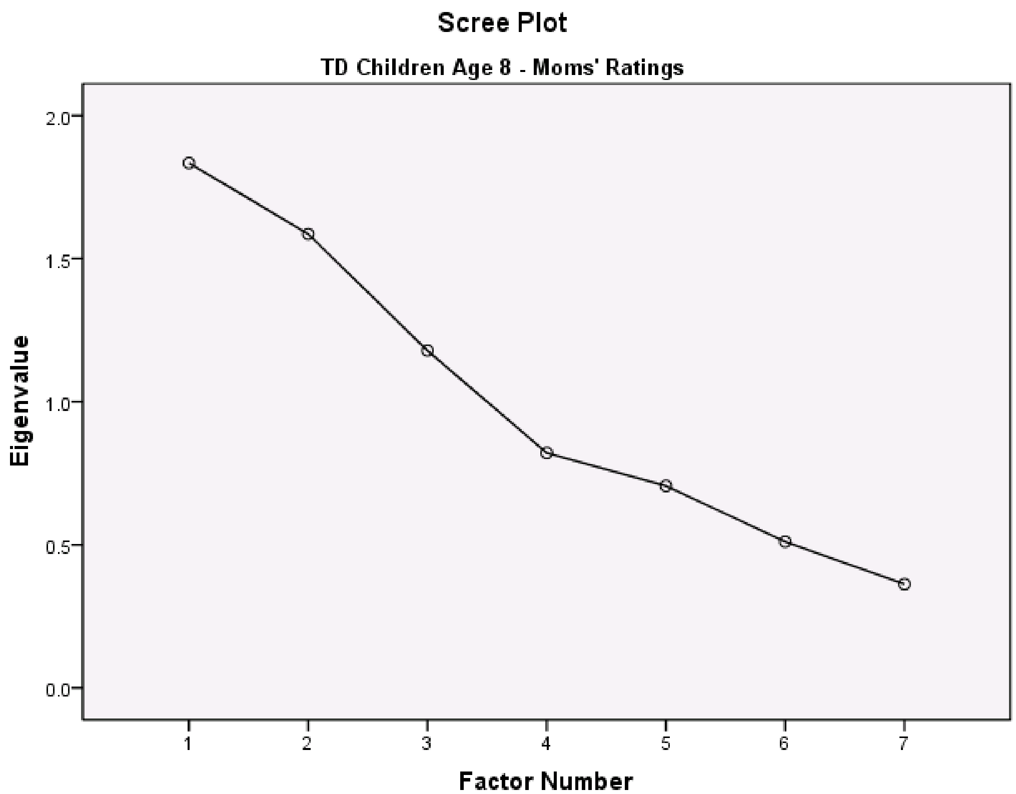


Figure 25. Scree plot of eigenvalues for exploratory factor analysis: TD mother-related adaptation at child age 8. Adaptation variables in analysis include mother stress, mother marital satisfaction, mother psychological symptoms, mother-child pleasure, mother-child conflict, mother-father pleasure, and mother-father conflict.

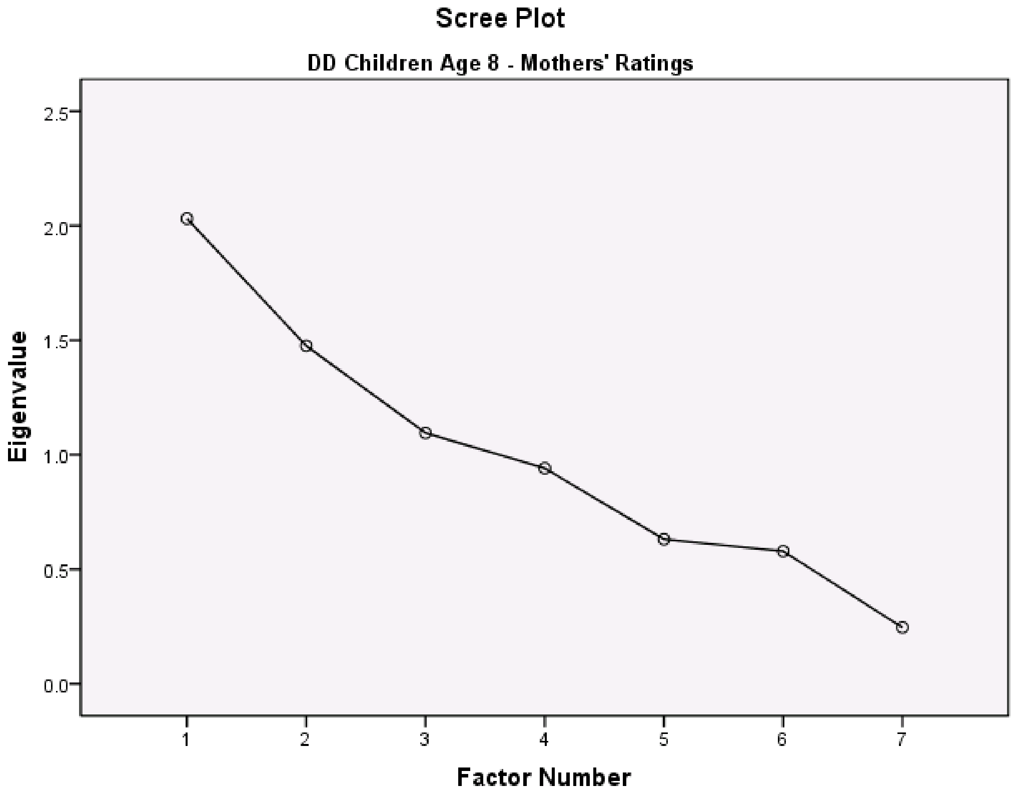


Figure 26. Scree plot of eigenvalues for exploratory factor analysis: DD mother-related adaptation at child age 8. Adaptation variables in analysis include mother stress, mother marital satisfaction, mother psychological symptoms, mother-child pleasure, mother-child conflict, mother-father pleasure, and mother-father conflict.

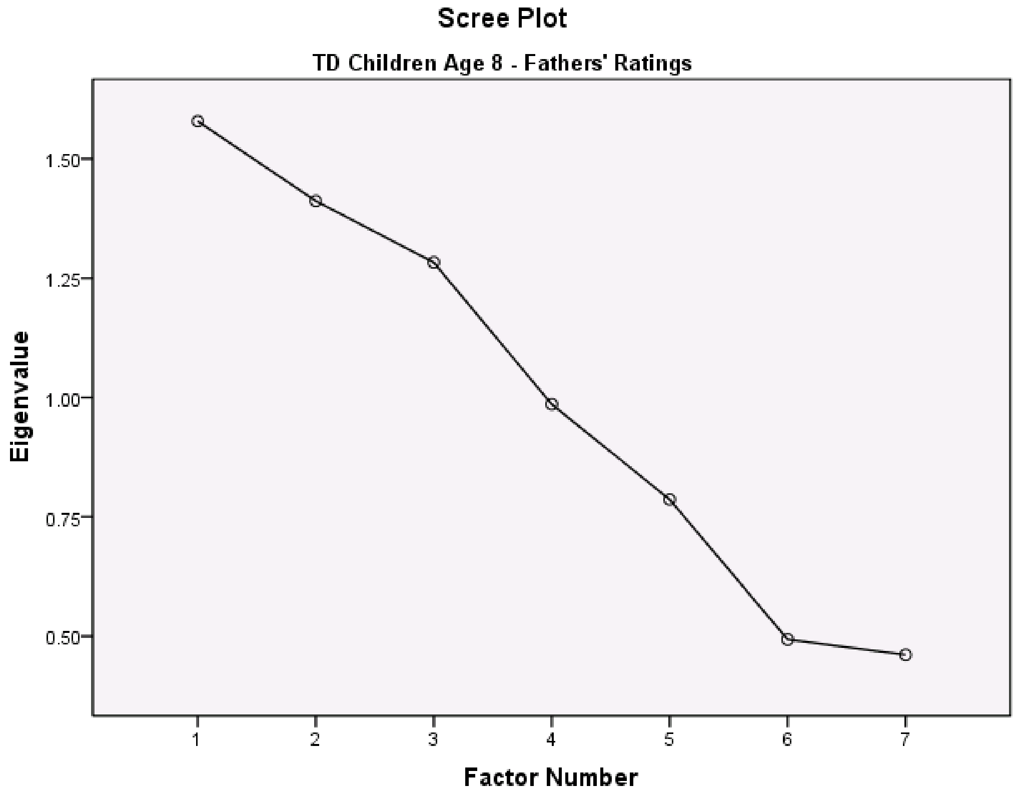


Figure 27. Scree plot of eigenvalues for exploratory factor analysis: TD father-related adaptation at child age 8. Adaptation variables in analysis include father stress, father marital satisfaction, father psychological symptoms, father-child pleasure, father-child conflict, mother-father pleasure, and mother-father conflict.

Figure 28. Scree plot of eigenvalues for exploratory factor analysis: DD father-related adaptation at child age 8. Adaptation variables in analysis include father stress, father marital satisfaction, father psychological symptoms, father-child pleasure, father-child conflict, mother-father pleasure, and mother-father conflict.

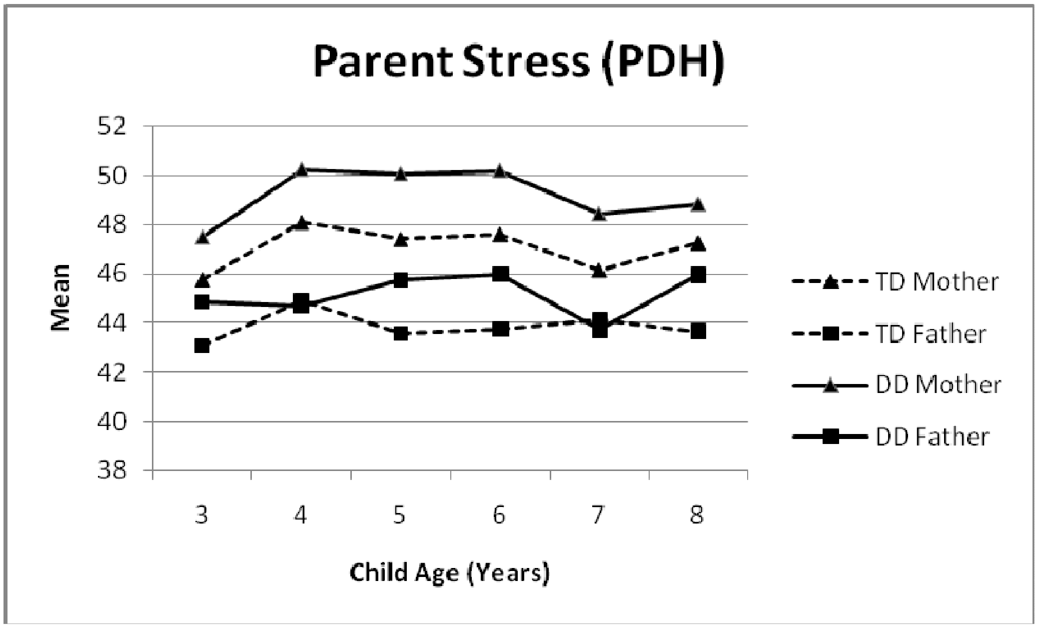


Figure 29. Plot of sample means over time for the parent stress variable. Figure compares TD and DD parents of both genders.

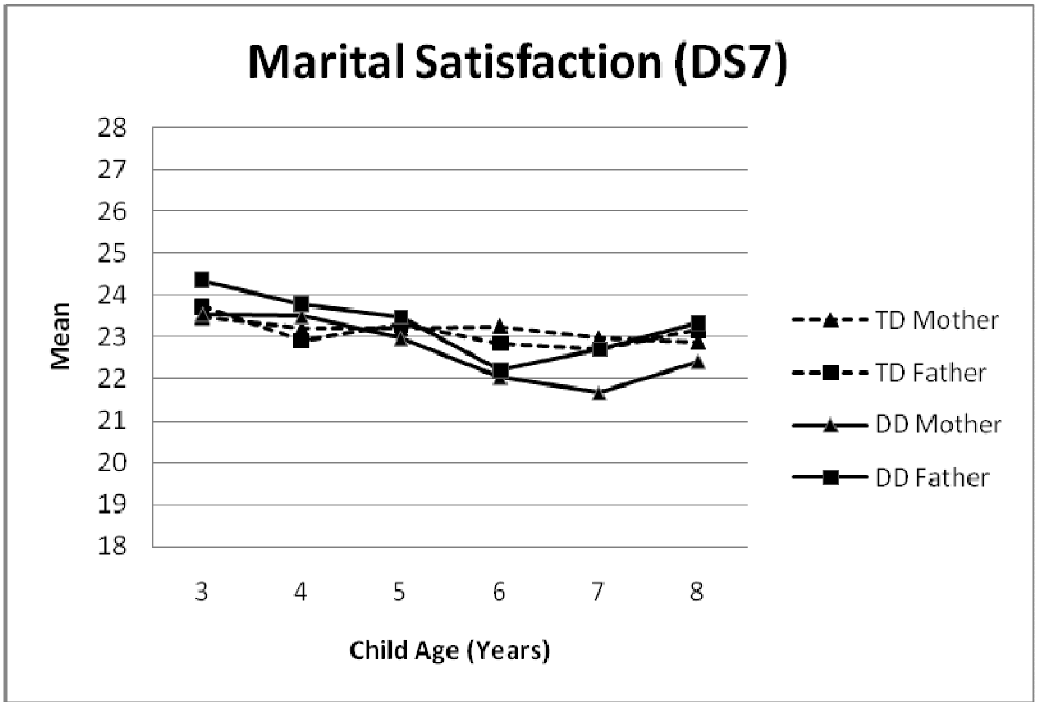


Figure 30. Plot of sample means over time for the parent-rated marital satisfaction variable. Figure compares TD and DD parents of both genders.

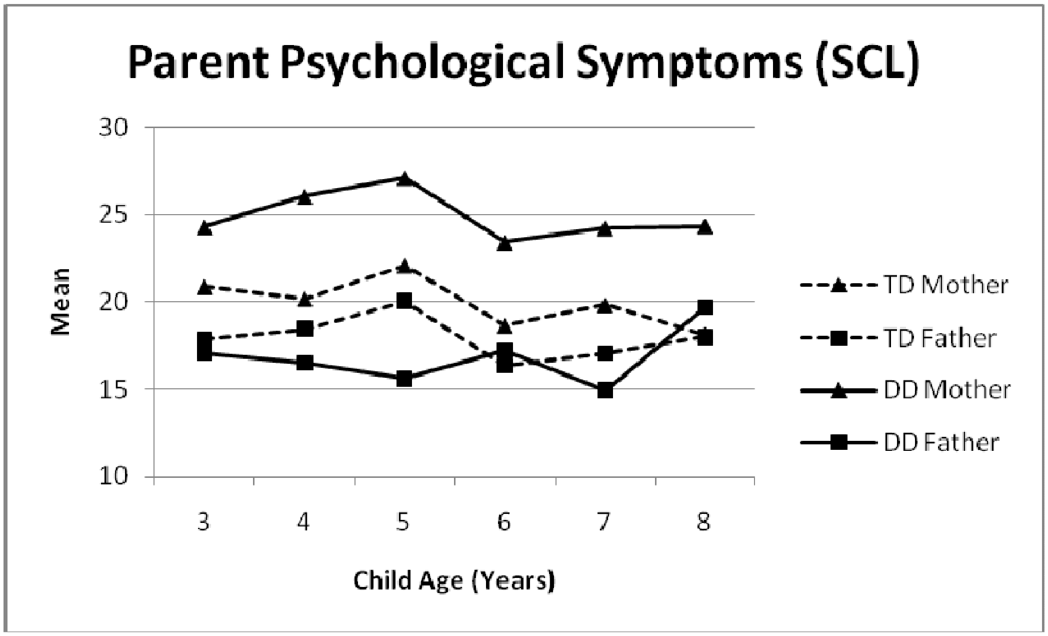


Figure 31. Plot of sample means over time for the parent psychological symptoms variable. Figure compares TD and DD parents of both genders.

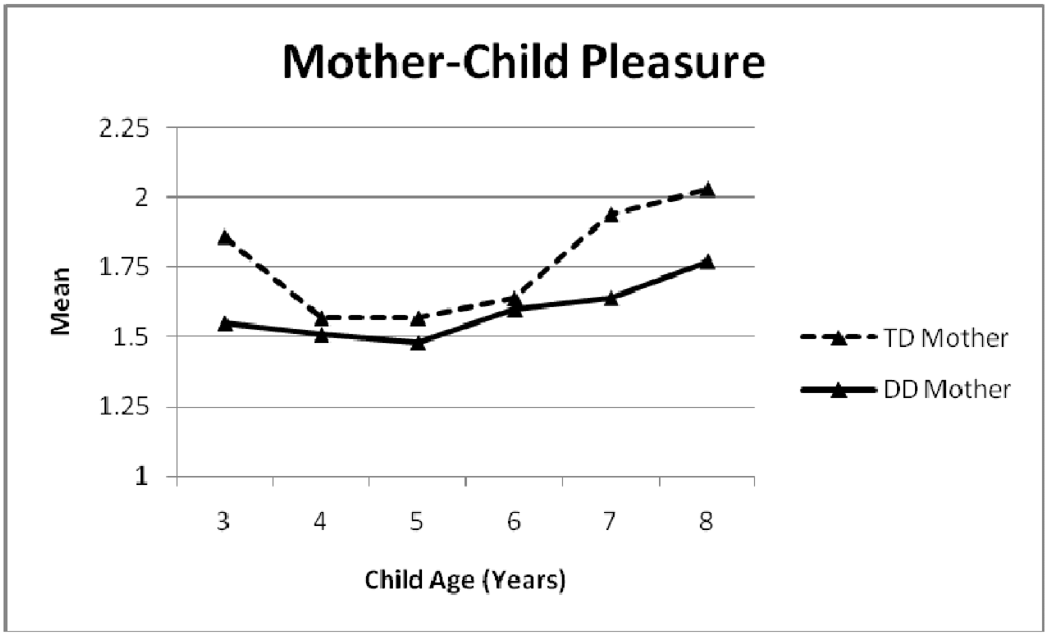


Figure 32. Plot of sample means over time for the observed dyadic mother-child pleasure variable. Figure compares TD and DD parents.

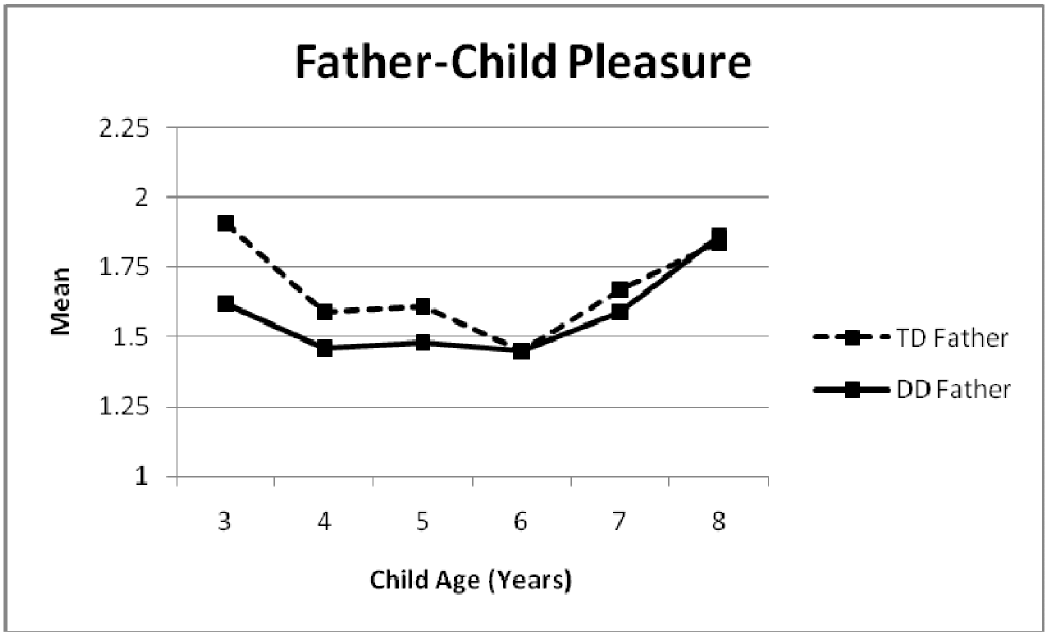


Figure 33. Plot of sample means over time for the observed dyadic father-child pleasure variable. Figure compares TD and DD parents.

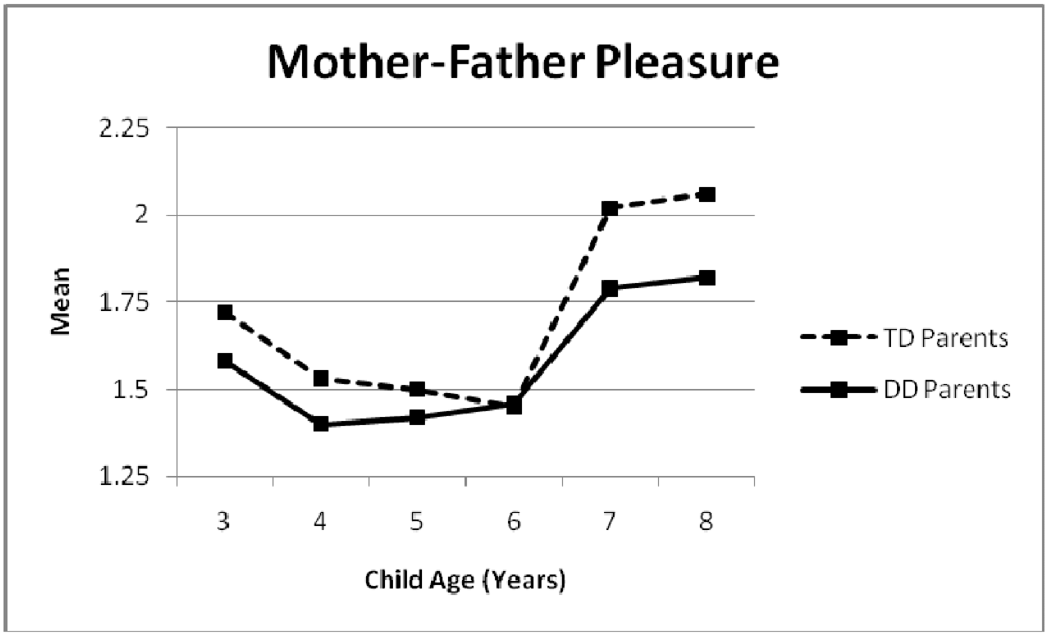


Figure 34. Plot of sample means over time for the observed dyadic mother-father pleasure variable. Figure compares TD and DD parents.

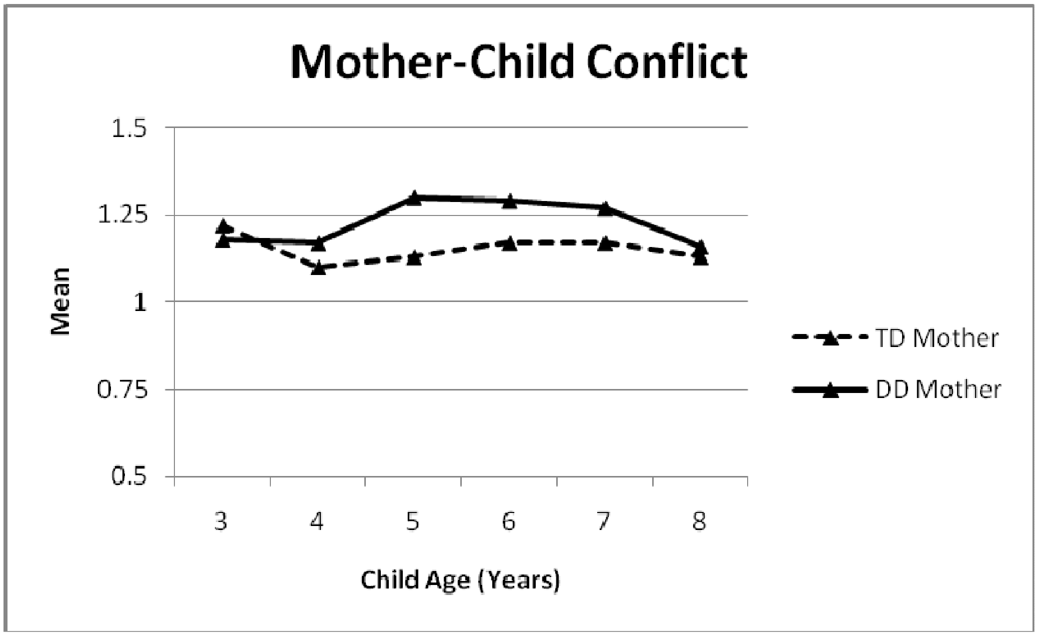


Figure 35. Plot of sample means over time for the observed dyadic mother-child conflict variable. Figure compares TD and DD parents.

