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## **Predicting Social Skills and Adaptability in Preschoolers with Behavior Problems**

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Predicting Social Skills and Adaptability in Preschoolers with Behavior Problems

A Dissertation Presented

By

NASTASSJA A. MARSHALL

Submitted to the Graduate School of the  
University of Massachusetts Amherst in partial fulfillment  
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Clinical Psychology



Predicting Social Skills and Adaptability in Preschoolers with Behavior Problems

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## DEDICATION

To my family whose support and encouragement have been invaluable.

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## ABSTRACT

### PREDICTING SOCIAL SKILLS AND ADAPTABILITY TO PRESCHOOLERS WITH BEHAVIOR PROBLEMS

SEPTEMBER 2015

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Social skills and adaptability have been associated with a host of positive child outcomes. However, previous research has rarely examined the extent to which child symptomatology and family environment are associated with social skills and adaptability in children. Furthermore, no studies have looked at these associations longitudinally in preschool children with behavior problems, for whom social functioning may be especially important. The current study examined the relationship of five predictors (child oppositional defiant disorder (ODD), child attention-deficit hyperactivity disorder (ADHD), marital conflict strategies, parental depression, and parental warmth) with social skills and adaptability measured in preschoolers with behavior problems at age 3. The relationship was assessed concurrently, as it changed over time (controlling for initial starting point), and at age 6. One hundred sixty three children, mainly of European American and Puerto-Rican descent, were included. At age 3, ADHD, ODD, and maternal depression were associated with fewer social skills and lower adaptability. Paternal warmth and maternal positive conflict strategies were associated with higher social skills. Greater paternal positive conflict strategies were

associated with greater improvement in social skills and adaptability from age 3 to 6. Paternal depression and paternal negative conflict strategies were associated with less improvement in adaptability. Paternal warmth was associated with greater improvement in social skills. At age 6, greater paternal positive conflict strategies were associated with higher social skills and adaptability. Maternal depression, paternal depression, and ODD were associated with lower social skills and adaptability. ADHD was associated with lower social skills and maternal negative conflict strategies were associated with lower adaptability. The findings shed light on how maternal factors, paternal factors, and child factors are related to the development of social skills and adaptability.

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## CHAPTER 1

### INTRODUCTION

In the past two decades, more researchers have begun to use a strength-based approach in their assessment and intervention with children instead of the pathology-focused research that has dominated the field (Beaver, 2008; Jimerson, Sharkey, Nyborg, & Furlong, 2004; LeBuffe & Shapiro, 2004; Merrell, Felver-Gant, & Tom, 2011). Including strengths in the study of childhood problems is especially advantageous because parents, teachers, and children are more likely to embrace assessments and interventions that highlight children's strengths instead of those that are solely problem-focused (Beaver, 2008; Jimerson et al., 2004; LeBuffe & Shapiro, 2004). Furthermore, for children who are at risk for psychosocial problems, developing strengths may serve to decrease problem behaviors over time or buffer their effects, and increase overall social and emotional health (Beaver, 2008; LeBuffe & Shapiro, 2004). Additionally, several professional organizations and researchers have recently emphasized the need to focus on the positive development of ethnic minority children, given that the existing research has primarily focused on risk factors and maladjustment (Belcher, Lockhart, Perkins-Parks, & McNally, 2000; Cabrera, Beeghly, & Eisenberg, 2012).

Two particular strengths, social skills and adaptability, have been associated with a host of positive child outcomes. However, previous research has failed to examine the relationship between child symptomatology, family environment, adaptability, and social skills in children with behavior problems. Furthermore, very few studies have examined social skills and adaptability as outcomes. The importance of social skills has been well-demonstrated as predicting problems but we know far too little about predictors of these

skills. The majority of research with at-risk children has focused on maladjustment (Flouri, Tzavidis, & Kallis, 2010; Ungar, 2004). Although parenting and family functioning have long been linked to levels of problem behaviors, no studies have examined the association between marital conflict strategies, parental warmth, parental depression, and child adaptability. Additionally, no studies have looked at these associations longitudinally in preschool children with behavior problems. Longitudinal data give researchers more insight into how these associations may change as children develop and aid in identifying causal factors that may be associated with the development of adaptability in children.

Fathers' contributions to children's development and adjustment have long been underemphasized by researchers. The majority of research on children's psychological development has focused on mothers or has combined the parenting effects of mothers and fathers (Copenhaver, 1996; Copenhaver & Eisler, 2000; Fitzgerald, & Bocknek, 2013; Neff, 2010). In fact, a review of childhood psychopathology research revealed that 2% of studies included fathers only and only 25% of studies analyzed maternal and paternal data separately (Phares, Fields, Kamboukos, & Lopez, 2005). As a result of social changes that have taken place in American families over the last 50 years, fathers are more actively involved in childrearing and there are significantly more single fathers (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Dette-Hagenmeyer, Erzinger, & Reichle, 2014; Hofferth, Pleck, Goldscheider, Curtin, & Hrapczynski, 2013). Given that mothers and fathers often play different roles in their children lives, fathers likely impact their children in different ways. Therefore, it is important for current researchers to continue investigating the individual effects of fathers' parenting on child

outcomes. To date, no studies have independently examined paternal and maternal effects on social skills and adaptability in preschool children with behavior problems.