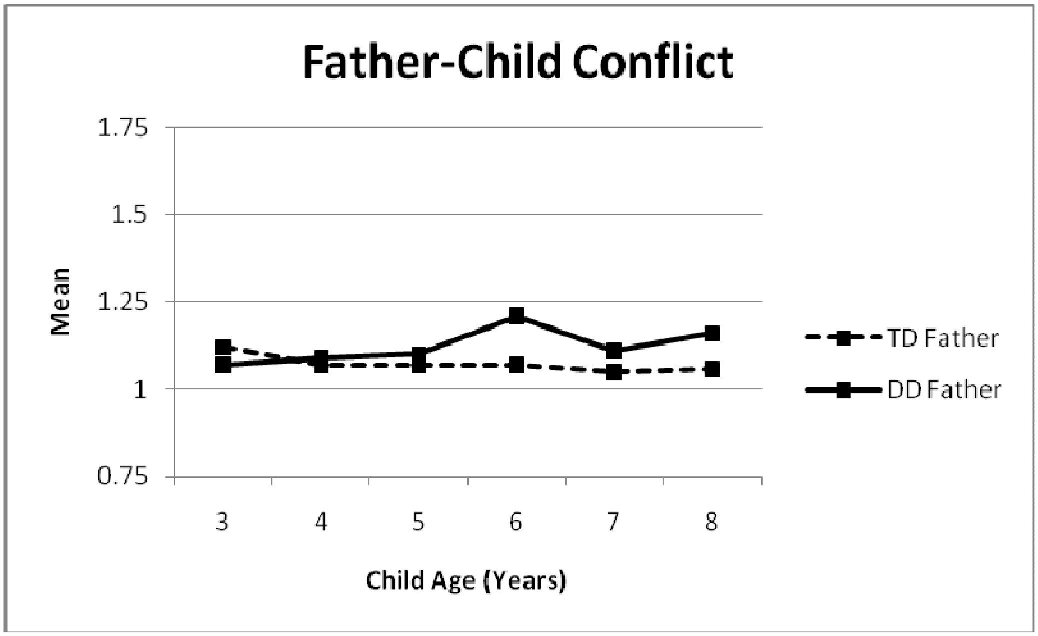


Figure 36. Plot of sample means over time for the observed dyadic father-child conflict variable. Figure compares TD and DD parents.

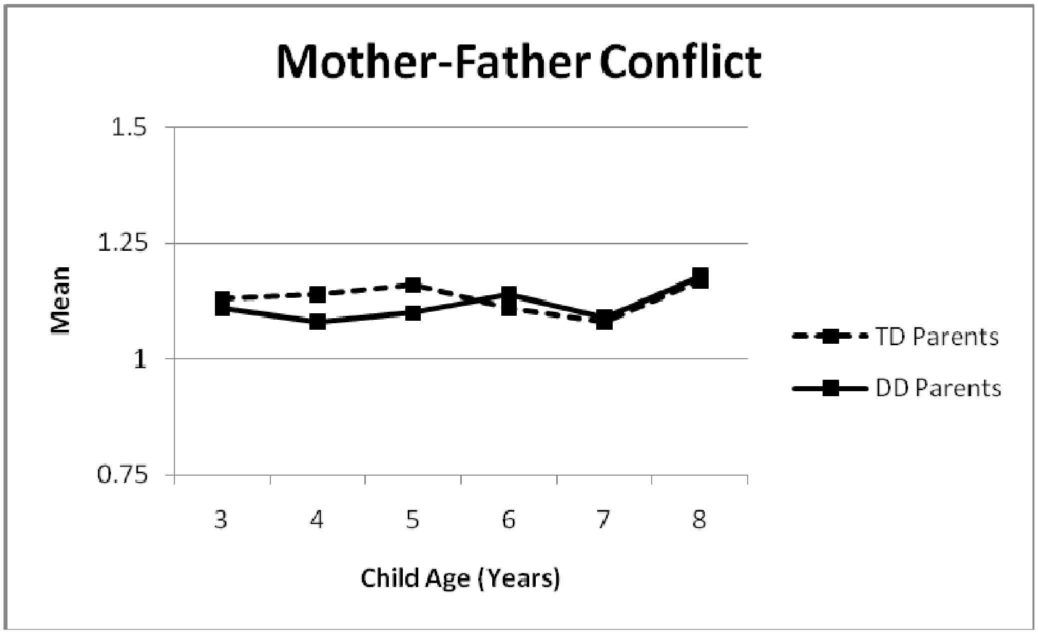
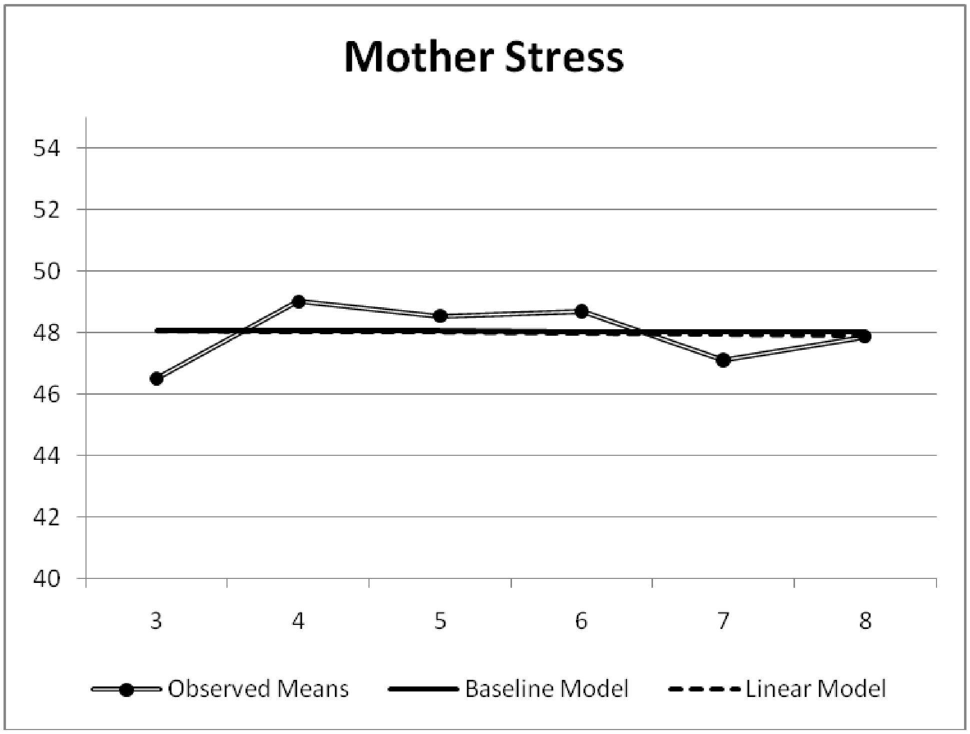


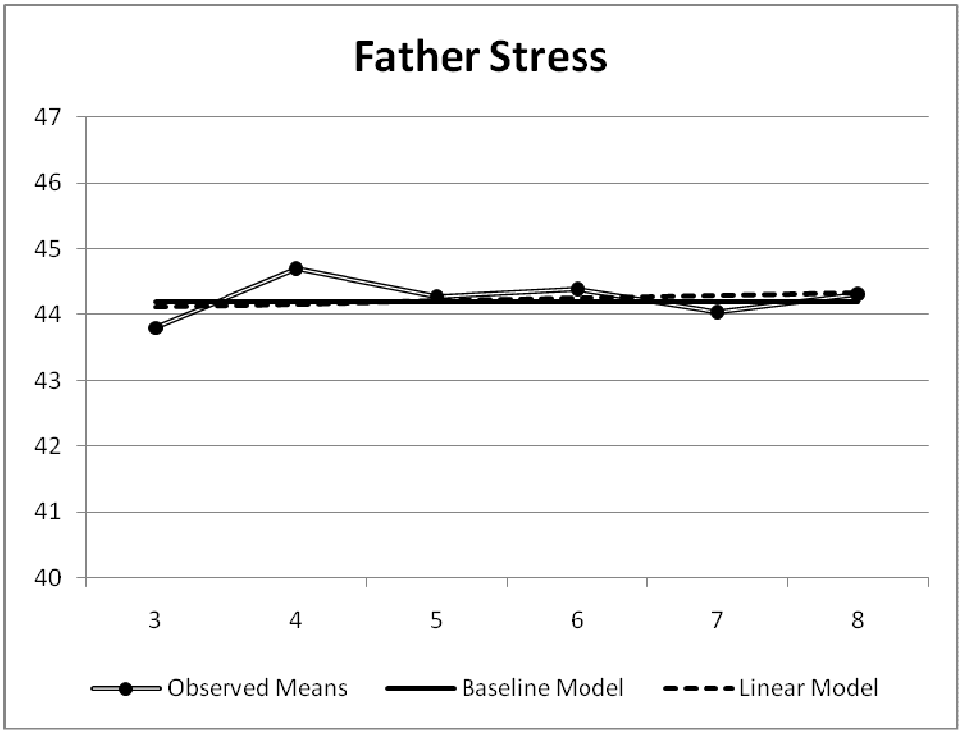
Figure 37. Plot of sample means over time for the observed dyadic mother-father conflict variable. Figure compares TD and DD parents.



	Child Age (Years)					
Mother Stress (PDH)	3	4	5	6	7	8
Observed Mean	46.52	49.02	48.55	48.69	47.12	47.88
Standard Deviation	12.56	13.19	12.41	13.09	13.44	13.67
Baseline Model-Implied Mean	48.05	48.05	48.05	48.05	48.05	48.05

Figure 38. Plot of observed sample means, and means implied by the linear and quadratic growth models for the mother stress (PDH) variable. Baseline model provides best fit to data. Model parameters and fit statistics for baseline model: intercept = 48.03^{***}, intercept variance = 113.87^{***}. Chi square = 103.48^{***} (34), RMSEA = 0.09, SRMR = 0.08.

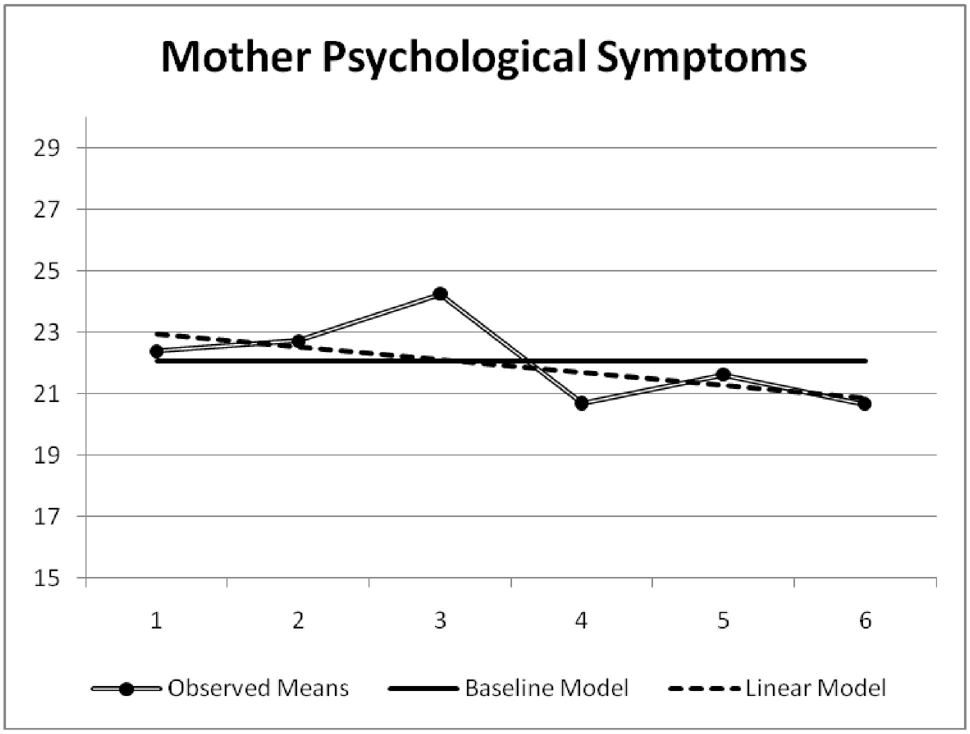
Note: *** $p < .005$.



Father Stress (PDH)	Child Age (Years) 3	4	5	6	7	8
Observed Mean	43.80	44.70	44.27	44.39	44.04	44.31
Standard Deviation	11.20	13.70	12.66	11.33	12.19	11.72
Baseline Model-Implied Mean	44.20	44.20	44.20	44.20	44.20	44.20

Figure 39. Plot of observed sample means, and means implied by the linear and quadratic growth models for the father stress (PDH) variable. Baseline model provides best fit to data. Model parameters and fit statistics for baseline model: intercept = 44.21***, intercept variance = 87.44***. Chi square = 40.51 (34), RMSEA = 0.03, SRMR = 0.07.

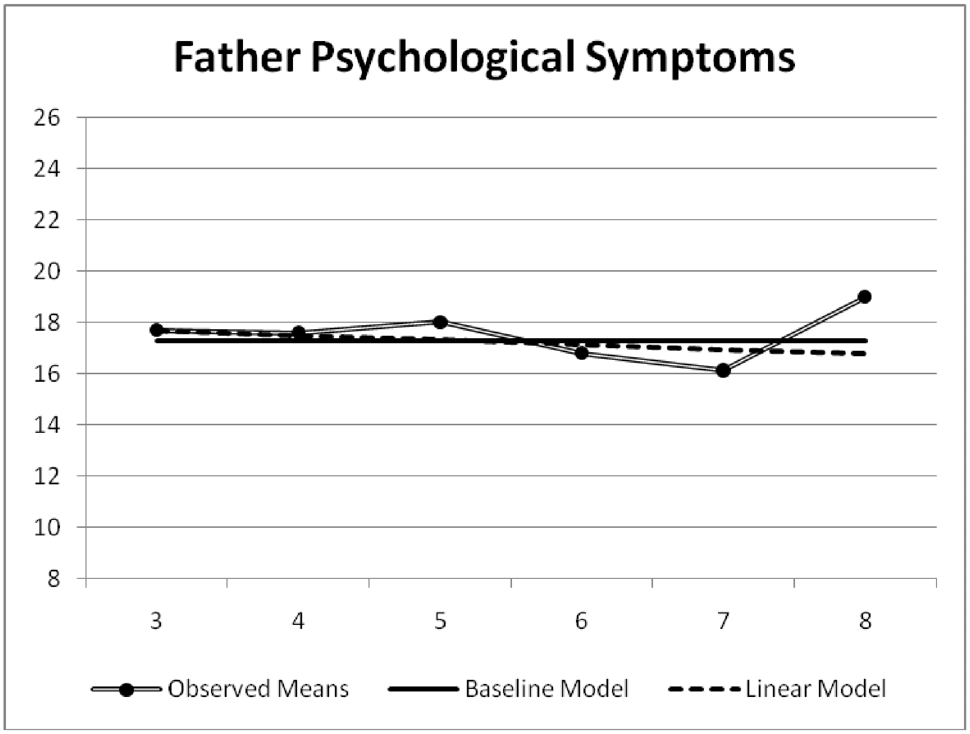
Note: *** p < .005.



Mother Psychological Symptoms (SCL)	Child Age (Years) 3	4	5	6	7	8
Observed Mean	22.39	22.72	24.25	20.70	21.63	20.67
Standard Deviation	19.25	20.81	21.80	18.82	18.93	20.44
Baseline Model-Implied Mean	22.09	22.09	22.09	22.09	22.09	22.09

Figure 40. Plot of observed sample means, and means implied by the baseline, linear and quadratic growth models for the mother psychological symptoms (SCL) variable. Baseline model provides best fit to data. Model parameters and fit statistics for baseline model: intercept = 22.09^{***}, intercept variance = 248.14^{***}. Chi square (df) = 59.69^{***} (34), RMSEA = 0.06, SRMR = 0.04.

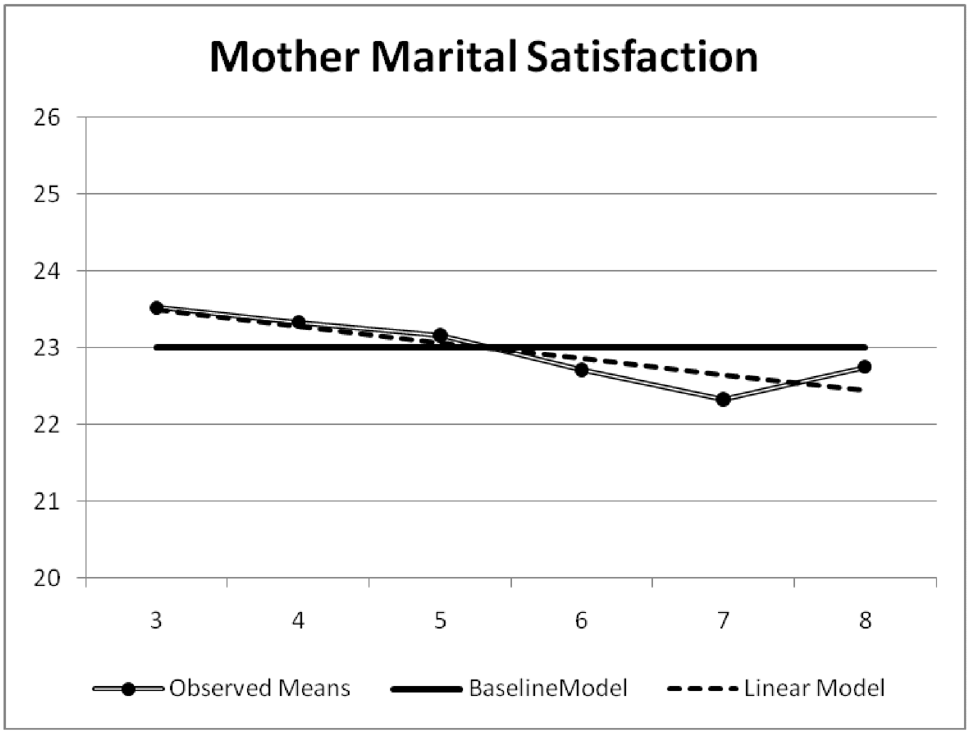
Note: *** $p < .005$.



Father Psychological Symptoms (SCL)	Child Age (Years) 3	4	5	6	7	8
Observed Mean	17.70	17.61	18.02	16.81	16.14	19.01
Standard Deviation	15.94	15.70	17.05	16.74	14.84	19.13
Baseline Model-Implied Mean	17.31	17.31	17.31	17.31	17.31	17.31

Figure 41. Plot of observed sample means, and means implied by the linear and quadratic growth models for the father psychological symptoms (SCL) variable. Baseline model provides best fit to data. Model parameters and fit statistics for baseline model: intercept = 17.33^{***}, intercept variance = 182.29^{***}. Chi square (df) = 55.10^{*} (34), RMSEA = 0.05, SRMR = 0.05.

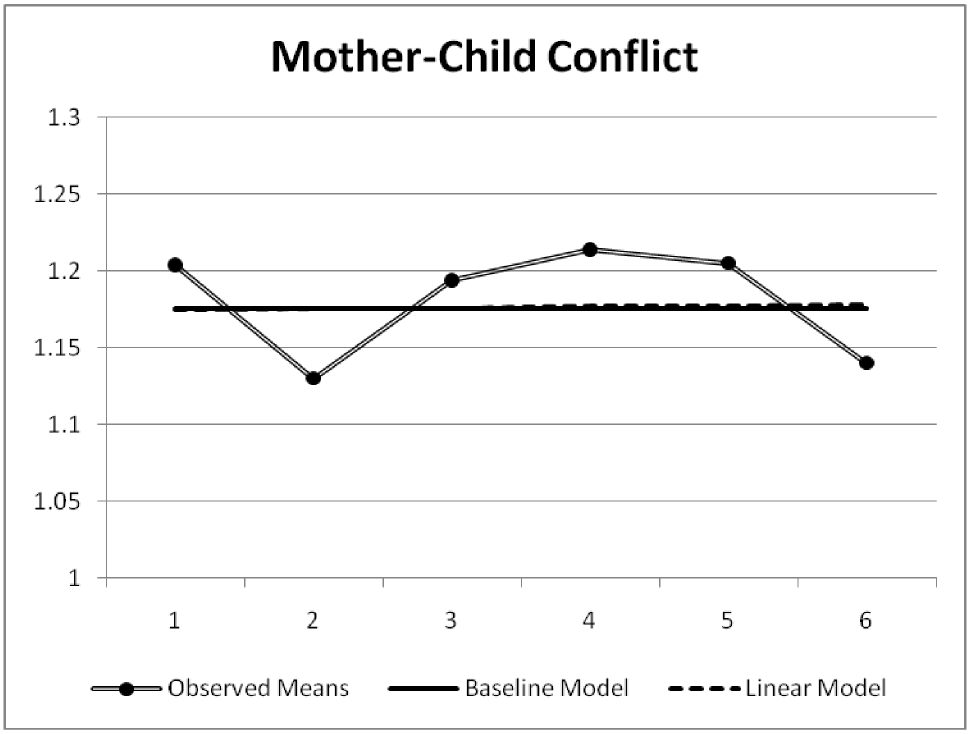
Note: $^{*}p < .05$. $^{***}p < .005$.



	Child Age (Years)					
Mother Marital Satisfaction (DS7)	3	4	5	6	7	8
Observed Mean	23.52	23.34	23.16	22.71	22.33	22.75
Standard Deviation	6.39	6.50	5.87	6.24	6.50	6.40
Baseline Model-Implied Mean	23.05	23.05	23.05	23.05	23.05	23.05

Figure 42. Plot of observed sample means, and means implied by the linear and quadratic growth model for the mother marital satisfaction (DS7) variable. Baseline model provides best fit to data. Model parameters and fit statistics for baseline model: intercept = 23.05^{***}, intercept variance = 26.20^{***}. Chi square (df) = 39.28 (34), RMSEA = 0.03, SRMR = 0.06.

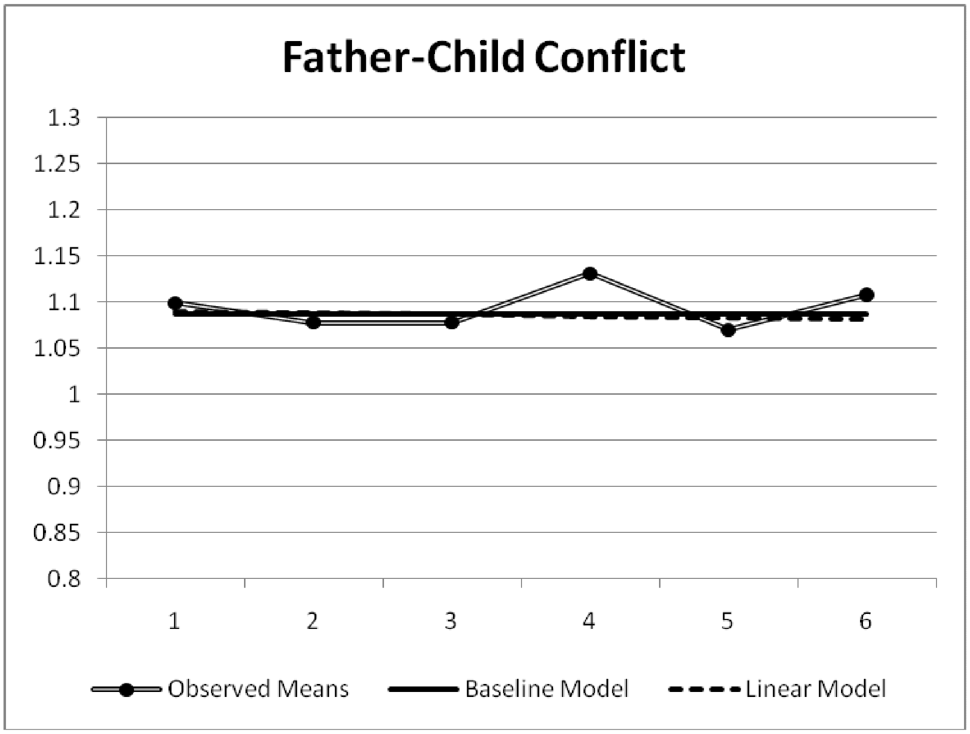
Note: *** $p < .005$.



Mother-Child Conflict	Child Age (Years) 3	4	5	6	7	8
Observed Mean	1.20	1.13	1.19	1.21	1.21	1.14
Standard Deviation	0.35	0.31	0.41	0.37	0.41	0.32
Baseline Model-Implied Mean	1.18	1.18	1.18	1.18	1.18	1.18

Figure 43. Plot of observed sample means, and means implied by the baseline, linear, and quadratic growth models for the dyadic mother-child conflict variable. Baseline model provides best fit to data. Model parameters and fit statistics for baseline model: intercept = 1.18^{***}, intercept variance = 0.03^{***}. Chi square (df) = 85.38^{***} (34), RMSEA = 0.08, SRMR = 0.14.

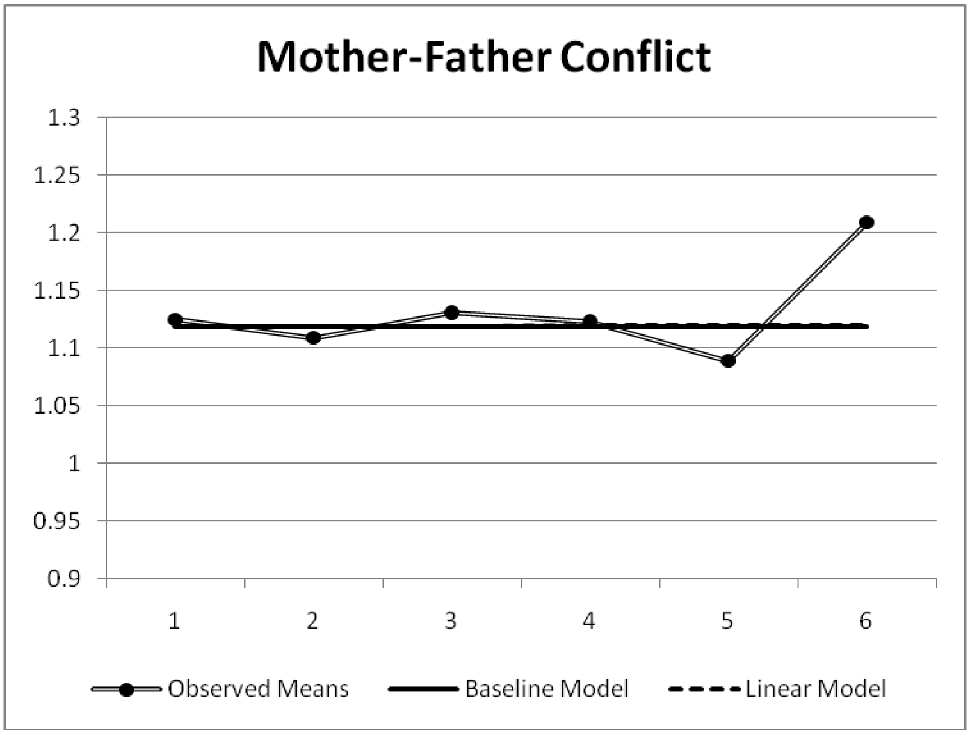
Note: *** $p < .005$.



	Child Age (Years)					
Father-Child Conflict	3	4	5	6	7	8
Observed Mean	1.10	1.08	1.08	1.13	1.07	1.11
Standard Deviation	0.19	0.17	0.24	0.30	0.19	0.27
Baseline Model-Implied Mean	1.09	1.09	1.09	1.09	1.09	1.09

Figure 44. Plot of observed sample means, and means implied by the baseline, linear and quadratic growth model for the dyadic father-child conflict variable. Baseline model provides best fit to data. Model parameters and fit statistics for baseline model: intercept = 1.09***, intercept variance = 0.004***. Chi square (df) = 42.63 (34), RMSEA = 0.03, SRMR = 0.09.

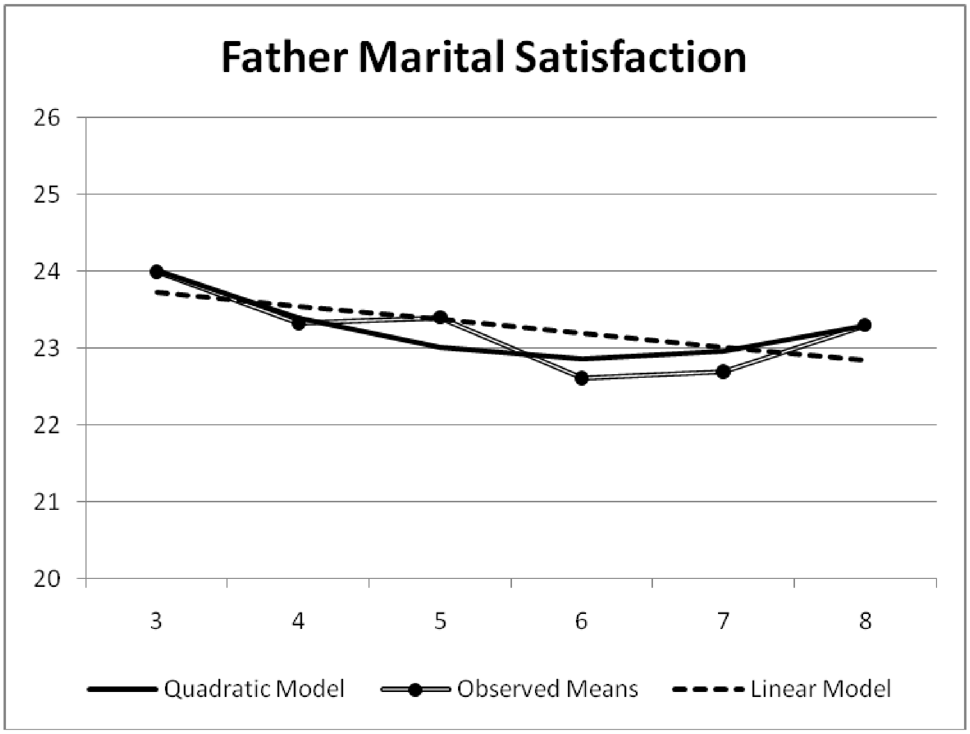
Note: *** $p < .005$.



	Child Age (Years)					
Mother-Father Conflict	3	4	5	6	7	8
Observed Mean	1.13	1.11	1.13	1.12	1.09	1.21
Standard Deviation	0.25	0.28	0.27	0.28	0.22	0.41
Baseline Model-Implied Mean	1.12	1.12	1.12	1.12	1.12	1.12

Figure 45. Plot of observed sample means, and means implied by the baseline, linear, and quadratic growth models for the dyadic mother-father conflict variable. Baseline model provides best fit to data. Model parameters and fit statistics for baseline model: intercept =1.12***, intercept variance = 0.01***. Chi square (df) = 63.74*** (34), RMSEA = 0.06, SRMR = 0.10.

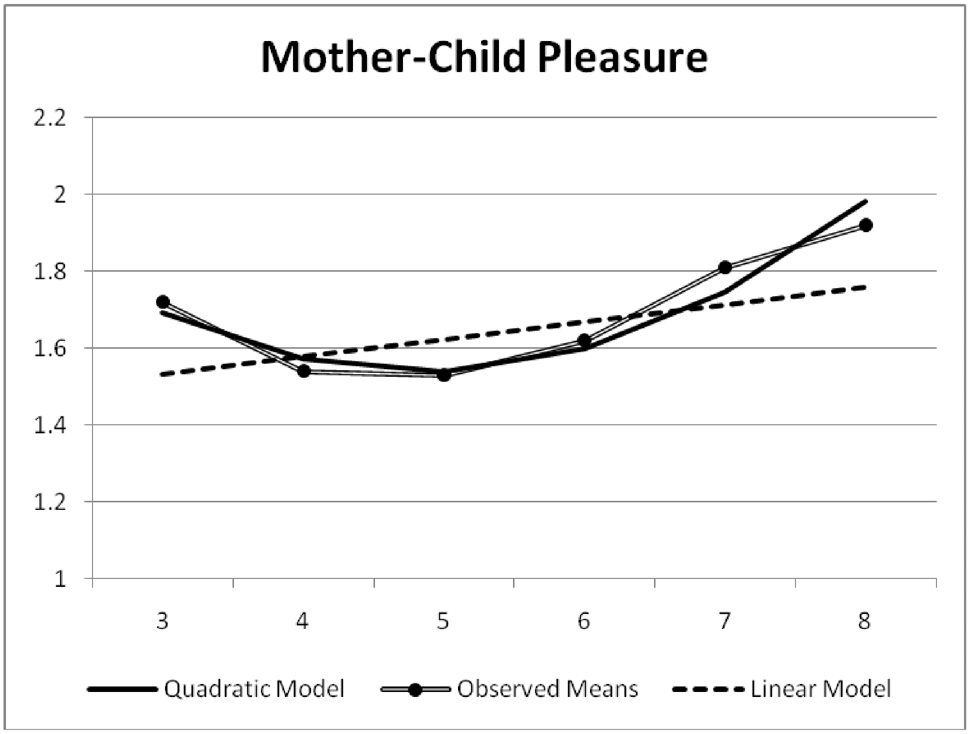
Note: *** $p < .005$.



	Child Age (Years)					
Father Marital Satisfaction (DS7)	3	4	5	6	7	8
Observed Mean	23.99	23.33	23.40	22.61	22.70	23.30
Standard Deviation	5.68	5.79	5.98	6.07	5.70	5.39
Quadratic Model-Implied Mean	24.02	23.40	23.01	22.87	22.96	23.29

Figure 46. Plot of observed sample means, and means implied by the linear and quadratic growth model for the father marital satisfaction (DS7) variable. Quadratic model provides best fit to data. Model parameters and fit statistics for quadratic model: intercept =24.01***, intercept variance = 25.40***, linear slope = -0.75***, linear slope variance set to 0, quadratic slope = 0.12***, quadratic slope variance = 0.02***. Chi square (df) = 37.09† (24), RMSEA = 0.05, SRMR = 0.06, CFI = 0.76, TLI = 0.68.

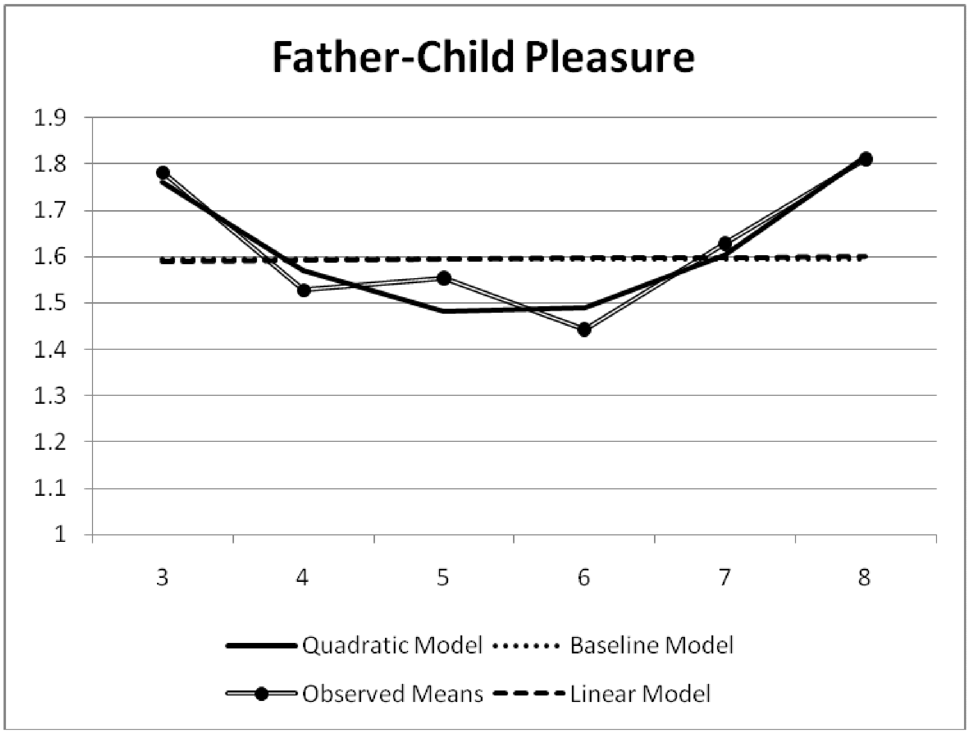
Note: † $p < .10$. *** $p < .005$.



	Child Age (Years)					
Mother-Child Pleasure	3	4	5	6	7	8
Observed Mean	1.72	1.54	1.53	1.62	1.81	1.92
Standard Deviation	0.73	0.54	0.52	0.57	0.70	0.78
Quadratic Model-Implied Mean	1.69	1.57	1.54	1.60	1.75	1.98

Figure 47. Plot of observed sample means, and means implied by the linear and quadratic growth model for the dyadic mother-child pleasure variable. Quadratic model provides best fit to data. Model parameters and fit statistics for quadratic model: intercept =1.69***, intercept variance = 0.23***, linear slope = -0.17***, linear slope variance = 0.03, quadratic slope = 0.05***, quadratic slope variance = 0.001. Chi square (df) = 31.21† (21), RMSEA = 0.04, SRMR = 0.05, CFI = 0.88, TLI = 0.81.

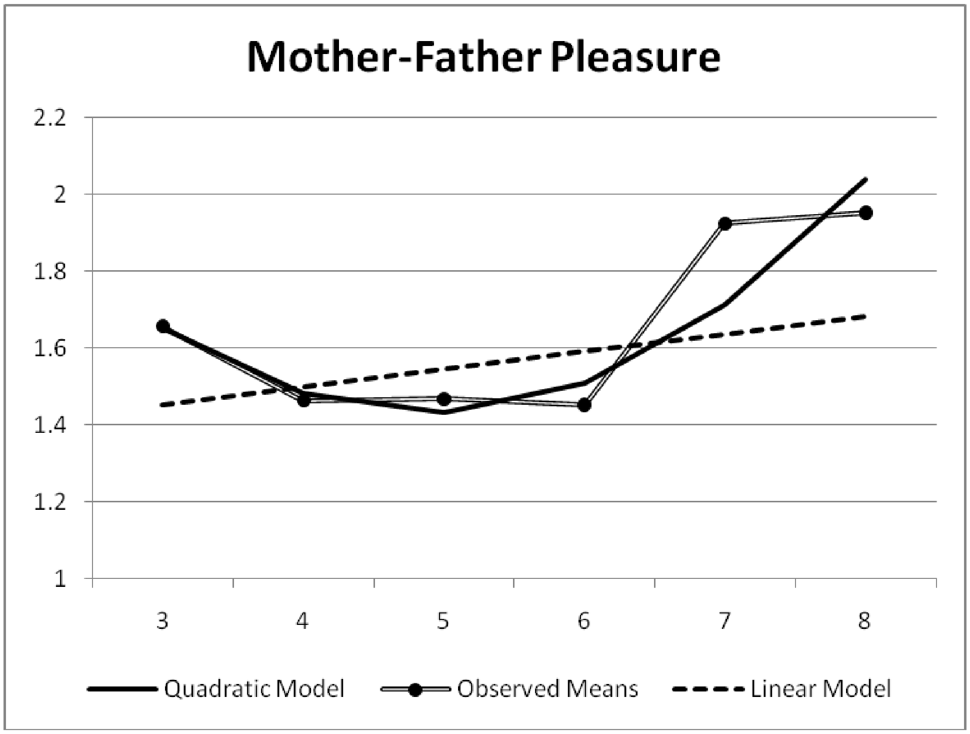
Note: $^{\dagger}p < .10$. $^{***}p < .005$.



Father-Child Pleasure	Child Age (Years) 3	4	5	6	7	8
Observed Mean	1.78	1.53	1.55	1.44	1.63	1.81
Standard Deviation	0.79	0.56	0.64	0.57	0.66	0.73
Quadratic Model-Implied Mean	1.76	1.57	1.48	1.49	1.60	1.82

Figure 48. Plot of observed sample means, and means implied by the linear and quadratic growth models for the dyadic father-child pleasure variable. Quadratic model parameters and fit statistics: intercept =1.76***, intercept variance = 0.23***, linear slope = -0.24***, linear slope variance = 0.05, quadratic slope = 0.05***, quadratic slope variance = 0.001. Chi square (df) = 32.99† (21), RMSEA = 0.05, SRMR = 0.05, CFI = 0.80, TLI = 0.67.

Note: † $p < .10$. *** $p < .005$.



	Child Age (Years)					
Mother-Father Pleasure	3	4	5	6	7	8
Observed Mean	1.66	1.46	1.47	1.45	1.92	1.95
Standard Deviation	0.72	0.53	0.50	0.48	0.80	0.81
Quadratic Model-Implied Mean	1.65	1.48	1.43	1.51	1.71	2.04

Figure 49. Plot of observed sample means, and means implied by the linear model and quadratic growth models for the dyadic mother-father pleasure variable. Quadratic model provides best fit to data. Model parameters and fit statistics for quadratic model: intercept = 1.65***, intercept variance = 0.14*, linear slope = -0.24***, linear slope variance = 0.02, quadratic = 0.06***, quadratic variance = 0.001. Chi square (df) = 51.48 (21), RMSEA = 0.08, SRMR = 0.08, CFI = 0.71, TLI = 0.52.

Note: * $p < .05$. *** $p < .005$.

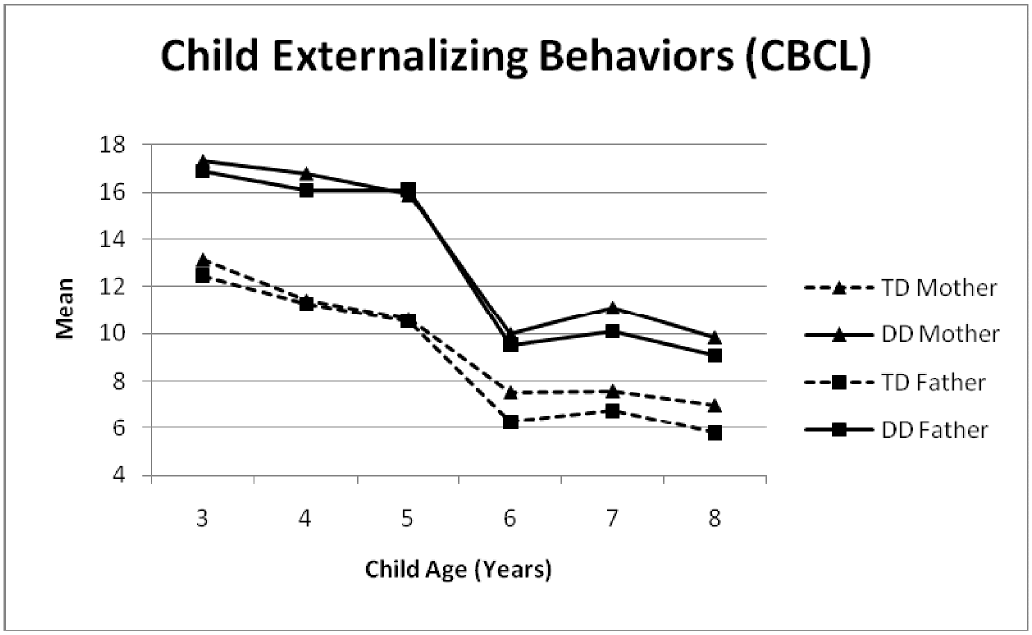


Figure 50. Plot of sample means over time for the parent-rated child externalizing behavior variable. Figure compares TD and DD parents.

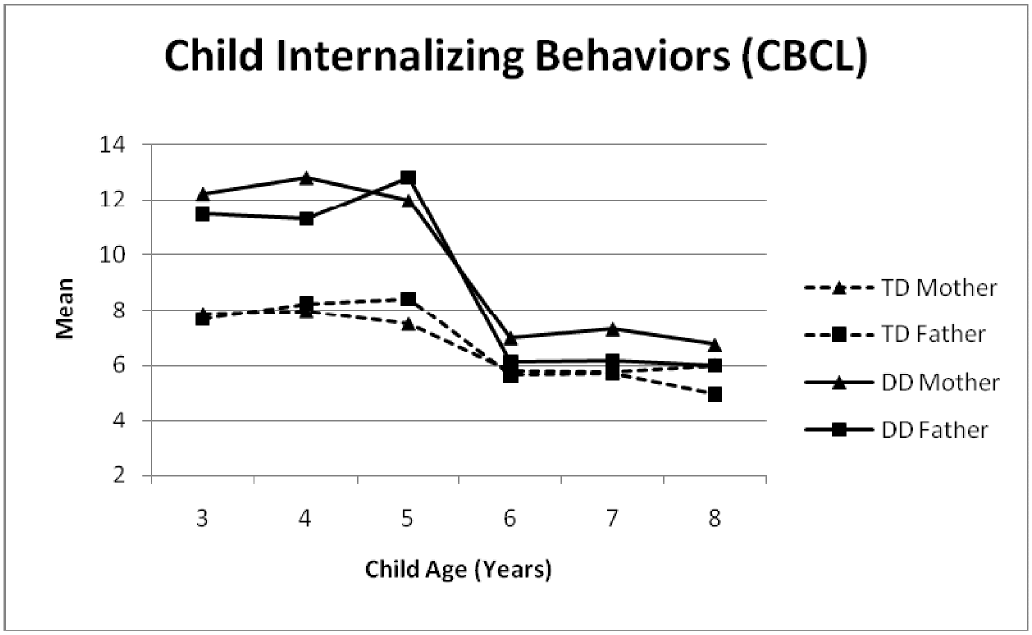
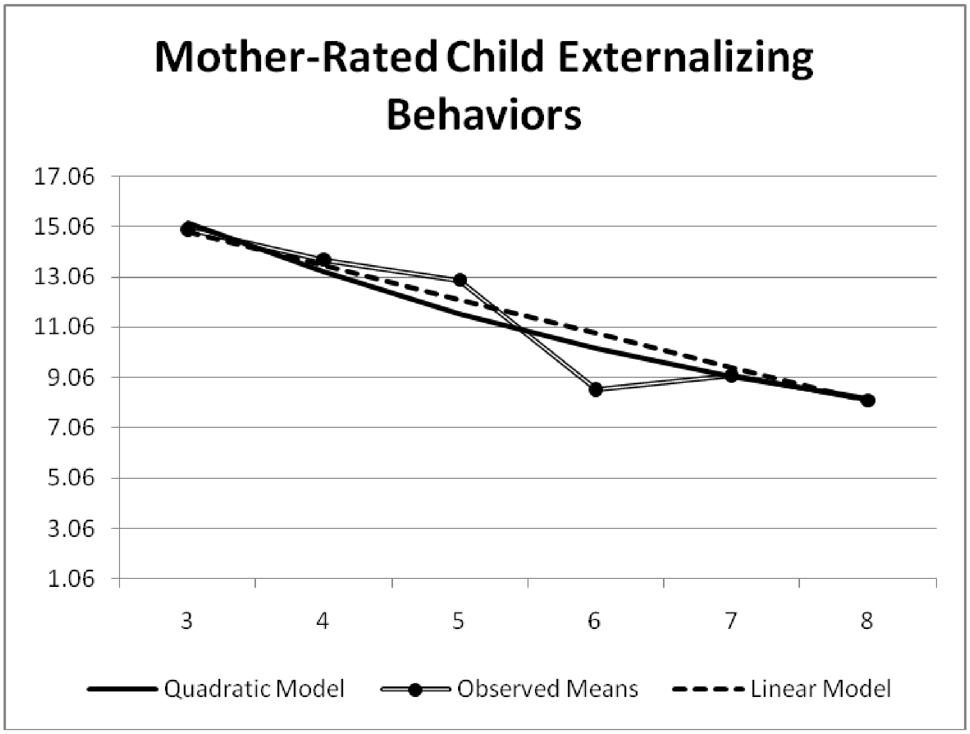


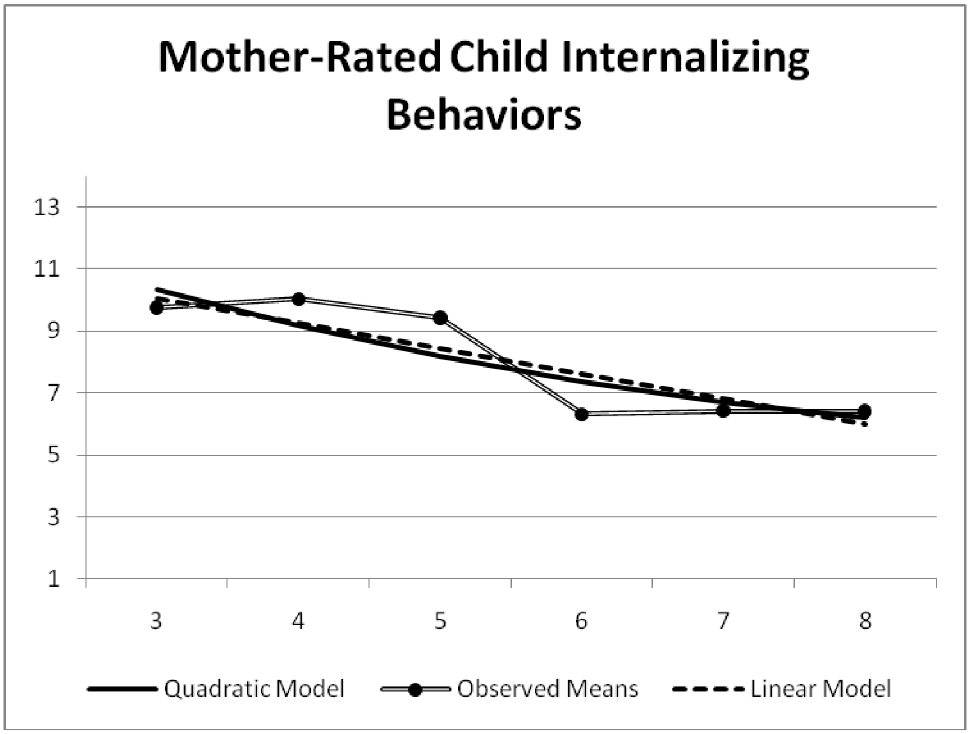
Figure 51. Plot of sample means over time for the parent-rated child internalizing behavior variable. Figure compares TD and DD parents.