### The Importance of Social Skills

Social skills predict children's academic competence, self-esteem, and school adjustment (McClelland & Morrison, 2003; Ray & Elliott, 2006). Furthermore, children who begin school with poorly developed social skills are more likely to be rejected by their peers, exhibit externalizing problems, and struggle with academics (Cooper & Farran, 1988; McClelland, Morrison, & Holmes, 2000). Ray and Elliott (2006) found that social skills were significantly correlated with academic competence and positive self-concept for children in fourth and eighth grade. Similarly, Henricsson and Rydell (2006) found that stronger prosocial skills were associated with fewer internalizing and externalizing problems in children who were followed from first to sixth grade.

Although social skills are important in their own right, they are also an important component of social competence. Most broadly defined, social competence describes the ability to function effectively within social contexts. Children with poor social competence are more likely to experience poor academic performance, social maladjustment, peer rejection, and psychopathology (Burt & Roisman, 2010; Volling, MacKinnon-Lewis, Rabiner, & Baradaran, 1993). Overall, children with poor social competence are at risk for a myriad of problems. Since social skills are an important component of social competence, it is especially important to fully understand the association between social skills and maladjustment. This association likely has implications for children's social competence.

## The Importance of Adaptability

Like social skills, adaptability is an important predictor of child well-being. Adaptability refers to a child's tendency to adapt to changes, explore new places and situations, recover from negative emotions, and exhibit positive emotions when interacting with others (Reynolds & Kamphaus, 1992). Adaptability is often measured as a component of social skills, leadership skills, study skills, functional communication skills, and activities of daily living on measures of childhood behavioral, social, and emotional functioning such as the Behavioral Assessment System for Children (BASC; Reynolds & Kamphaus, 1992). Although few studies have directly examined the association between adaptability, as conceptualized in the BASC, and child outcomes, several related concepts and their effect on adult well-being have been studied in recent years. One such related concept, coping flexibility, describes "the extent to which individuals are able to adjust or adopt different aims of coping across different situations" (Fresco, Williams, & Nugent, 2006, p. 204). Another related concept is psychological flexibility (i.e., the ability to adapt to changing demands, shift perspective, manage mental resources, and balance competing needs and desires; Kashdan & Rottenberg, 2010). Fresco and colleagues (2006) found that low coping flexibility was associated with greater anxiety and depression in college students. Similarly, greater psychological flexibility has been linked with positive outcomes such as greater adjustment, higher stages of identity development as adolescents and young adults, rapid recovery following stressful events, higher job satisfaction, and higher life satisfaction (Kashdan & Rottenberg, 2010). Unfortunately, few studies have examined coping flexibility and psychological flexibility in children (Babb, Levine, & Arseneault, 2010). However, in an

unpublished dissertation, D'Amico (1995) found that low social competence and coping inflexibility were significantly associated in eight to eleven year old children. These findings suggest that concepts related to adaptability are associated with adjustment in adult samples and suggest that the association should be examined in young children.

#### A Theoretical Model of Social Skill Development

Beauchamp and Anderson (2010) recently proposed a comprehensive biopsychosocial model (SOCIAL) of social skill development. This model emphasizes the dynamic and reciprocal nature of social skill development. The first component of the model includes internal factors, external factors, and brain development. The second component of the model includes the cognitive domains of attention and executive function, communication, and socio-emotional skills. The two components of the model are thought to “interact dynamically to determine an individual’s level of social competence” (Beauchamp & Anderson, 2010, p. 47). The internal and external factors described in the first component of the model are the focus of this current investigation. Beauchamp and Anderson (2010) describe internal factors as components of the child’s self, such as personality and physical attributes. They describe external factors as components of the child’s environment, such as family environment, culture, and socioeconomic status. In the current investigation, child ODD and ADHD symptoms are internal factors that influence the child’s social interactions with others. Marital conflict strategies, parental depression, and parental warmth are external factors that influence the quality and nature of the child’s social interactions.

Although the SOCIAL framework has not yet been extended to adaptability, the same interaction of child and family factors likely influences the development of

adaptability in children. The current investigation aims to understand how a particular subset of internal and external factors can influence the development of social skills and adaptability.