	Child Age (Years)					
Mother-Rated Child Externalizing	3	4	5	6	7	8
Observed Mean	14.95	13.74	12.92	8.59	9.15	8.16
Standard Deviation	8.53	9.07	9.60	7.24	8.34	7.49
Linear Model-Implied Mean	14.84	13.50	12.15	10.81	9.47	8.12

Figure 52. Plot of observed sample means, and means implied by the linear and quadratic growth models for the mother-rated externalizing behaviors variable. Linear model provides best fit to data. Model parameters for linear model: intercept =14.81***, intercept variance = 55.52***, slope = -1.34***, slope variance = 1.15***. Cohen's *d* = 0.79.

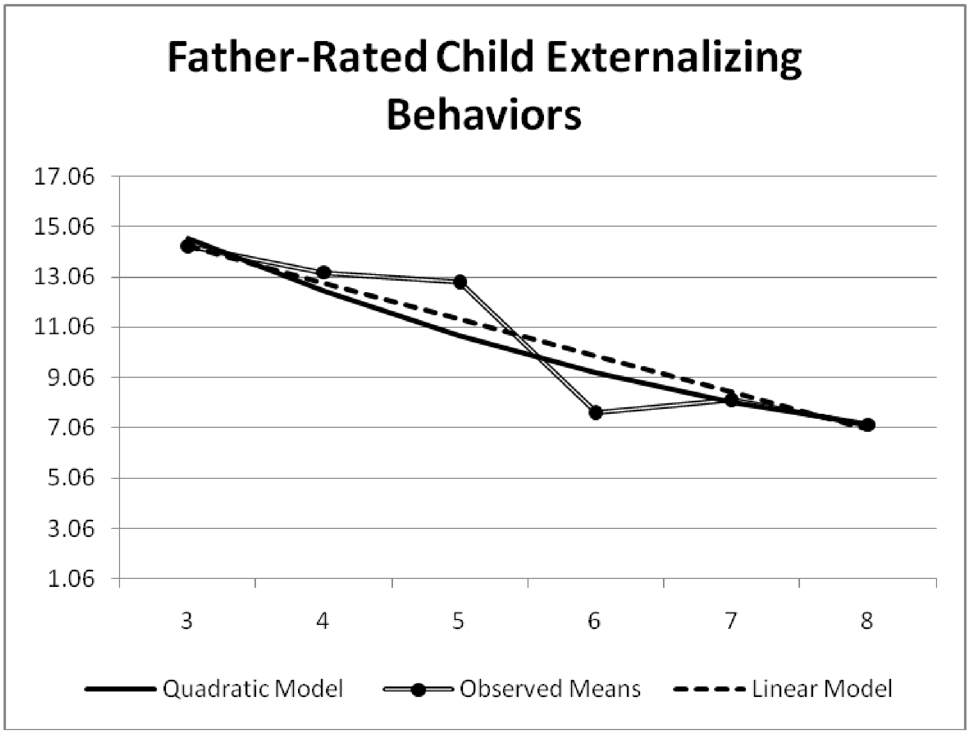
Note: *** $p < .005$.



	Child Age (Years)					
Mother-Rated Child Internalizing	3	4	5	6	7	8
Observed Mean	9.76	10.04	9.43	6.32	6.43	6.40
Standard Deviation	7.53	7.90	7.70	5.61	5.93	6.37
Linear Model-Implied Mean	10.06	9.25	8.44	7.63	6.82	6.01

Figure 53. Plot of observed sample means, and means implied by the linear and quadratic growth models for the mother-rated internalizing behaviors variable. Linear model provides best fit to data. Model parameters for linear model: intercept =10.02***, intercept variance = 32.58***, slope = -0.81***, slope variance = 0.70***. Cohen's d = 0.54.

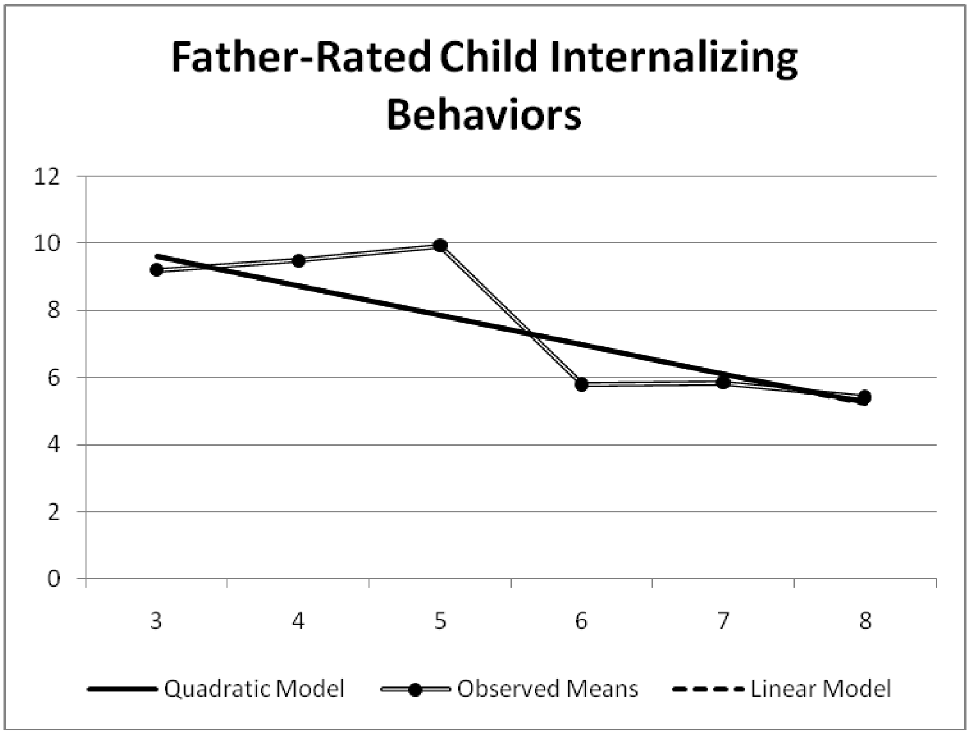
Note: *** $p < .005$.



	Child Age (Years)					
Father-Rated Child Externalizing	3	4	5	6	7	8
Observed Mean	14.28	13.23	12.86	7.66	8.17	7.18
Standard Deviation	8.38	8.80	9.33	7.24	7.57	6.66
Linear Model-Implied Mean	14.28	12.83	11.37	9.92	8.46	7.01

Figure 54. Plot of observed sample means, and means implied by the linear and quadratic growth models for the father-rated externalizing behaviors variable. Linear model provides best fit to data. Model parameters for linear model: intercept =14.28***, intercept variance = 55.46***, slope = -1.45***, slope variance = 1.32***. Cohen's *d* = 0.89.

Note: *** $p < .005$.



	Child Age (Years)					
Father-Rated Child Internalizing	3	4	5	6	7	8
Observed Mean	9.21	9.49	9.93	5.79	5.84	5.41
Standard Deviation	6.68	6.94	8.44	5.72	5.39	4.53
Linear Model-Implied Mean	9.63	8.75	7.87	6.99	6.11	5.23

Figure 55. Plot of observed sample means, and means implied by the linear and quadratic growth models for the father-rated internalizing behaviors variable. Linear model provides best fit to data. Model parameters for linear model: intercept =14.28***, intercept variance = 55.46***, slope = -1.45***, slope variance = 1.32***. Cohen's *d* = 0.66.

Note: *** $p < .005$.

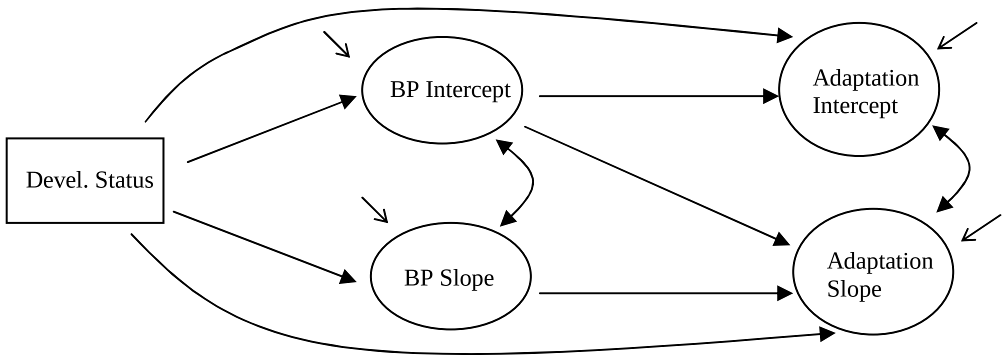


Figure 56. Structural linear growth model examining link between trajectories of BP and adaptation. BP = Behavior Problems. Small arrows leading to each latent construct represent error.

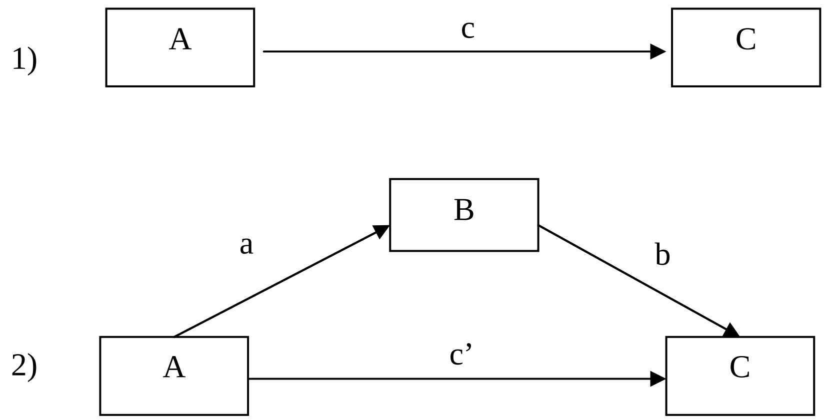
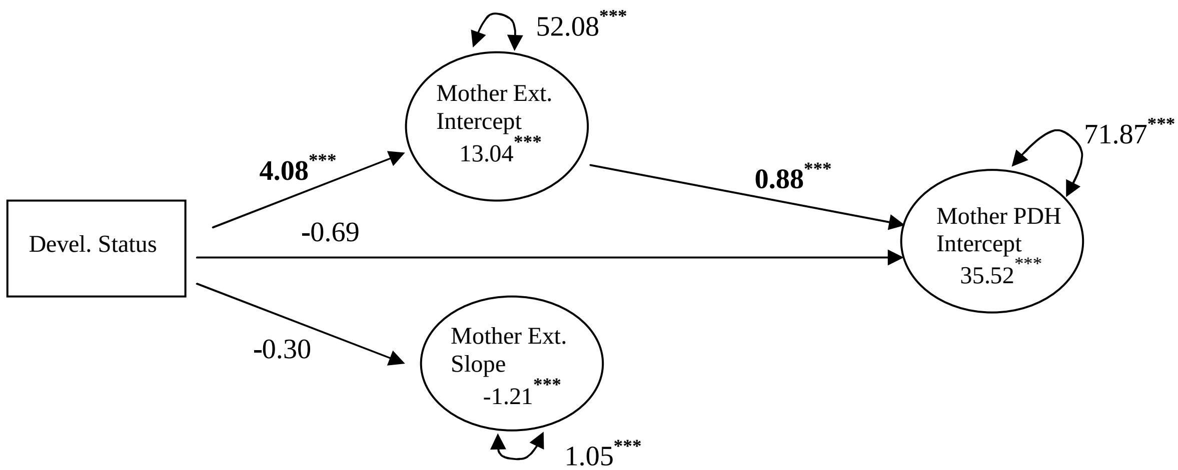
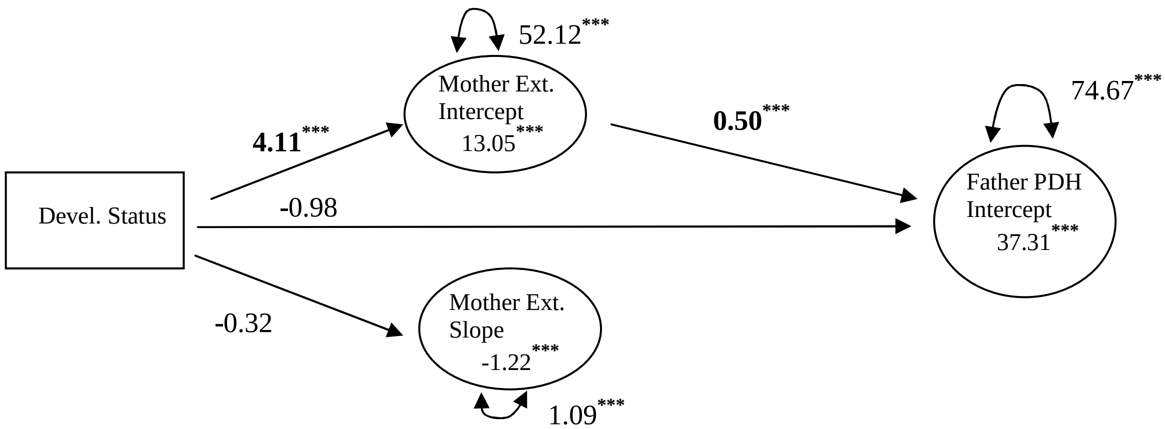


Figure 57. Conceptual model of direct and indirect effects in mediation. 1) Shows direct effect relationship. 2) Shows mediation, including indirect effect. A = predictor variable, B = mediator variable, C = predicted variable. a = A to B relation, b = B to C relation, c = direct effect (A to C relation), c’ = indirect effect (A to C relation accounting for influence of B).



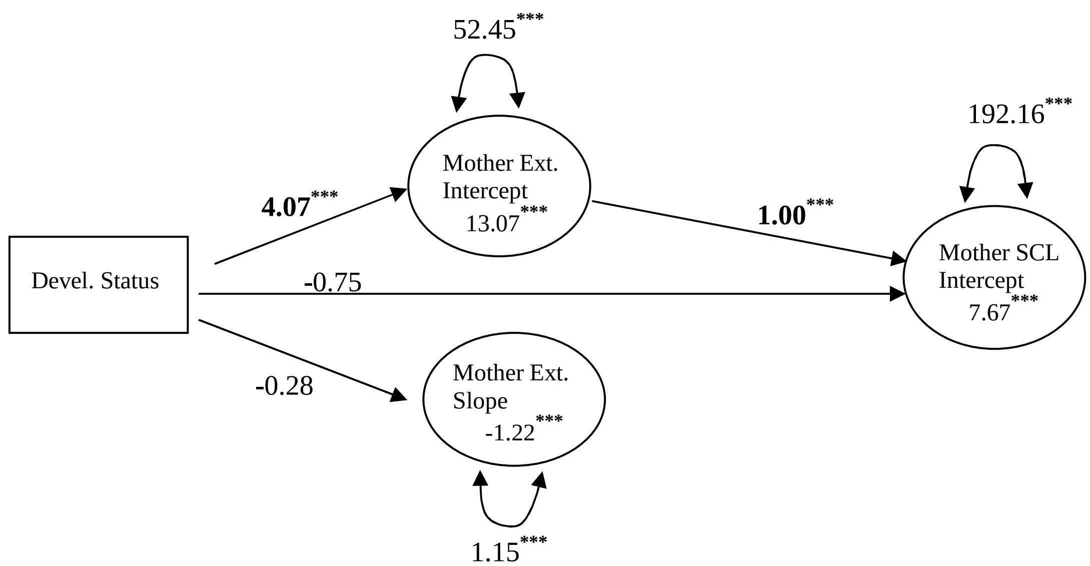
Fit Indices	
Chi Square (df)	279.22***(106)
RMSEA	0.08
SRMR	0.07
CFI	0.71
TLI	0.66

Figure 58. Diagram of the structural model testing whether mother-rated child externalizing behavior mediates the link between developmental status (TD or DD) and mother stress (PDH). Ext. = externalizing behaviors. Int = internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values.
Note: *** $p < .005$.



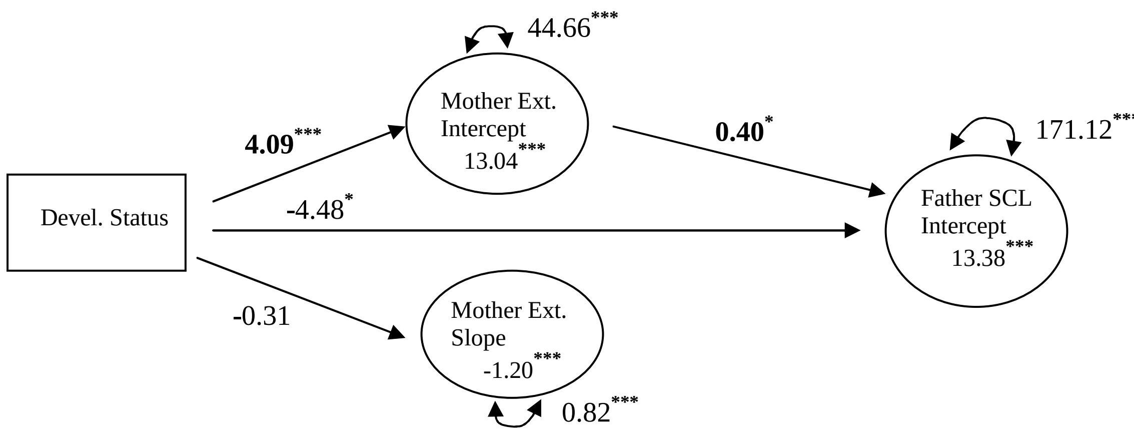
Fit Indices	
Chi Square (df)	211.71***(106)
RMSEA	0.06
SRMR	0.07
CFI	0.77
TLI	0.74

Figure 59. Diagram of the structural model testing whether mother-rated child externalizing behavior mediates the link between developmental status (TD or DD) and father stress (PDH). Ext. = externalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



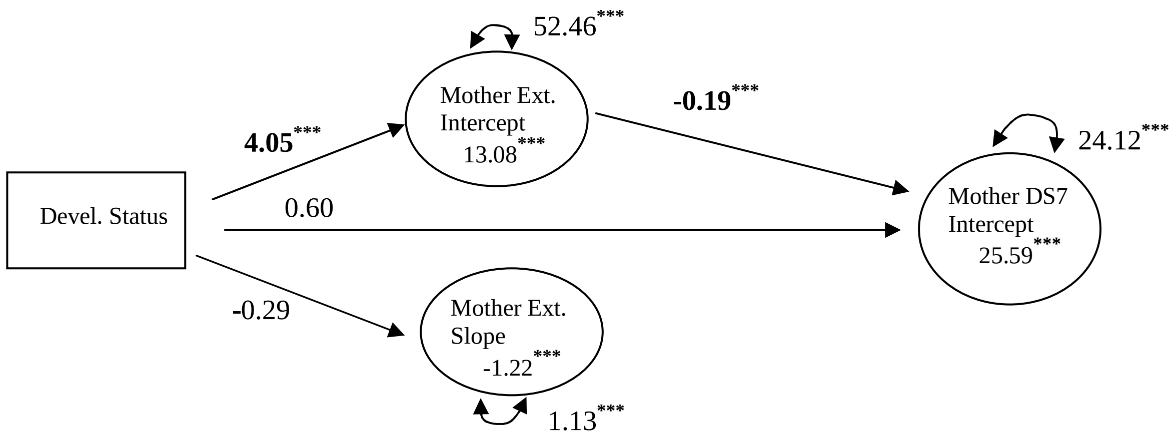
Fit Indices	
Chi Square (df)	218.50***(105)
RMSEA	0.07
SRMR	0.05
CFI	0.78
TLI	0.74

Figure 60. Diagram of the structural model testing whether mother-rated child externalizing behavior mediates the link between developmental status (TD or DD) and mother psychological symptoms (SCL). Ext. = externalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



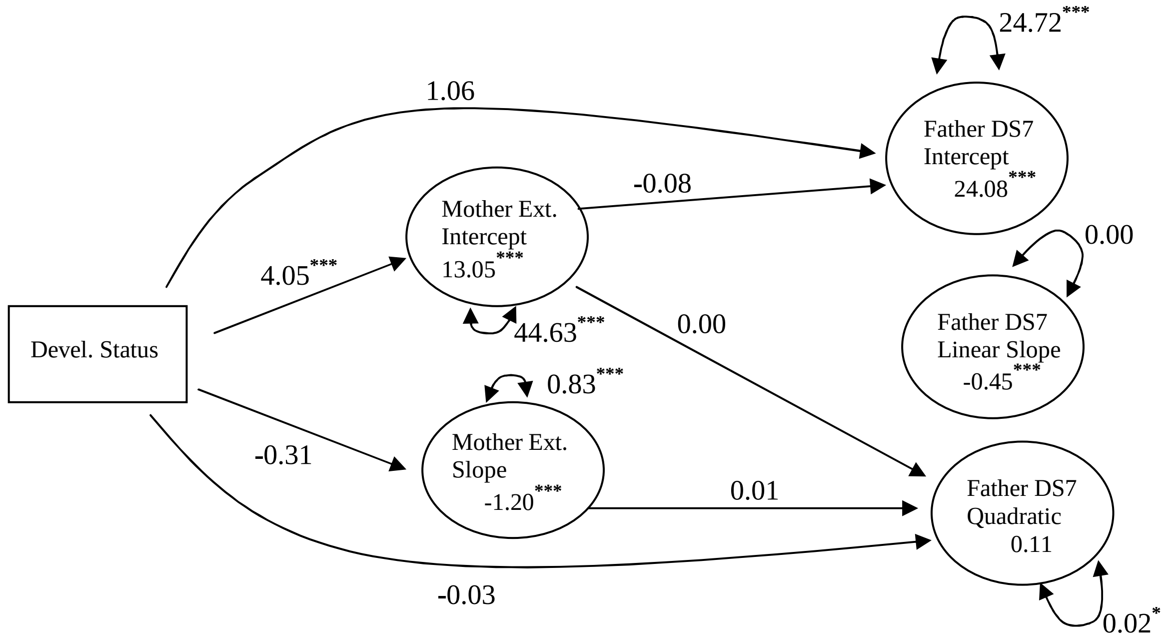
Fit Indices	
Chi Square (df)	223.03***(106)
RMSEA	0.07
SRMR	0.07
CFI	0.74
TLI	0.70

Figure 61. Diagram of the structural model testing whether mother-rated child externalizing behavior mediates the link between developmental status (TD or DD) and father psychological symptoms (SCL). Father SCL slope not predicted as variance was not significant in original linear model. Ext. = externalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: * $p < .05$. *** $p < .005$.



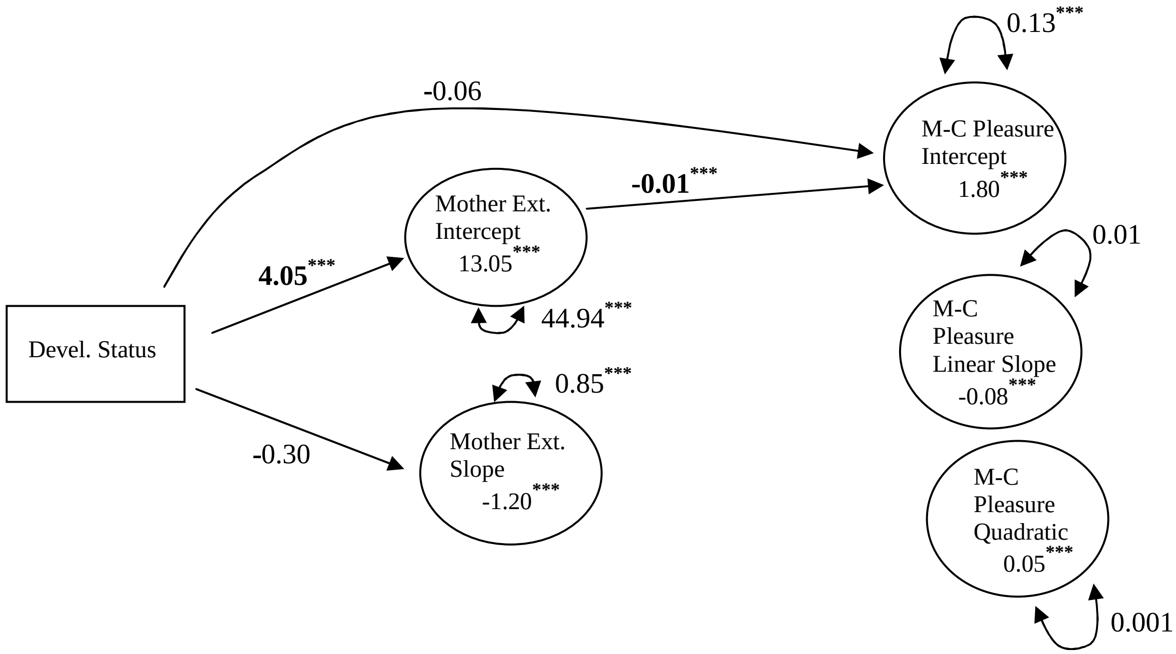
Fit Indices	
Chi Square (df)	198.47*** (106)
RMSEA	0.06
SRMR	0.06
CFI	0.79
TLI	0.76

Figure 62. Diagram of the structural model testing whether mother-rated child externalizing behavior mediates the link between developmental status (TD or DD) and mother marital satisfaction (DS7). Ext. = externalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics. *Note:* *** $p < .005$.



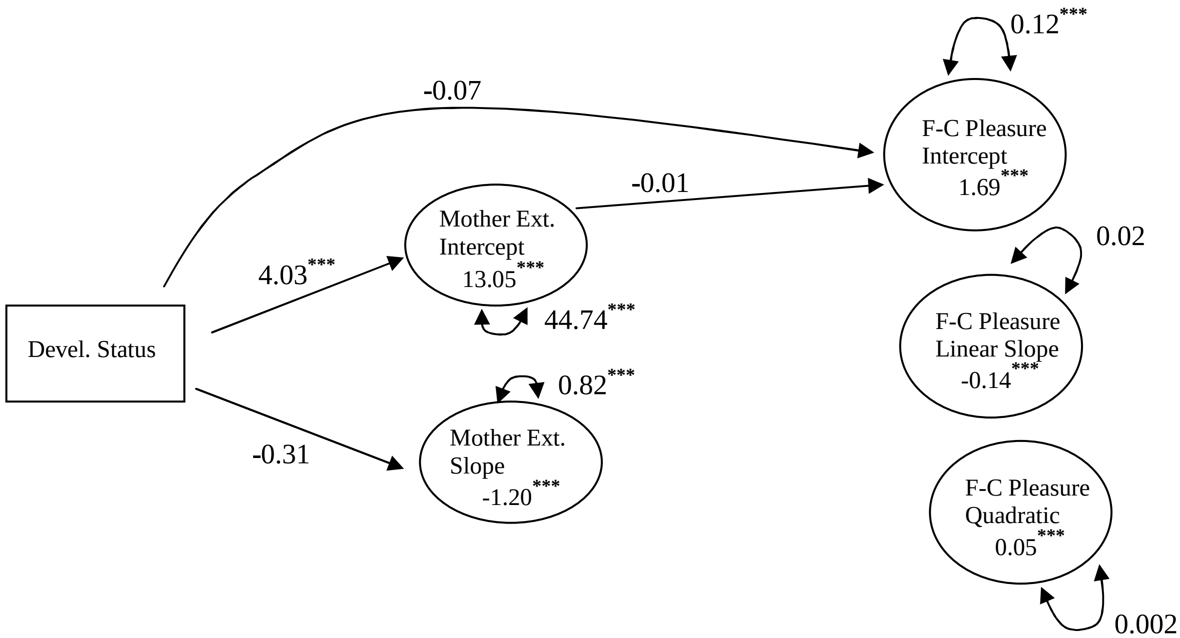
Fit Indices	
Chi Square (df)	219.87*** (102)
RMSEA	0.07
SRMR	0.08
CFI	0.39
TLI	0.28

Figure 63. Diagram of the structural model testing whether mother-rated child externalizing behavior mediates the link between developmental status (TD or DD) and father marital satisfaction (DS7). Ext. = externalizing behaviors. Values noted in figure are unstandardized Beta values. Residual variances for father marital satisfaction set to be equal across all ages. Linear slope for marital satisfaction set to 0. Values noted in table are fit statistics.
Note: * $p < .05$. *** $p < .005$.



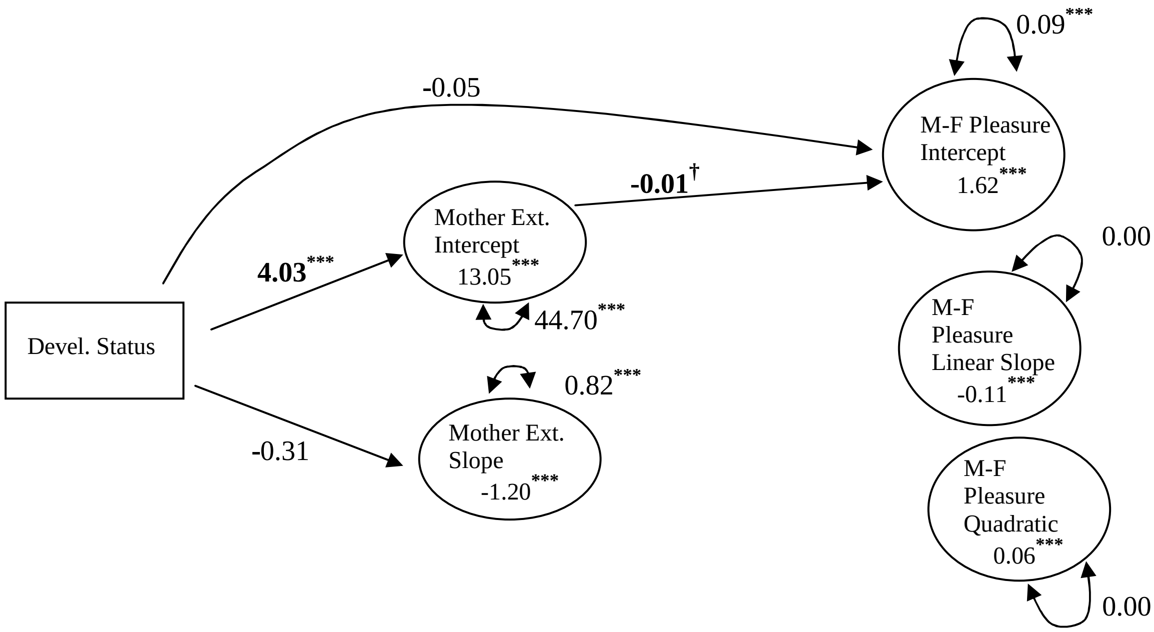
Fit Indices	
Chi Square (df)	207.16***(102)
RMSEA	0.06
SRMR	0.08
CFI	0.79
TLI	0.75

Figure 64. Diagram of the structural model testing whether mother-rated child externalizing behavior mediates the link between developmental status (TD or DD) and mother-child pleasure. Mother-child pleasure linear and quadratic slopes not predicted as variances were not significant in original quadratic model. M-C = Mother-Child. Ext. = externalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



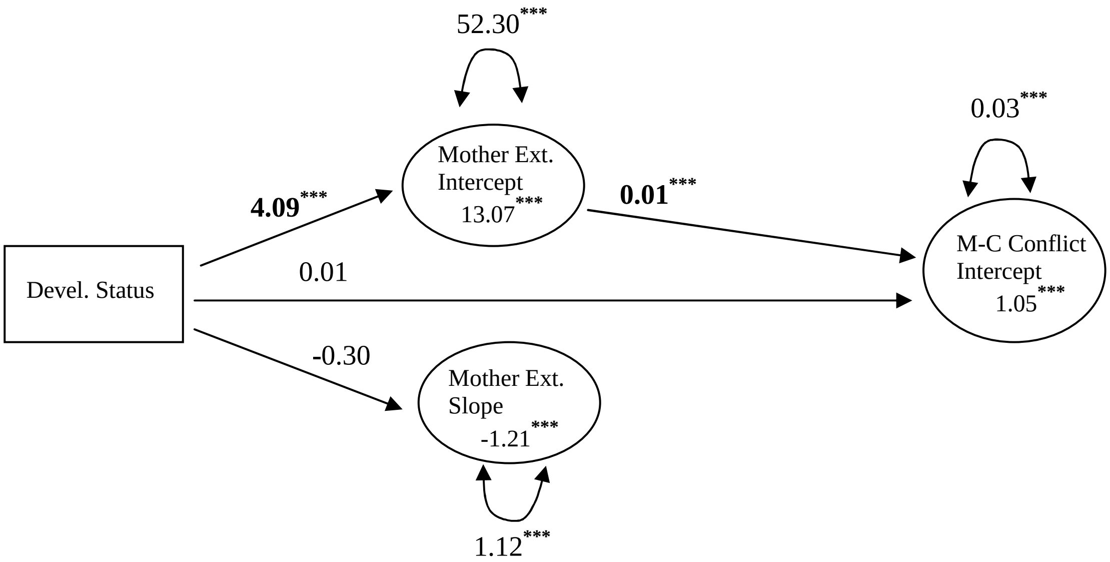
Fit Indices	
Chi Square (df)	195.16***(99)
RMSEA	0.06
SRMR	0.07
CFI	0.79
TLI	0.75

Figure 65. Diagram of the structural model testing whether mother-rated child externalizing behavior mediates the link between developmental status (TD or DD) and father-child pleasure. Father-child pleasure linear and quadratic slopes not predicted as variances were not significant in original quadratic model. F-C = Father-Child. Ext. = externalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



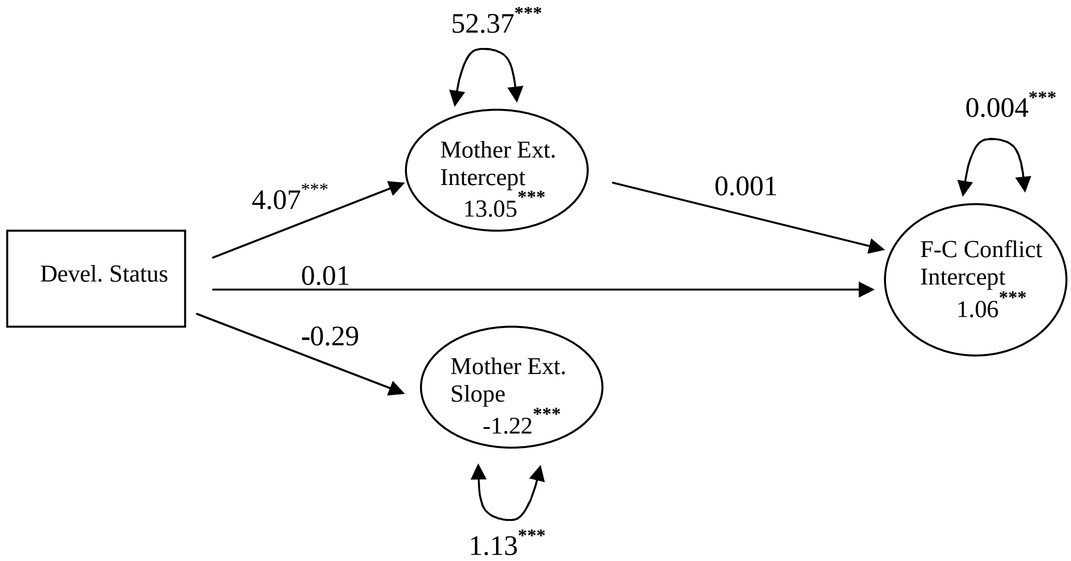
Fit Indices	
Chi Square (df)	209.08*** (104)
RMSEA	0.06
SRMR	0.08
CFI	0.78
TLI	0.76

Figure 66. Diagram of the structural model testing whether mother-rated child externalizing behavior mediates the link between developmental status (TD or DD) and mother-father pleasure. Mother-father pleasure linear and quadratic slopes not predicted as variances were set to 0. M-F = Mother-Father. Ext. = externalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: † $p < .10$. *** $p < .005$.



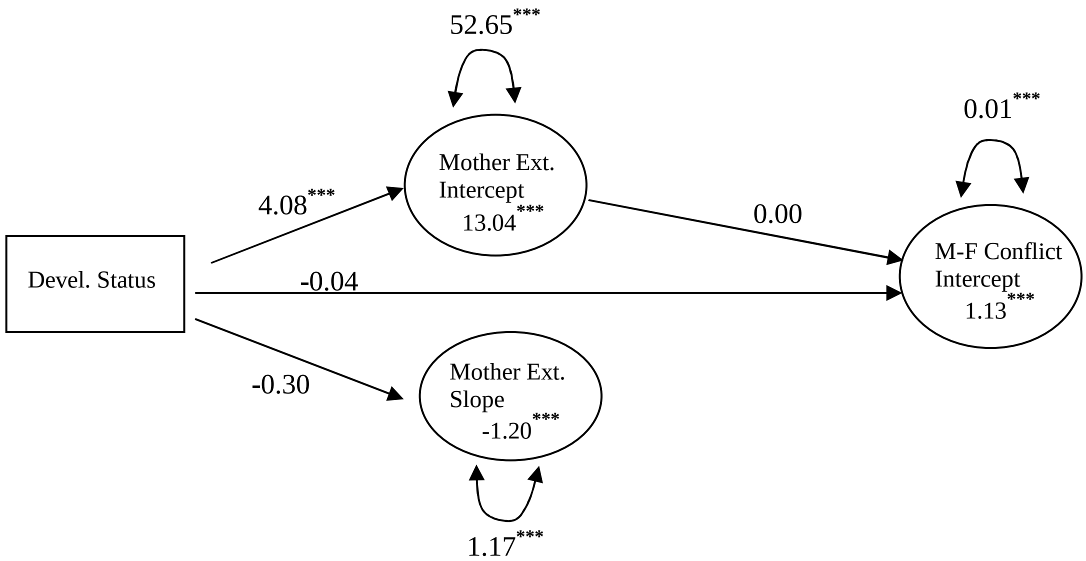
Fit Indices	
Chi Square (df)	265.99*** (105)
RMSEA	0.08
SRMR	0.10
CFI	0.67
TLI	0.64

Figure 67. Diagram of the structural model testing whether mother-rated child externalizing behavior mediates the link between developmental status (TD or DD) and mother-child conflict. M-C = Mother-Child. Ext. = externalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



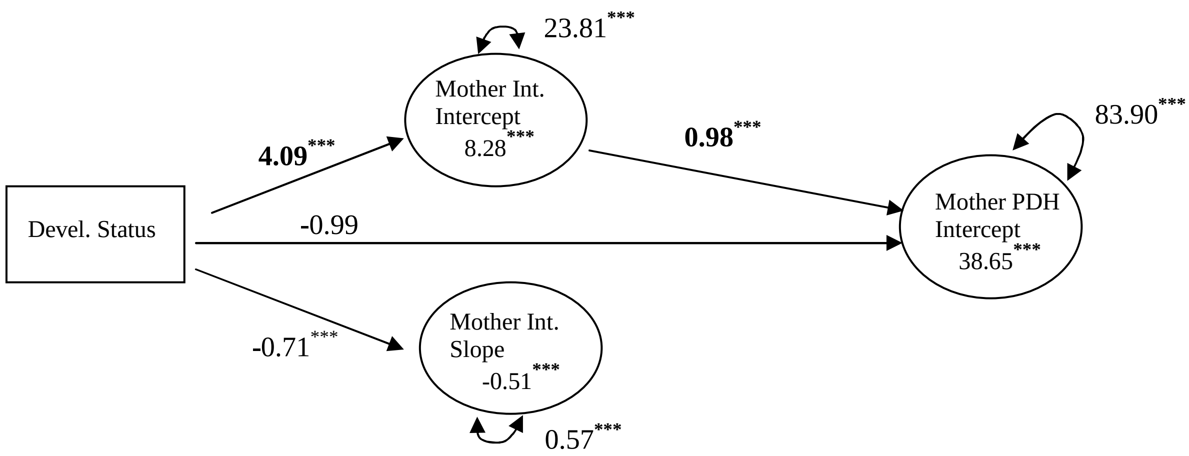
Fit Indices	
Chi Square (df)	213.65***(105)
RMSEA	0.06
SRMR	0.09
CFI	0.65
TLI	0.63

Figure 68. Diagram of the structural model testing whether mother-rated child externalizing behavior mediates the link between developmental status (TD or DD) and mother-father pleasure. M-F = Mother-Father. Ext. = externalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



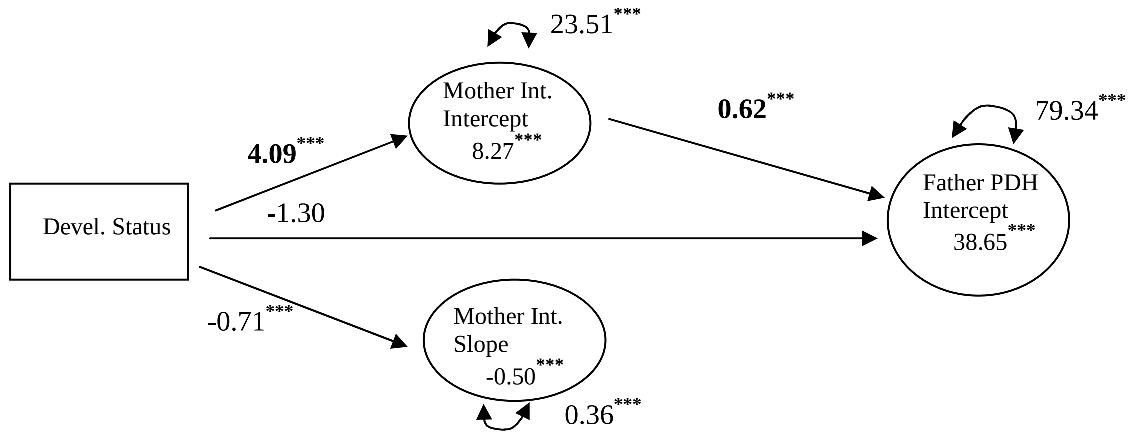
Fit Indices	
Chi Square (df)	210.84*** (105)
RMSEA	0.06
SRMR	0.08
CFI	0.72
TLI	0.66

Figure 69. Diagram of the structural model testing whether mother-rated child externalizing behavior mediates the link between developmental status (TD or DD) and mother-father conflict. M-F = Mother-Father. Ext. = externalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



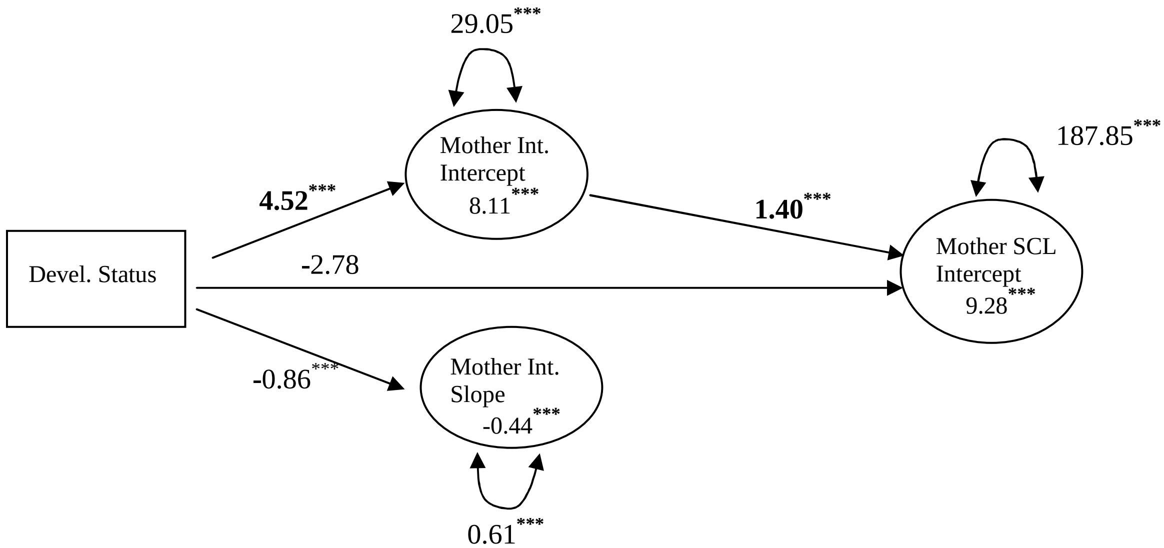
Fit Indices	
Chi Square (df)	267.36*** (105)
RMSEA	0.08
SRMR	0.07
CFI	0.51
TLI	0.47

Figure 70. Diagram of the structural model testing whether mother-rated child internalizing behavior mediates the link between developmental status (TD or DD) and mother stress (PDH). Int = internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



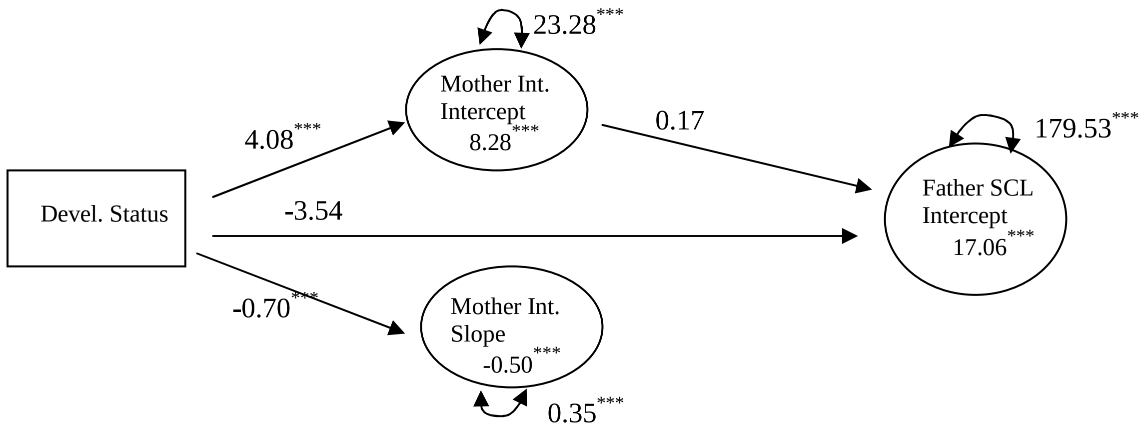
Fit Indices	
Chi Square (df)	194.46***(98)
RMSEA	0.06
SRMR	0.07
CFI	0.62
TLI	0.56

Figure 71. Diagram of the structural model testing whether mother-rated child internalizing behavior mediates the link between developmental status (TD or DD) and father stress (PDH). Int= internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



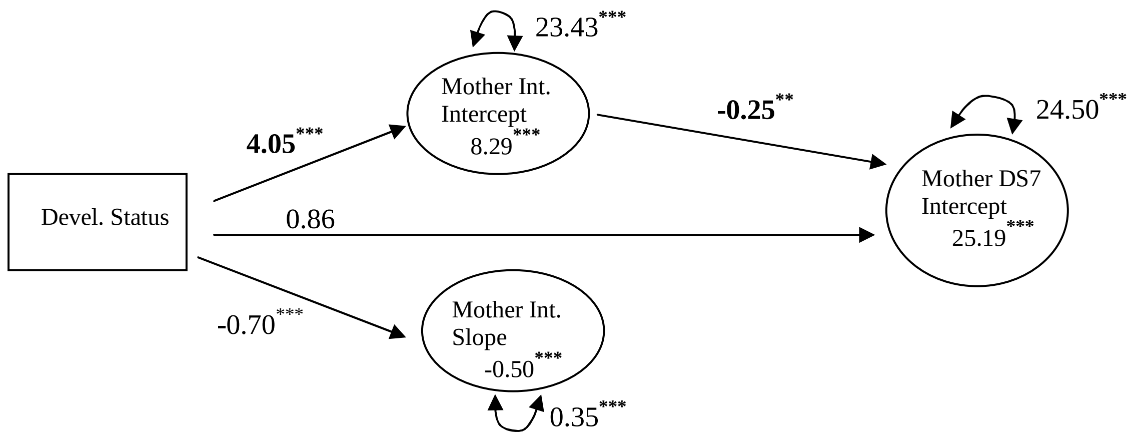
Fit Indices	
Chi Square (df)	213.71***(108)
RMSEA	0.06
SRMR	0.05
CFI	0.61
TLI	0.61

Figure 72. Diagram of the structural model testing whether mother-rated child internalizing behavior mediates the link between developmental status (TD or DD) and mother psychological symptoms (SCL). Int= internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



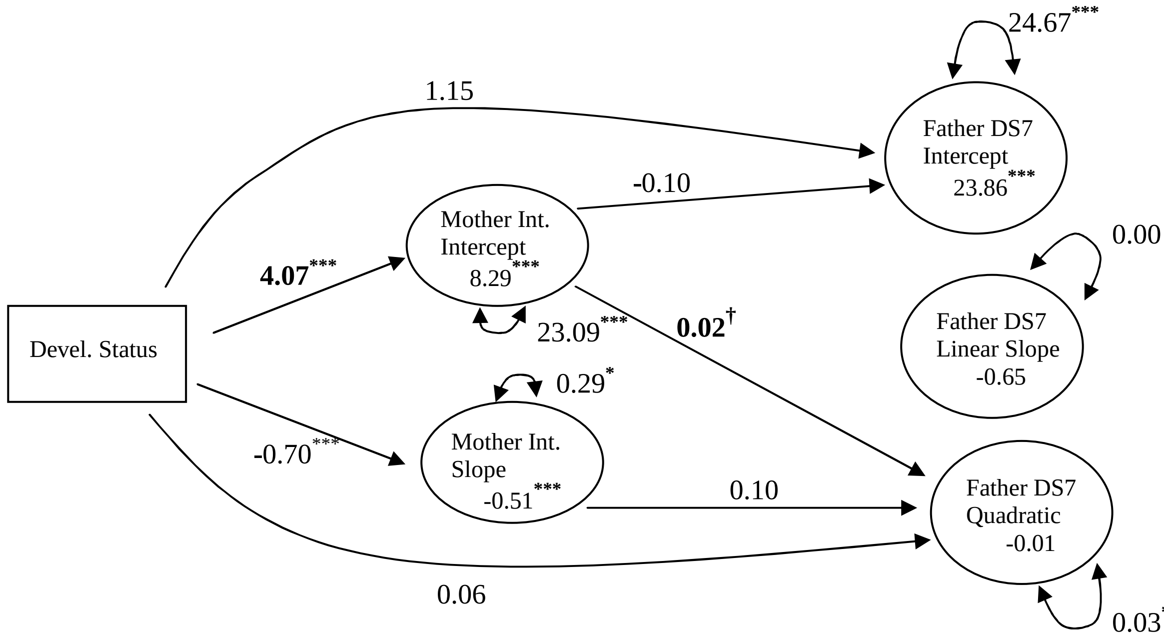
Fit Indices	
Chi Square (df)	225.54*** (106)
RMSEA	0.07
SRMR	0.07
CFI	0.57
TLI	0.54