### Theoretical Models of the Role of Parental Depression, Marital Conflict, and Parental Warmth in the Development of Social Skills and Adaptability

Theoretical models of social skill development suggest that parents and the family environment (i.e., external factors) significantly impact a child's social development (Beauchamp & Anderson, 2010; Guralnick, 1999). For example, parents of young children serve to foster children's social networks (Guralnick, 1999). Parents that are suffering from depression or using many negative conflict strategies in their marriage are likely less available and willing to work on fostering their child's social networks. Additionally, theory suggests that children learn social rules, communication strategies, and the encoding and decoding of emotional information from their parents (Guralnick, 1999). Given that apathy, anhedonia, and withdrawal are key symptoms of depression, depressed parents are likely less engaged with their children and less likely have children with a secure attachment style (Bowlby, 1988). Low parental engagement and poor attachment likely minimize the opportunities for the child to learn and practice social skills with the parent. Furthermore, if children witness their parents using negative conflict strategies, social learning theory suggests that they are likely to mimic these negative behaviors in their peer relationships (Bandura, 1989; Grusec, 1992; Miga, Gdula, & Allen, 2012). In contrast, children of parents who display high levels of parental warmth are more likely to spend time with their parents, increasing the probability that they will learn social skills from the parent.

Theory has also suggested that children's emotional competence and interpersonal relationships with their mothers are precursors to social competence (Denham & Grout, 1993; Denham, Wyatt, Bassett, Echeverria, & Knox, 2009). Preschoolers' emotional competence has been associated with maternal expressiveness, maternal reactions to children's displays of emotion, and mothers' typical mood (Denham & Grout, 1993). Depressed parents are more likely to display negative emotions and react negatively or ignore children's expression of emotions. Children rely on their parents reactions to their emotions to discern how to express and manage emotions and which emotions are acceptable in specific situations (Denham & Grout, 1993; Denham et al., 2009). Children also tend to adopt the emotions that their parents consistently model; therefore, children whose parents are typically sad or angry may internalize and exhibit these emotions. Therefore, depressed parents are likely to inhibit their children's social skills development through their lack of engagement and their modeling of negative emotions. Overall, there is theoretical support for the hypothesis that parental depression, marital conflict strategies, parental warmth, and social skills may be related.

There are currently no theories specifically about how adaptability develops in children. However, given that adaptability refers to a child's tendency to recover from negative emotions and exhibit positive emotions when interacting with others (Reynolds & Kamphaus, 1992), it is likely that parental depression and parental warmth can significantly impact adaptability. For example, children who have a depressed parent are exposed to a great deal of negative emotion. Given that parents serve as models for their children, this exposure could decrease the likelihood that a child will recover from their own negative emotions and exhibit positive emotions (Bandura, 1989; Grusec, 1992).

Adaptability also includes a child's tendency to adapt to changes and explore new places and situations. Children who have a secure attachment to their parents are more likely to explore new places and situations and readily adapt to changes (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1988). However, parental depression can hinder the development of a secure parent-child attachment, while parental warmth can enhance attachment (Kerns, Brumariu, & Seibert, 2011; Teti, Gelfand, Messinger, & Isabella, 1995). Therefore, there is theoretical support for the hypothesis that parental depression, parental warmth, and adaptability may be related.

#### Theoretical Models of the Role of Child Attention-Deficit Hyperactivity Disorder (ADHD) and Child Oppositional Defiant Disorder (ODD) in the Development of Social Skills and Adaptability

Theoretical models of social skill development suggest that the symptoms associated with ADHD and ODD (i.e., internal factors) may negatively impact social skill development in several ways (Crick & Dodge, 1994). For example, the ability to accurately understand the intentions of others is an important component of social cognition. Children with ODD are significantly more likely to perceive ambiguous social interactions as hostile, which in turn increases the likelihood that they will react aggressively. Additionally, attentional control and self-regulation are important for social skill development (Beauchamp & Anderson, 2010; Crick & Dodge, 1994). Children with ADHD often have difficulty with attentional control and self-regulation; similarly, children with ODD often also have difficulty with self-regulation (Biederman et al., 2012). If a child is unable to self-regulate (e.g., inhibit aggressive responses and control their emotional reactions in social situations) or to maintain attention during social

interactions they are unlikely to make positive connections with peers, which in turn could lead to fewer positive social interactions. Therefore, there is theoretical support for the hypothesis that child ADHD, child ODD, and social skills may be related.

There are currently no theories about how adaptability develops in children. However, given that adaptability includes a child's tendency to recover from negative emotions and display positive emotions, the poor self-regulation and emotional lability associated with ADHD and ODD will likely negatively impact adaptability (Banaschewski et al., 2012; Biederman et al., 2012). Children with ADHD have also been found to adapt poorly to changes in routine (DeWolfe, Byrne, & Dawden, 2002). Given that adaptability includes a child's tendency to readily adapt to changes, it is likely that children with ADHD will have deficits in adaptability. Therefore, there is support for the possibility of a relationship between child ADHD, child ODD, and adaptability.