Figure 73. Diagram of the structural model testing whether mother-rated child internalizing behavior mediates the link between developmental status (TD or DD) and father psychological symptoms (SCL). Father SCL linear slope not predicted as variance was not significant in original quadratic model. Int. = internalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



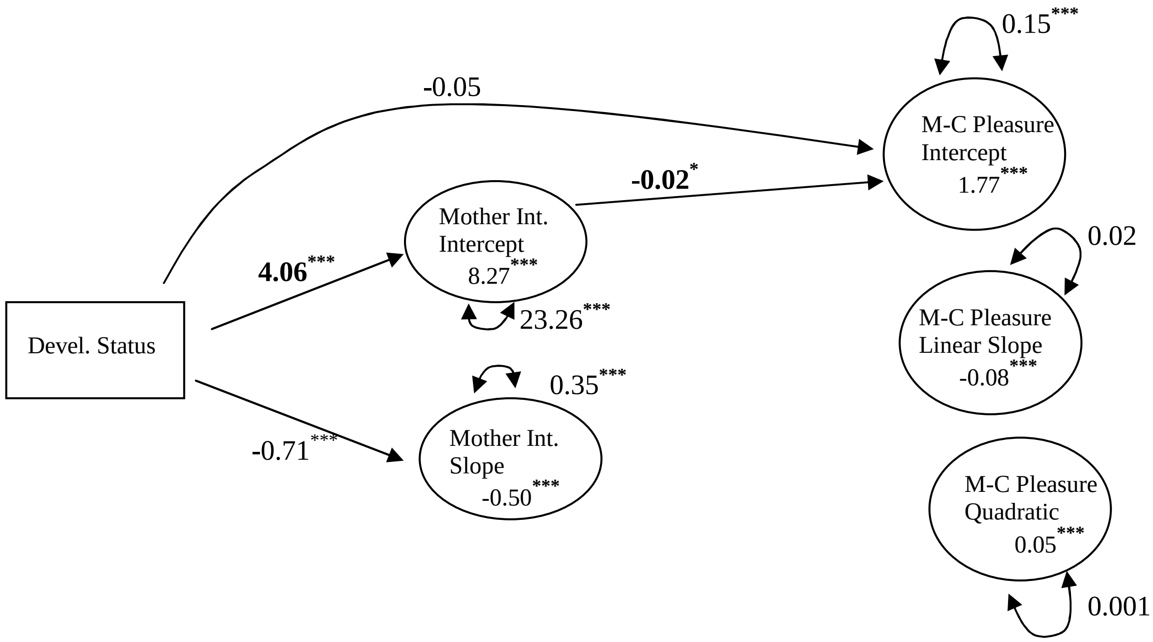
Fit Indices	
Chi Square (df)	225.40*** (106)
RMSEA	0.07
SRMR	0.08
CFI	0.57
TLI	0.54

Figure 74. Diagram of the structural model testing whether mother-rated child internalizing behavior mediates the link between developmental status (TD or DD) and mother marital satisfaction (DS7). Int= internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics. *Note:* *** $p < .005$.



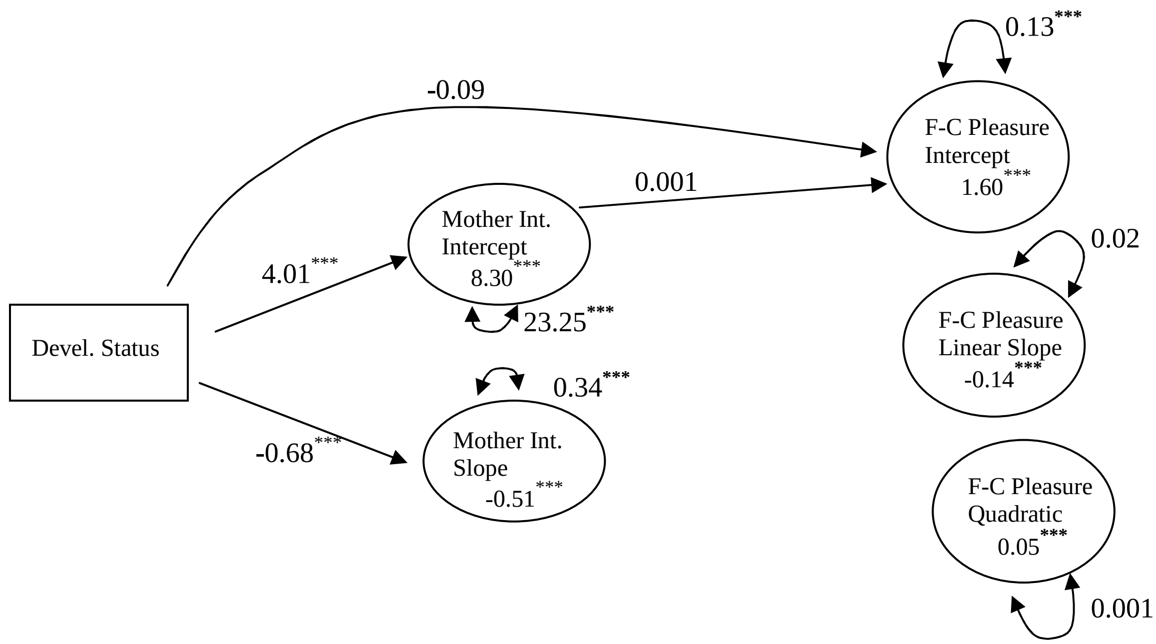
Fit Indices	
Chi Square (df)	188.96*** (91)
RMSEA	0.07
SRMR	0.07
CFI	0.67
TLI	0.59

Figure 75. Diagram of the structural model testing whether mother-rated child internalizing behavior mediates the link between developmental status (TD or DD) and father marital satisfaction (DS7). Int. = internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Variance of linear slope for father marital satisfaction set to 0. Values noted in table are fit statistics.
Note: $^{\dagger}p < .10$. $^{*}p < .05$. $^{***}p < .005$.



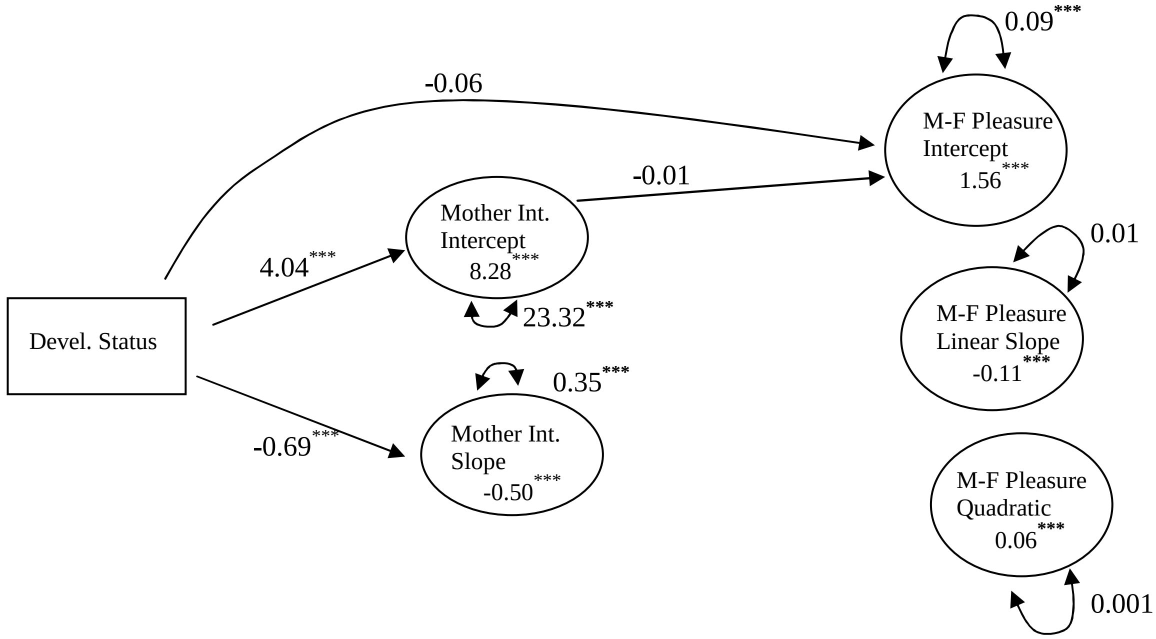
Fit Indices	
Chi Square (df)	187.97***(91)
RMSEA	0.07
SRMR	0.06
CFI	0.71
TLI	0.64

Figure 76. Diagram of the structural model testing whether mother-rated child internalizing behavior mediates the link between developmental status (TD or DD) and mother-child pleasure. M-C = Mother-Child. Int. = internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: * $p < .05$. *** $p < .005$.



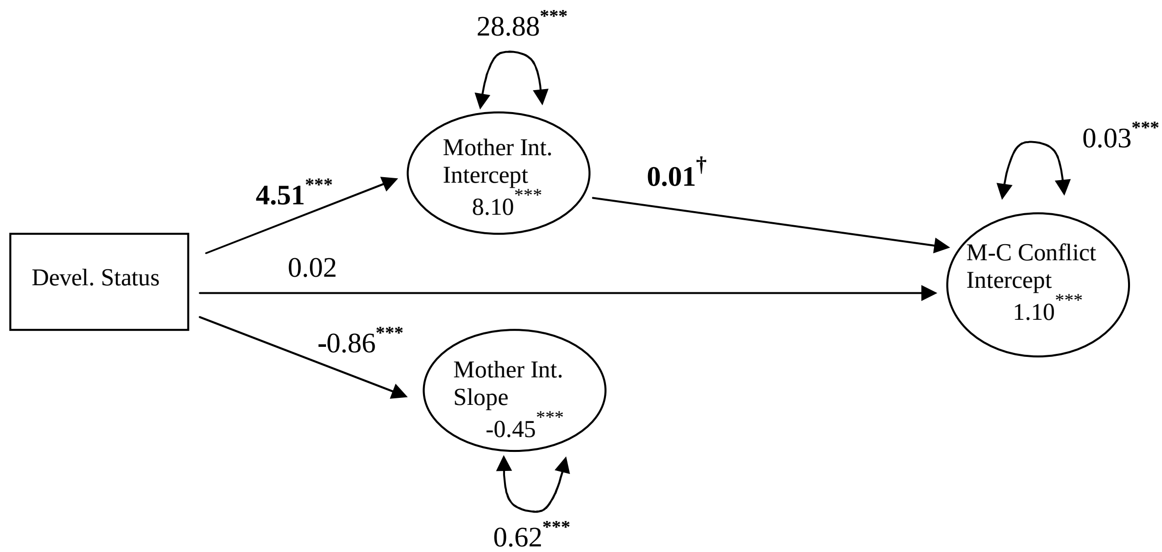
Fit Indices	
Chi Square (df)	185.90*** (91)
RMSEA	0.06
SRMR	0.06
CFI	0.68
TLI	0.61

Figure 77. Diagram of the structural model testing whether mother-rated child internalizing behavior mediates the link between developmental status (TD or DD) and father-child pleasure. F-C = Father-Child. Int. = internalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



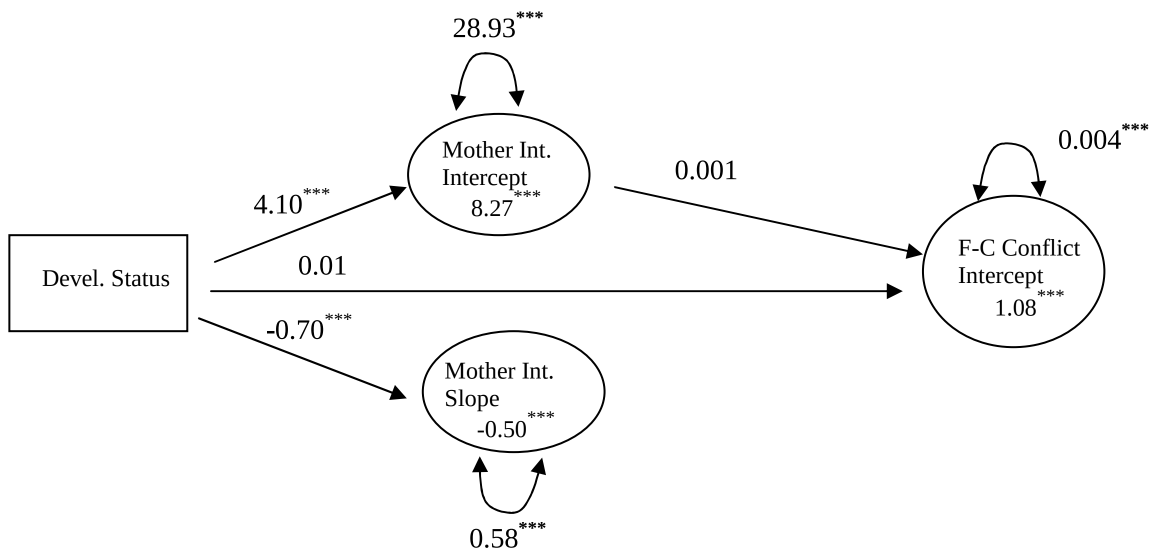
Fit Indices	
Chi Square (df)	206.47*** (91)
RMSEA	0.07
SRMR	0.08
CFI	0.66
TLI	0.58

Figure 78. Diagram of the structural model testing whether mother-rated child internalizing behavior mediates the link between developmental status (TD or DD) and father-child pleasure. F-C = Father-Child. Int. = internalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



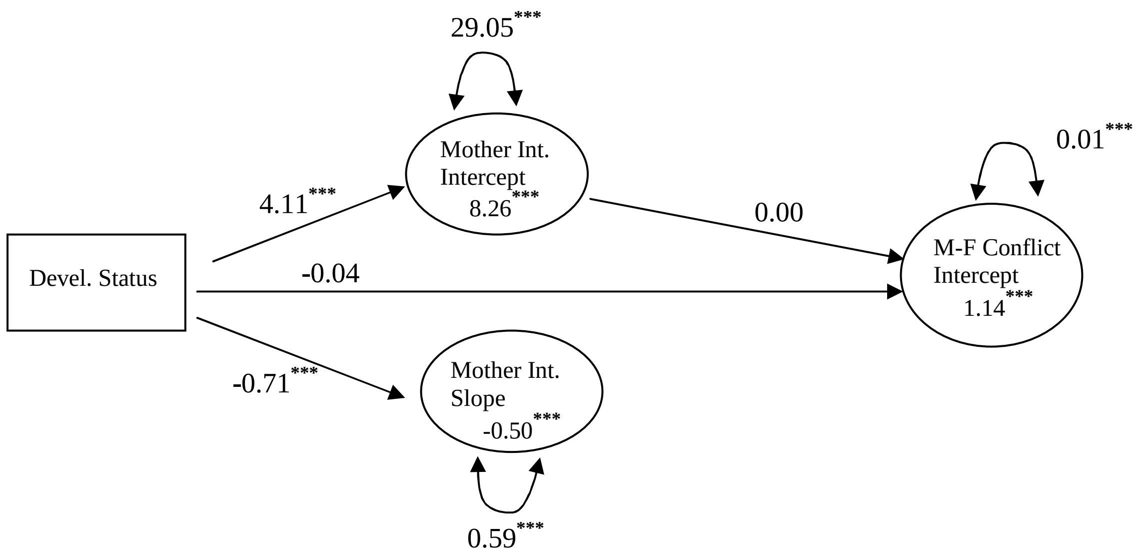
Fit Indices	
Chi Square (df)	246.92***(108)
RMSEA	0.07
SRMR	0.10
CFI	0.53
TLI	0.51

Figure 79. Diagram of the structural model testing whether mother-rated child internalizing behavior mediates the link between developmental status (TD or DD) and mother-child conflict. M-C = Mother-Child. Int. = internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: $^{\dagger}p < .10$. $^{***}\ p < .005$.



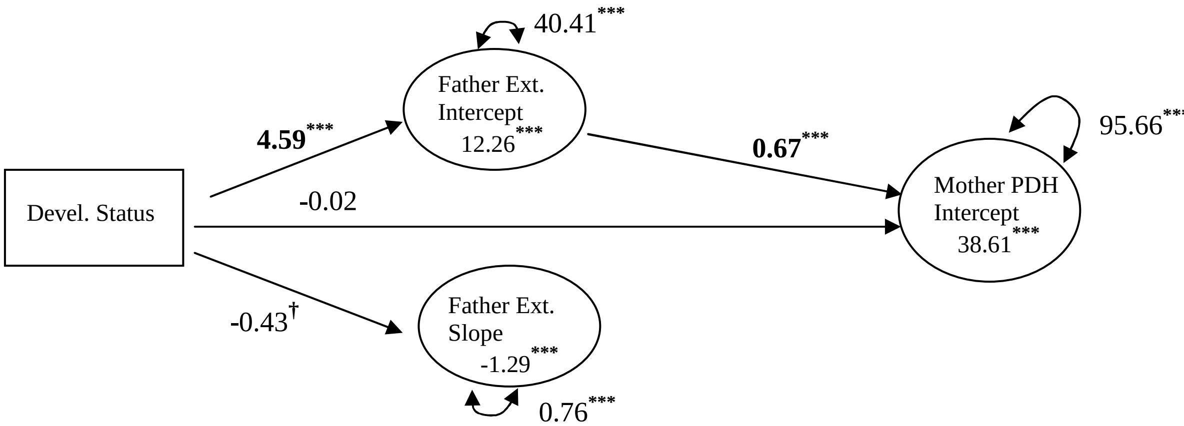
Fit Indices	
Chi Square (df)	212.28***(105)
RMSEA	0.06
SRMR	0.10
CFI	0.60
TLI	0.57

Figure 80. Diagram of the structural model testing whether mother-rated child internalizing behavior mediates the link between developmental status (TD or DD) and father-child conflict. F-C = Father-Child. Int. = internalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



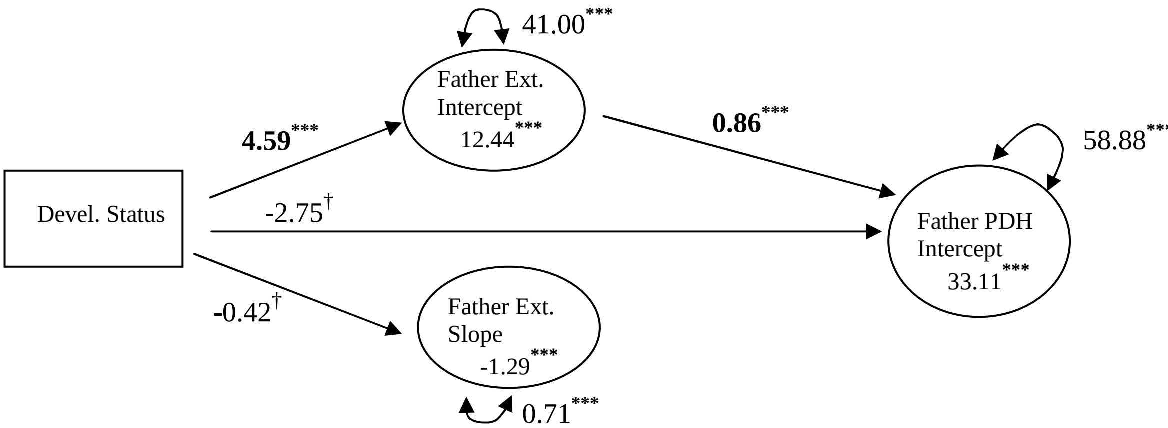
Fit Indices	
Chi Square (df)	235.03*** (105)
RMSEA	0.07
SRMR	0.08
CFI	0.56
TLI	0.52

Figure 81. Diagram of the structural model testing whether mother-rated child internalizing behavior mediates the link between developmental status (TD or DD) and mother-father conflict. M-F = Mother-Father. Int. = internalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



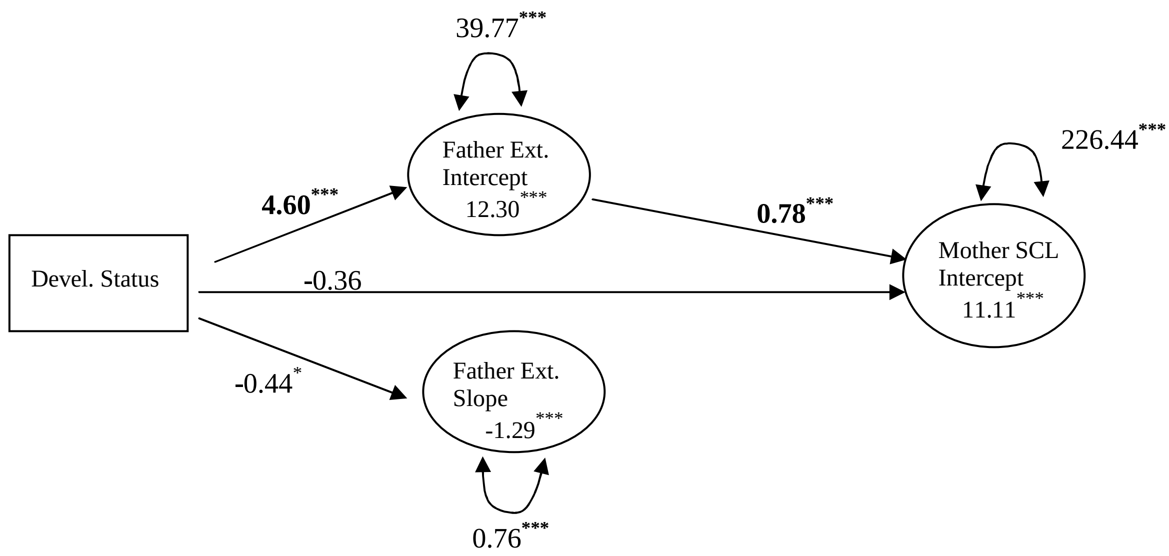
Fit Indices	
Chi Square (df)	277.07*** (106)
RMSEA	0.08
SRMR	0.09
CFI	0.64
TLI	0.61

Figure 82. Diagram of the structural model testing whether father-rated child externalizing behavior mediates the link between developmental status (TD or DD) and mother stress (PDH). Ext= externalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



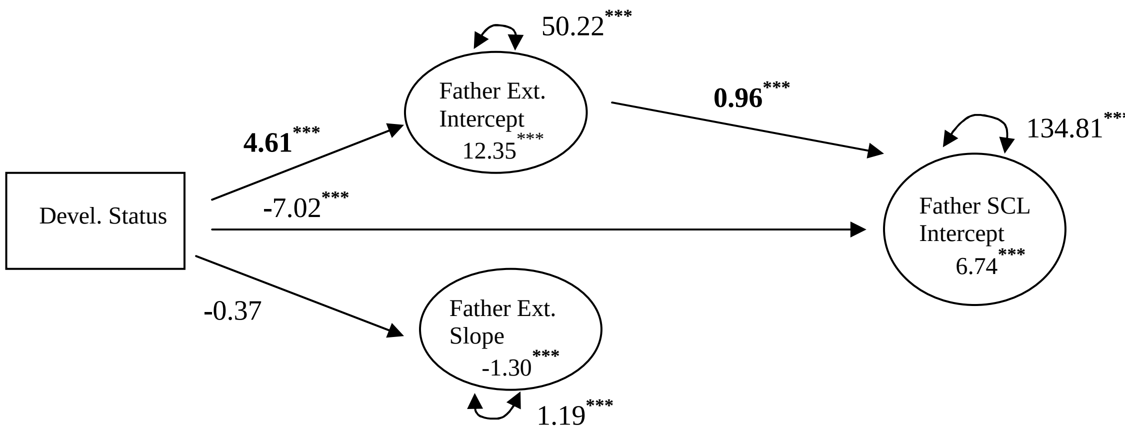
Fit Indices	
Chi Square (df)	213.99***(107)
RMSEA	0.06
SRMR	0.07
CFI	0.75
TLI	0.74

Figure 83. Diagram of the structural model testing whether father-rated child externalizing behavior mediates the link between developmental status (TD or DD) and father stress (PDH). Ext= externalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: †$p < .10$. *** $p < .005$.



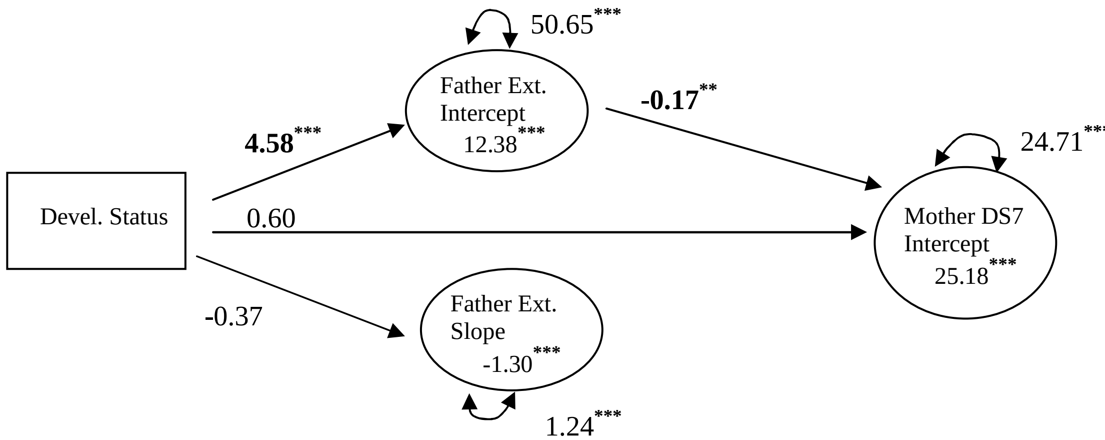
Fit Indices	
Chi Square (df)	242.61***(106)
RMSEA	0.07
SRMR	0.07
CFI	0.68
TLI	0.66

Figure 84. Diagram of the structural model testing whether father-rated child externalizing behavior mediates the link between developmental status (TD or DD) and mother psychological symptoms (SCL). Ext= externalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: $^{*}p < .05$. $^{***}p < .005$.



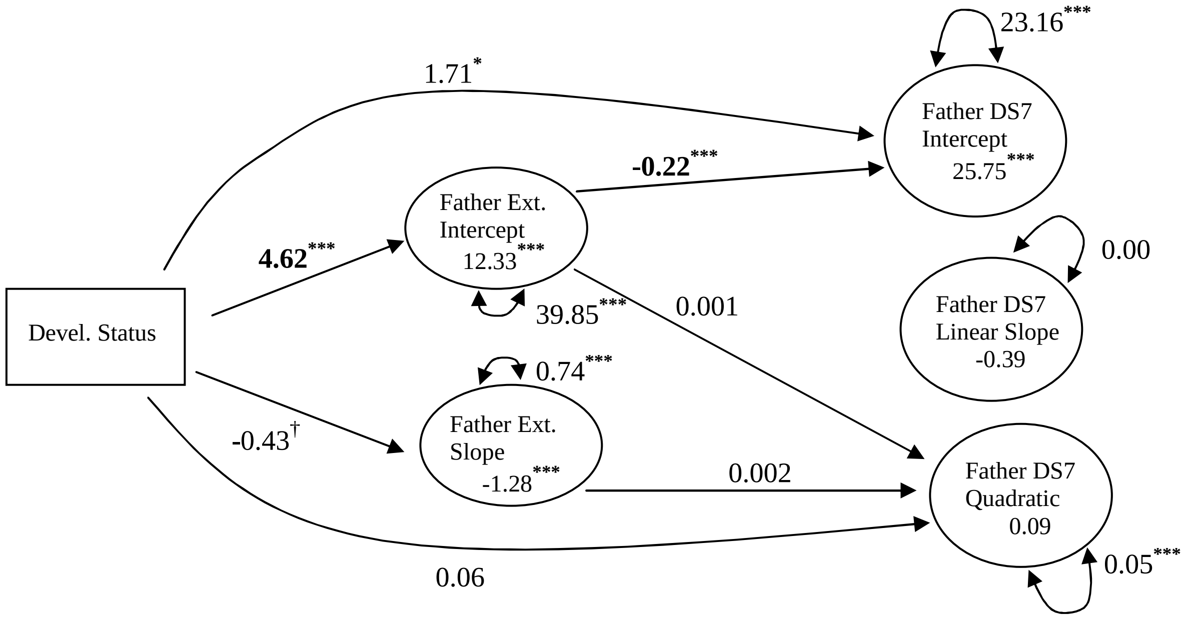
Fit Indices	
Chi Square (df)	249.22***(106)
RMSEA	0.07
SRMR	0.07
CFI	0.67
TLI	0.65

Figure 85. Diagram of the structural model testing whether father-rated child externalizing behavior mediates the link between developmental status (TD or DD) and father psychological symptoms (SCL). Ext= externalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



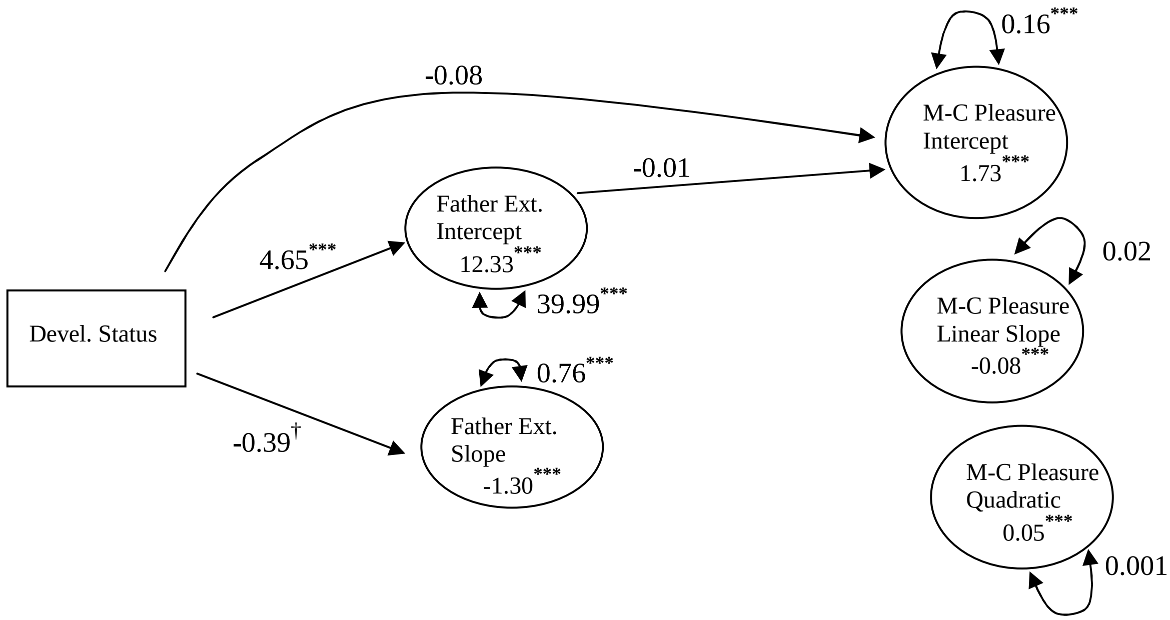
Fit Indices	
Chi Square (df)	207.62*** (106)
RMSEA	0.06
SRMR	0.07
CFI	0.74
TLI	0.73

Figure 86. Diagram of the structural model testing whether father-rated child externalizing behavior mediates the link between developmental status (TD or DD) and mother marital satisfaction (DS7). Ext= externalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics. *Note:* ** $p < .01$. *** $p < .005$.



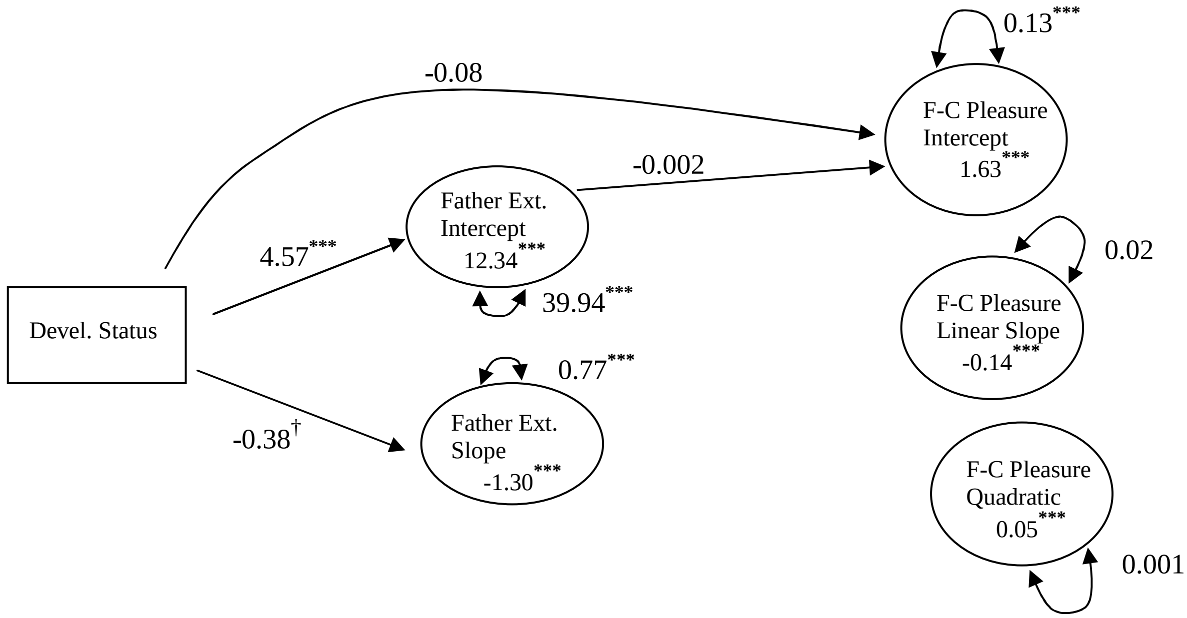
Fit Indices	
Chi Square (df)	212.99***(91)
RMSEA	0.07
SRMR	0.07
CFI	0.72
TLI	0.65

Figure 87. Diagram of the structural model testing whether father-rated child externalizing behavior mediates the link between developmental status (TD or DD) and father marital satisfaction (DS7). Ext= externalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics. *Note:* †$p < .10$. * $p < .05$. *** $p < .005$.



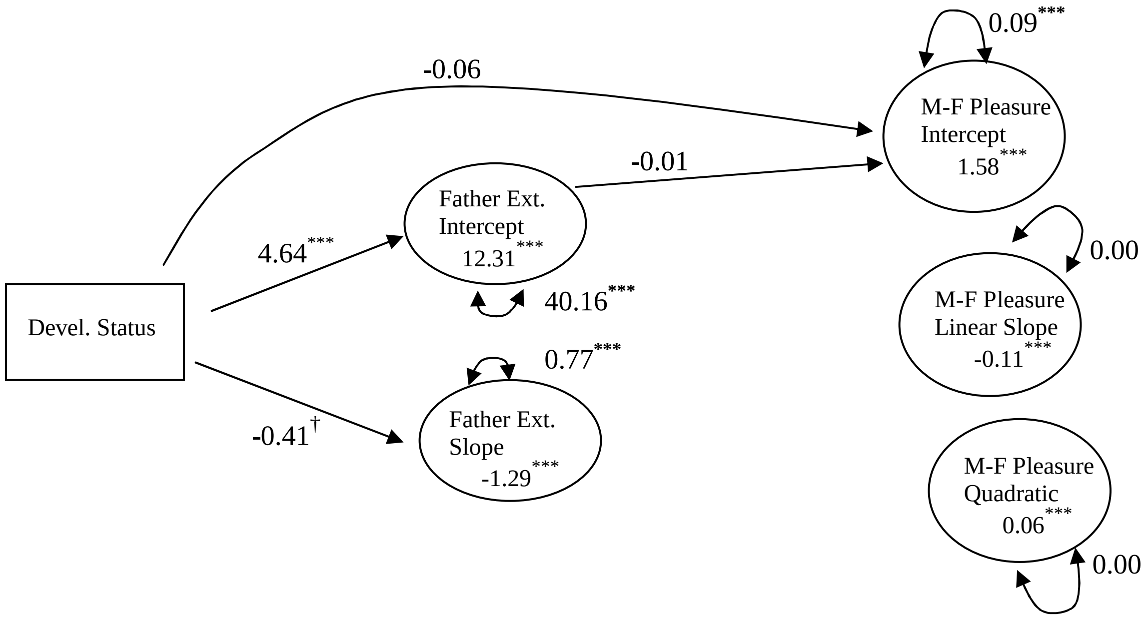
Fit Indices	
Chi Square (df)	189.74***(91)
RMSEA	0.07
SRMR	0.07
CFI	0.78
TLI	0.73

Figure 88. Diagram of the structural model testing whether father-rated child externalizing behavior mediates the link between developmental status (TD or DD) and mother-child pleasure. M-C = Mother-Child. Ext. = externalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: $^{\dagger}p < .10$. $^{***}\ p < .005$.



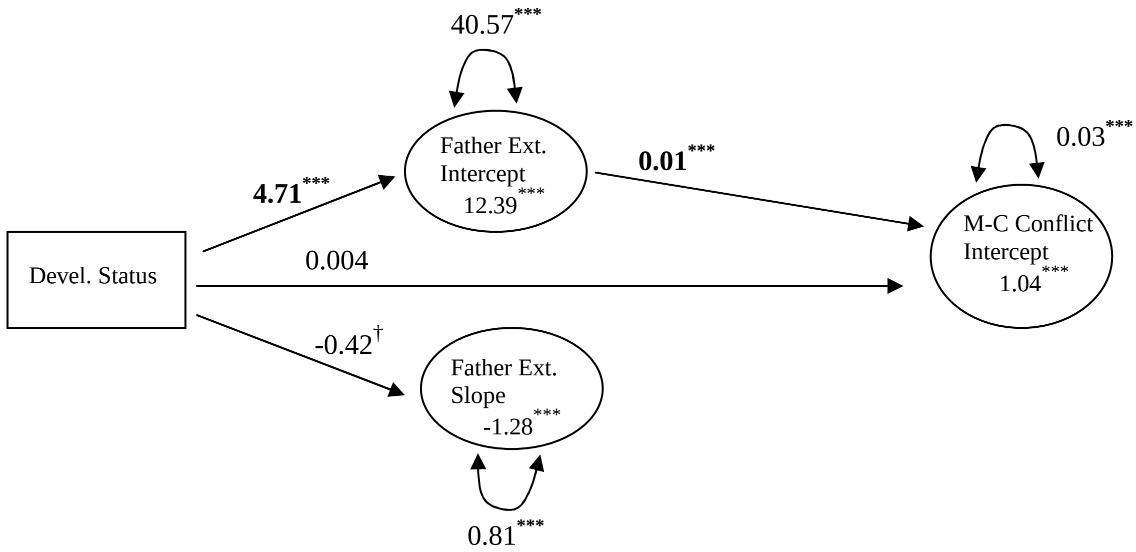
Fit Indices	
Chi Square (df)	190.57*** (91)
RMSEA	0.07
SRMR	0.07
CFI	0.77
TLI	0.71

Figure 89. Diagram of the structural model testing whether father-rated child externalizing behavior mediates the link between developmental status (TD or DD) and father-child pleasure. F-C = Father-Child. Ext. = externalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: † $p < .10$. *** $p < .005$.



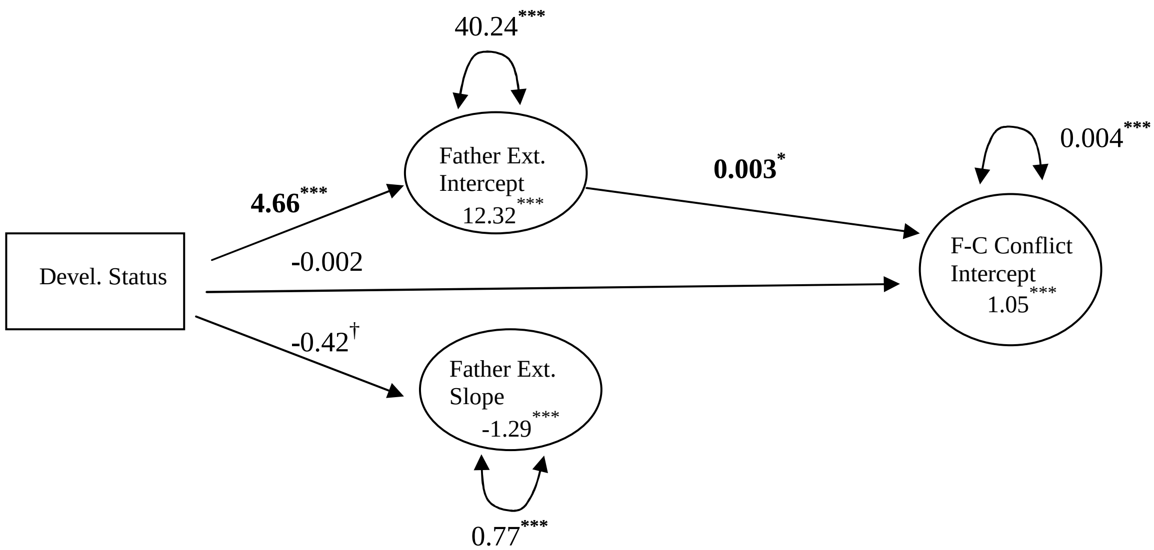
Fit Indices	
Chi Square (df)	233.53***(104)
RMSEA	0.07
SRMR	0.09
CFI	0.73
TLI	0.71

Figure 90. Diagram of the structural model testing whether father-rated child externalizing behavior mediates the link between developmental status (TD or DD) and mother-father pleasure. M-F = Father-Child. Ext. = externalizing behaviors. Values noted in figure are unstandardized Beta values. Variance of linear and quadratic slope for mother-father pleasure variable was set to 0. Values noted in table are fit statistics.
Note: †p < .10. *** p < .005.



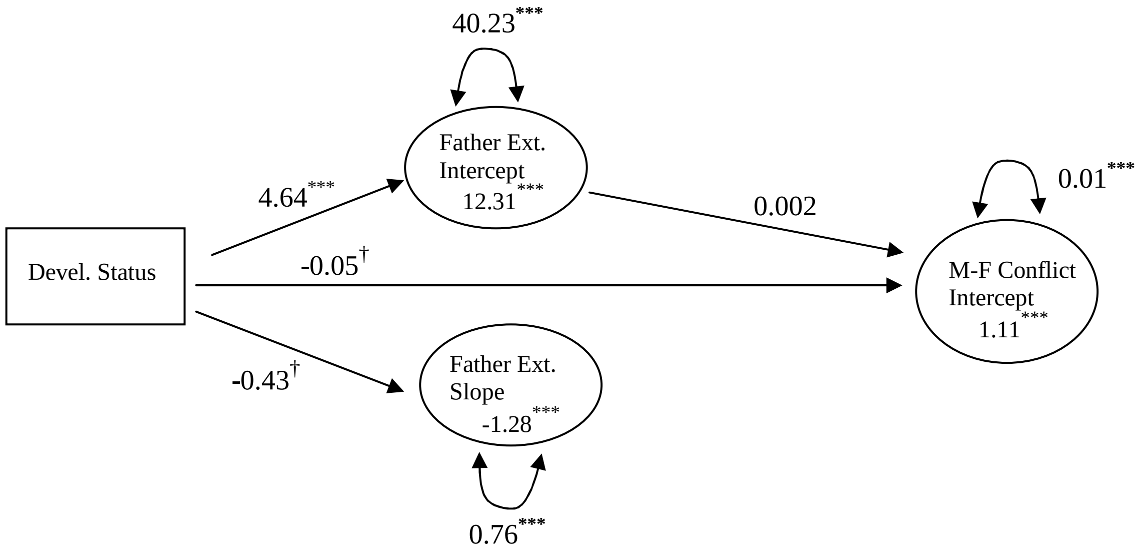
Fit Indices	
Chi Square (df)	268.14***(106)
RMSEA	0.08
SRMR	0.11
CFI	0.63
TLI	0.61

Figure 91. Diagram of the structural model testing whether father-rated child externalizing behavior mediates the link between developmental status (TD or DD) and mother-child conflict. M-C = Mother-Child. Ext. = externalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: † $p < .10$. *** $p < .005$.



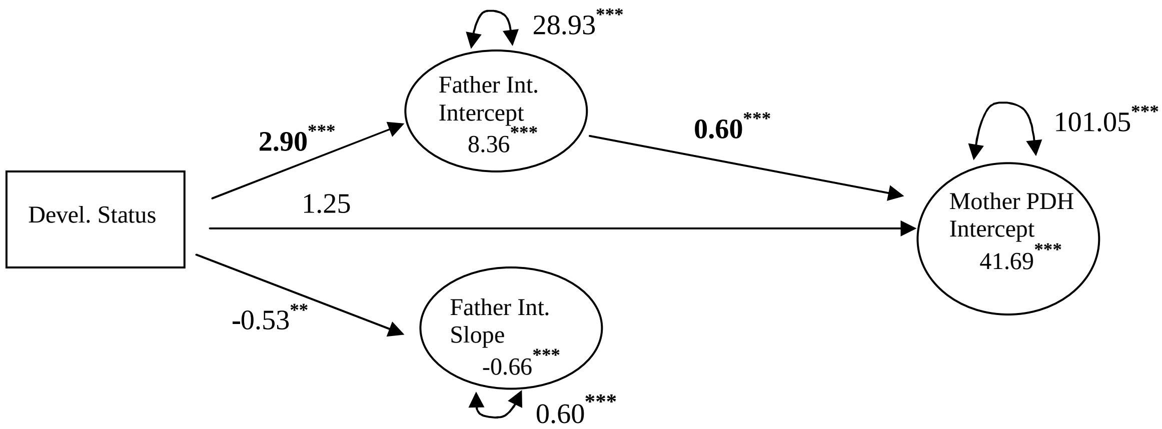
Fit Indices	
Chi Square (df)	241.56***(106)
RMSEA	0.07
SRMR	0.11
CFI	0.67
TLI	0.65

Figure 92. Diagram of the structural model testing whether father-rated child externalizing behavior mediates the link between developmental status (TD or DD) and father-child conflict. F-C = Father-Child. Ext. = externalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: $^{\dagger}p < .10$. $^{*}p < .05$. $^{***}p < .005$.



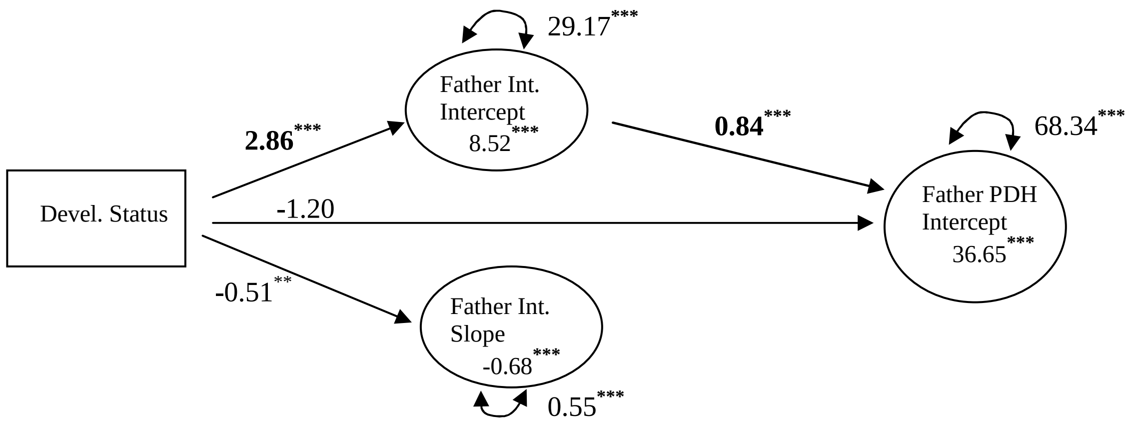
Fit Indices	
Chi Square (df)	241.17***(106)
RMSEA	0.07
SRMR	0.09
CFI	0.67
TLI	0.65

Figure 93. Diagram of the structural model testing whether father-rated child externalizing behavior mediates the link between developmental status (TD or DD) and mother-father conflict. M-F = Mother-Father. Ext. = externalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: $^{\dagger}p < .10$. $^{***}\ p < .005$.



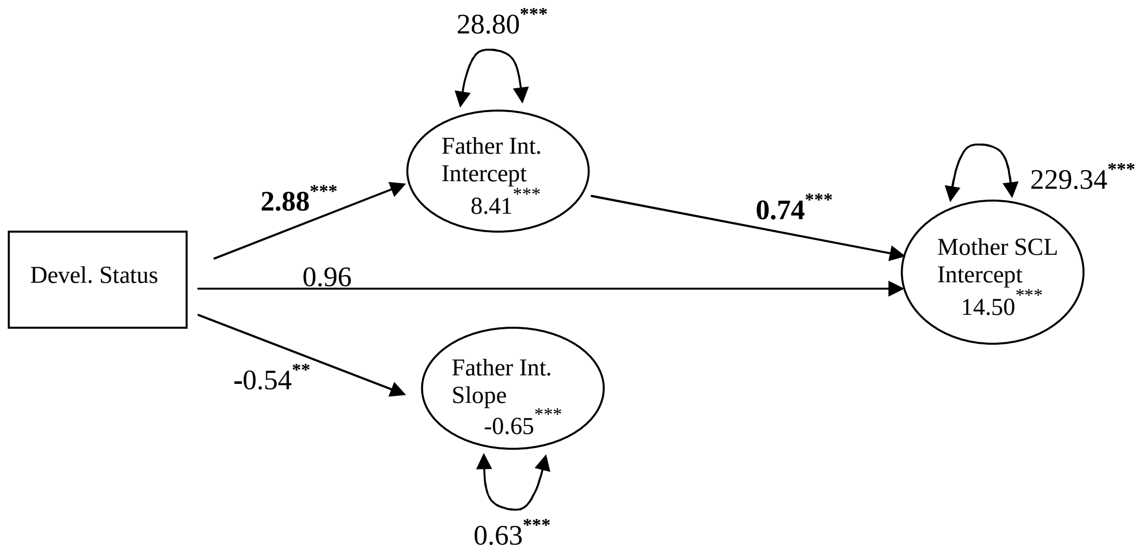
Fit Indices	
Chi Square (df)	257.27*** (105)
RMSEA	0.08
SRMR	0.07
CFI	0.51
TLI	0.48

Figure 94. Diagram of the structural model testing whether father-rated child internalizing behavior mediates the link between developmental status (TD or DD) and mother stress (PDH). Int= internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: ** $p < .01$. *** $p < .005$.



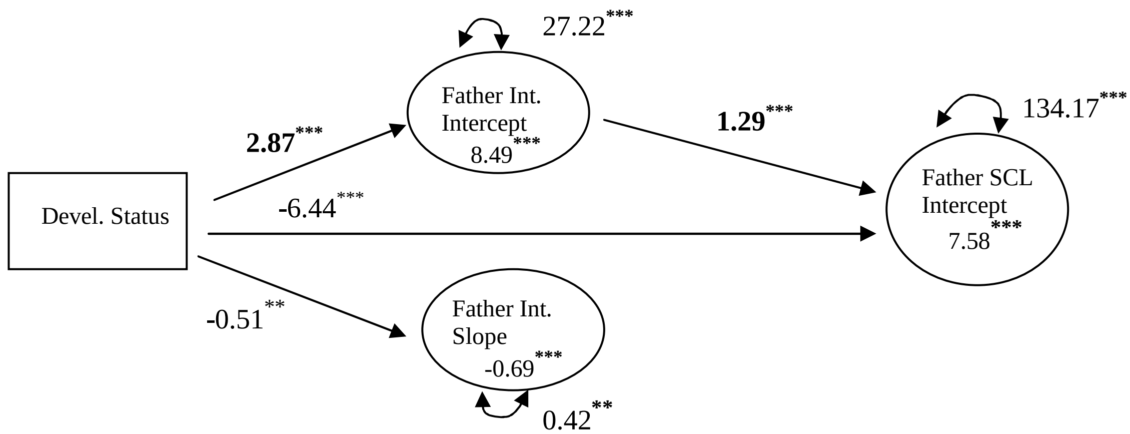
Fit Indices	
Chi Square (df)	200.89***(106)
RMSEA	0.06
SRMR	0.07
CFI	0.62
TLI	0.60

Figure 95. Diagram of the structural model testing whether father-rated child internalizing behavior mediates the link between developmental status (TD or DD) and father stress (PDH). Int= internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Slope of father-rated internalizing behavior not predicted as variance was not significant when included in the full model, though variance became significant once slope was no longer a predictor or predicted variable. Values noted in table are fit statistics.
Note: ** $p < .01$. *** $p < .005$.



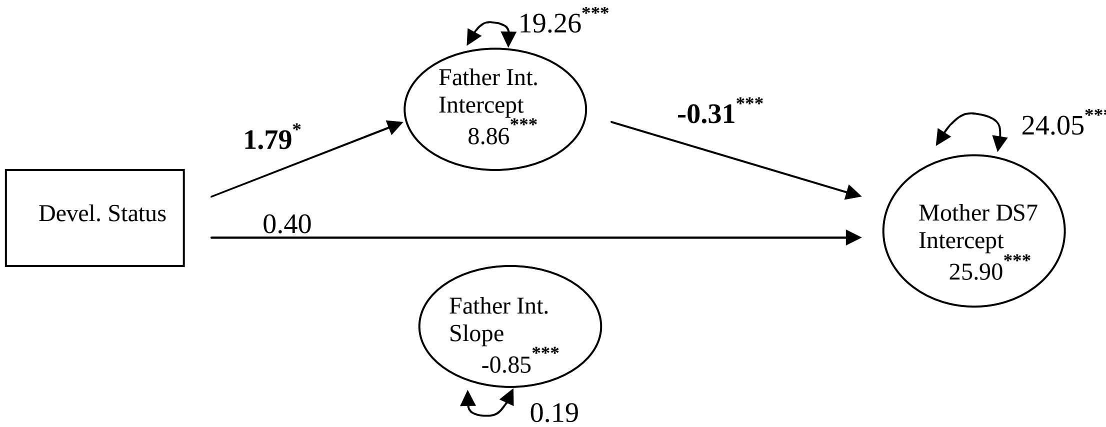
Fit Indices	
Chi Square (df)	242.73***(105)
RMSEA	0.07
SRMR	0.06
CFI	0.54
TLI	0.50

Figure 96. Diagram of the structural model testing whether father-rated child internalizing behavior mediates the link between developmental status (TD or DD) and mother psychological symptoms (SCL). Int= internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: $^{**}p < .01$. $^{***}p < .005$.



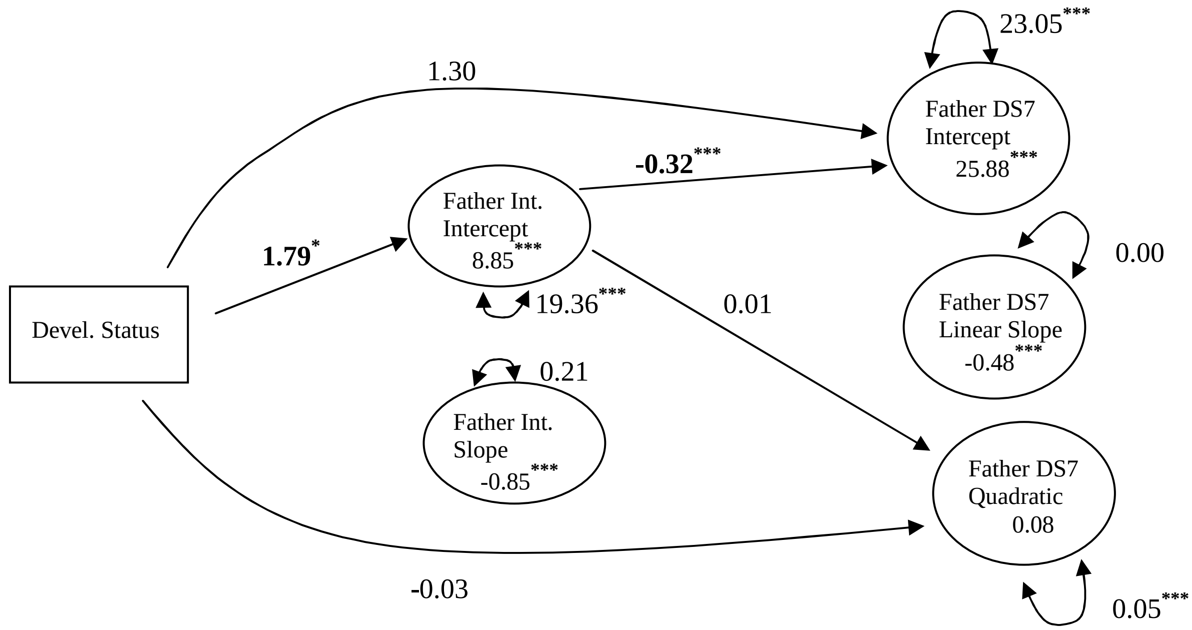
Fit Indices	
Chi Square (df)	281.92*** (106)
RMSEA	0.08
SRMR	0.08
CFI	0.46
TLI	0.43

Figure 97. Diagram of the structural model testing whether father-rated child internalizing behavior mediates the link between developmental status (TD or DD) and father psychological symptoms (SCL). Int= internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Variance of slope for father SCL set to 0. Values noted in table are fit statistics.
Note: ** $p < .01$. *** $p < .005$.



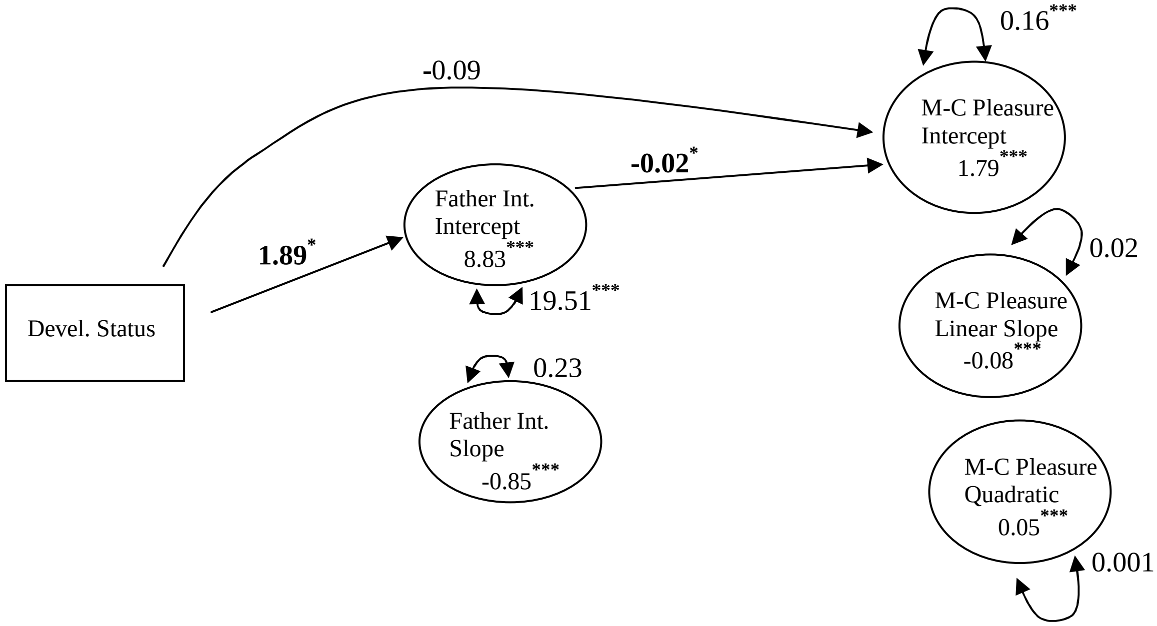
Fit Indices	
Chi Square (df)	259.74***(111)
RMSEA	0.07
SRMR	0.10
CFI	0.44
TLI	0.43

Figure 98. Diagram of the structural model testing whether father-rated child internalizing behavior mediates the link between developmental status (TD or DD) and mother marital satisfaction (DS7). Int= internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Slopes of father-rated internalizing behavior and mother DS7 not predicted as variance was not significant when included in the full model, though variance became significant once slope was no longer a predictor or predicted variable. Values noted in table are fit statistics. *Note:* * p < .01. *** p < .005.



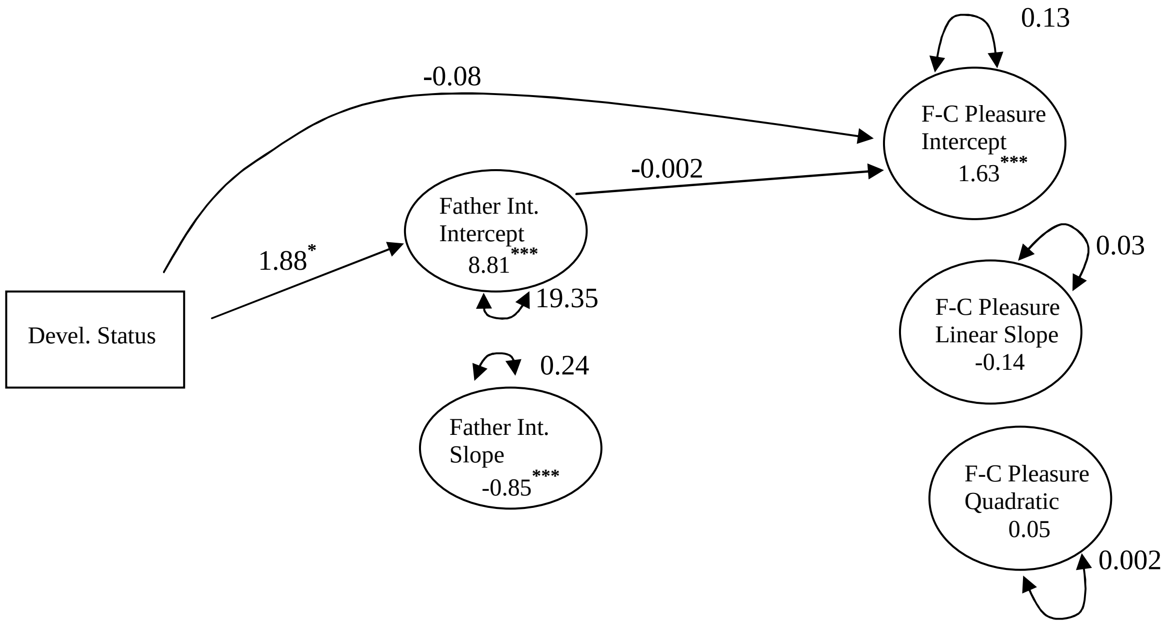
Fit Indices	
Chi Square (df)	256.85*** (102)
RMSEA	0.08
SRMR	0.10
CFI	0.50
TLI	0.44

Figure 99. Diagram of the structural model testing whether father-rated child internalizing behavior mediates the link between developmental status (TD or DD) and father marital satisfaction (DS7). Int= internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Linear slope variance for father-rated internalizing behavior non-significant, predictive pathways not specified. Quadratic slope for father DS7 set to 0, predictive pathways not specified. Values noted in table are fit statistics.
Note: * $p < .05$. *** $p < .005$.



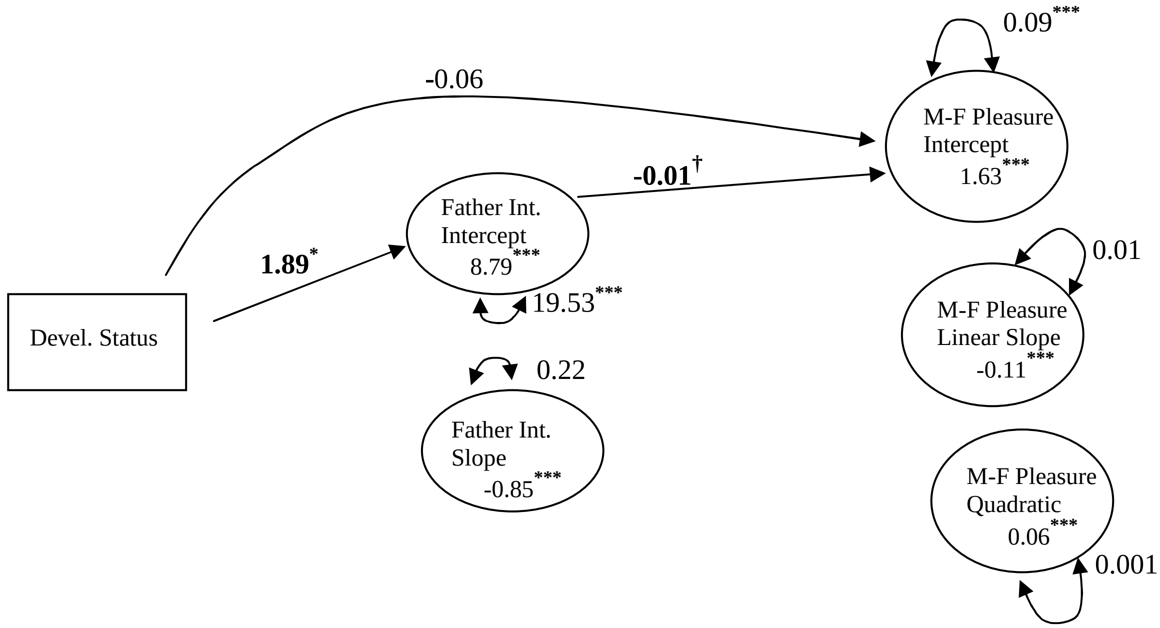
Fit Indices	
Chi Square (df)	244.51*** (104)
RMSEA	0.07
SRMR	0.09
CFI	0.57
TLI	0.54

Figure 100. Diagram of the structural model testing whether father-rated child internalizing behavior mediates the link between developmental status (TD or DD) and mother-child pleasure. M-C = Mother-Child. Int. = internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Slope for father-rated internalizing behavior, linear slope and quadratic slope variance for mother-child pleasure non-significant, predictive pathways not specified. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: * $p < .05$. *** $p < .005$.



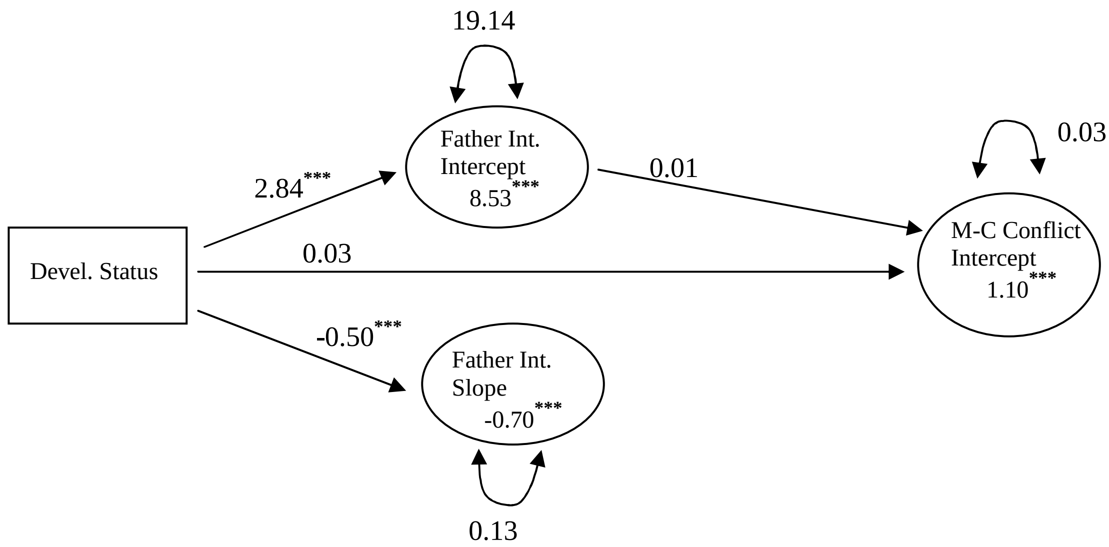
Fit Indices	
Chi Square (df)	243.19***(104)
RMSEA	0.07
SRMR	0.10
CFI	0.54
TLI	0.50

Figure 101. Diagram of the structural model testing whether father-rated child internalizing behavior mediates the link between developmental status (TD or DD) and father-child pleasure. F-C = Father-Child. Int. = internalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: * $p < .05$. *** $p < .005$.



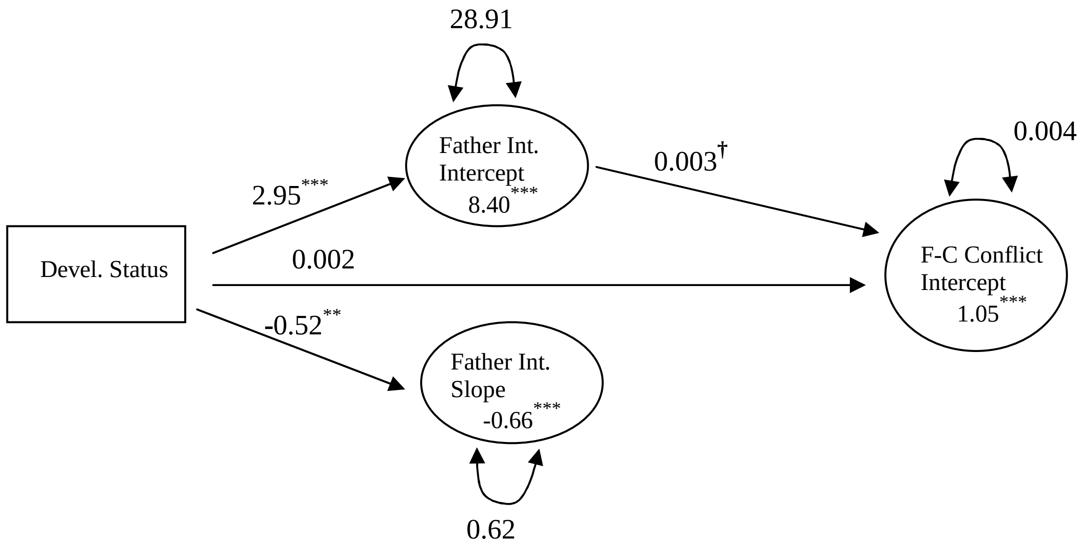
Fit Indices	
Chi Square (df)	258.29***(104)
RMSEA	0.08
SRMR	0.10
CFI	0.55
TLI	0.50

Figure 102. Diagram of the structural model testing whether father-rated child internalizing behavior mediates the link between developmental status (TD or DD) and mother-father pleasure. M-F = mother-father. Int. = internalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: $^{\dagger}p < .10$. $^{*}p < .05$. $^{***}p < .005$.



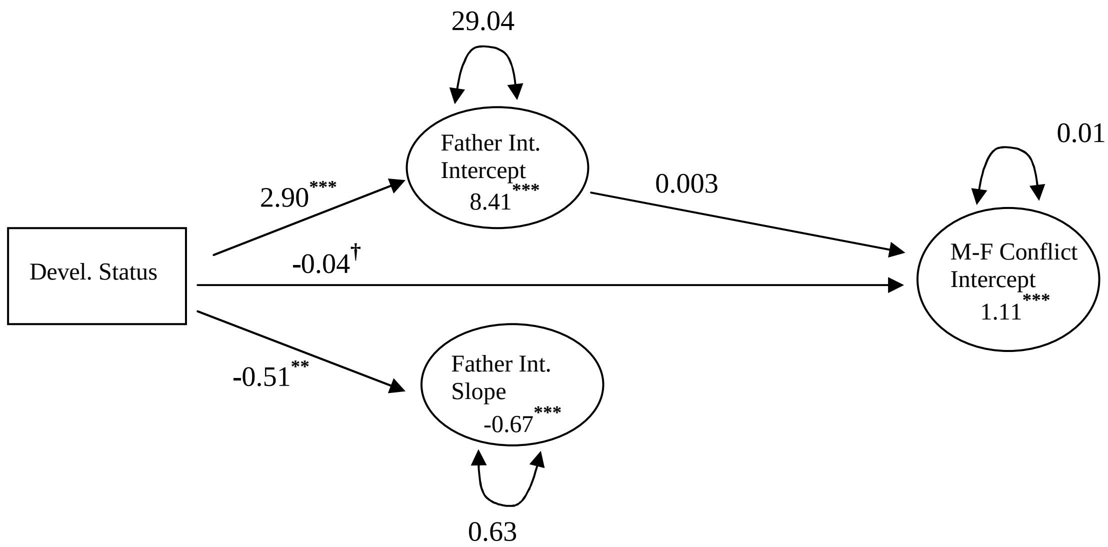
Fit Indices	
Chi Square (df)	287.96***(106)
RMSEA	0.08
SRMR	0.11
CFI	0.43
TLI	0.39

Figure 103. Diagram of the structural model testing whether father-rated child internalizing behavior mediates the link between developmental status (TD or DD) and father-child conflict. F-C = Father-Child. Int. = internalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: *** $p < .005$.



Fit Indices	
Chi Square (df)	224.26***(105)
RMSEA	0.07
SRMR	0.10
CFI	0.54
TLI	0.50

Figure 104. Diagram of the structural model testing whether father-rated child internalizing behavior mediates the link between developmental status (TD or DD) and father-child conflict. F-C = Father-Child. Int. = internalizing behaviors. Bold numbers represent pathways of significant, meaningful mediation. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: † $p < .10$. *** $p < .005$.



Fit Indices	
Chi Square (df)	230.35***(105)
RMSEA	0.07
SRMR	0.09
CFI	0.56
TLI	0.52

Figure 105. Diagram of the structural model testing whether father-rated child internalizing behavior mediates the link between developmental status (TD or DD) and mother-father conflict. M-F = Mother-Father. Int. = internalizing behaviors. Values noted in figure are unstandardized Beta values. Values noted in table are fit statistics.
Note: † $p < .10$. *** $p < .005$.