The following sections will review existing research on the relationship between social, skills, adaptability, and each of the predictors of interest (i.e., child ADHD, child ODD, marital conflict strategies, parental warmth, and parental depression).

#### Previous Research on Child ADHD, Social Skills, and Adaptability

Although social skills are generally important, they may be even more important in children with ADHD, given that they are more likely to have social difficulties. In a comprehensive review of the literature, Nixon (2001) found that children with ADHD are more likely to exhibit problems in social functioning, social cognition, and peer relationships. Frankel and Feinberg (2002) estimate that children with ADHD may have global social deficits that decrease their social competence compared to their non-ADHD peers. These children may have difficulties with knowledge of appropriate social

behaviors and/or have difficulty performing the appropriate behaviors (Nixon, 2001). Numerous studies have shown that children with ADHD have difficulty adjusting their social communication as the context changes (Landau & Milich, 1988; Staikova, Gomes, Tartter, McCabe, & Halperin, 2013). Children with ADHD also tend to think of less effective and more aggressive solutions to their social problems than their non-ADHD peers. Demopoulos and colleagues (2013) found that the pattern of social deficits in children with ADHD is similar to that of children with Autism Spectrum Disorder. Although the deficits are less severe than found in ASD, children with ADHD have significant deficits in facial and vocal affect recognition, social judgment, and problem-solving when compared to typically developing children.

Children with ADHD may also have a particularly difficult time forming and maintaining peer relationships because many of the behavioral symptoms of ADHD are also independently associated with peer rejection (Landau & Moore, 1991). Specifically, children who are verbally and physically aggressive, short-tempered, noisy, bothersome, and rule violating are more likely to be rejected by their peers (Guevremont & Dumas, 1994). Many of these behaviors are common in children with ADHD and may increase the likelihood that these children will be rejected by peers (Nixon, 2001). Overall, there is ample evidence to suggest that children with ADHD often have pronounced social skill deficits but few studies have examined this relationship in preschool children. Furthermore, studies have focused on group differences in children with and without ADHD; more research is needed examining individual differences among children with behavior problems; in particular, predictors of strengths within this high-risk group are very poorly understood.

Few studies have directly examined the relationship between adaptability and ADHD in children. However, Manning and Miller (2001) found that six to eight year old children with ADHD scored significantly lower on the adaptability subscale of the BASC than children in a control group. Additionally, there is evidence that children with ADHD may have some difficulty with aspects of psychological flexibility which is a concept closely related to adaptability. Babb and colleagues (2010) examined the development of coping flexibility in younger and older children with and without ADHD. Children were asked to react to hypothetical scenarios that depicted a problem with a peer and ranged from controllable to uncontrollable. The authors found that older children (10-11 years old) with ADHD performed the same as younger children (7-8 years old) with or without ADHD, whereas older children without ADHD demonstrated the most coping flexibility. Therefore, there is some evidence that children with ADHD may have deficits in coping flexibility. Overall, the association between ADHD and adaptability is poorly understood. However, some research suggests that ADHD symptoms may be associated with lower adaptability.

#### Previous Research on Child ODD, Social Skills, and Adaptability

Few studies have examined the relationship between ODD and social skills. However, studies have demonstrated peer problems associated with ODD, pointing towards their importance in this population. Greene and colleagues (2002) compared children and adolescents with ODD to those with other psychiatric diagnoses and they found that children with ODD had significantly more social impairment. Frankel and Feinberg (2002) found that six to twelve year old children with ODD had a decreased resistance to peer provocation and displayed greater hostility towards peers than their

non-ODD peers. Coy and colleagues (1999) found that preschoolers with ODD were significantly more likely to generate aggressive solutions to social problems and were more likely to make errors when encoding social information. Similarly, Webster-Stratton and Lindsay (1999) found that four to seven year old children with ODD or conduct problems generated fewer positive solutions to social problems and had fewer positive problem-solving skills compared to typically developing children. Additionally, those children were more likely to make hostile attributions about the intentions of characters in social problems and used more negative conflict management skills when interacting with peers. Taken together, these findings suggest that children with ODD are more likely to have problems with peers, siblings, and social activities. Furthermore, these findings suggest that children with ODD likely have poorly developed social skills and may be in greater need of social skills than typically developing children. Finally, some of the key symptoms of ODD are also correlates of poor social competence such as blaming others for mistakes, being spiteful or vindictive, and being easily annoyed (Coy, Speltz, DeKlyen, & Jones, 1999).

Given that ODD and ADHD are highly comorbid disorders, it is unclear the extent to which each disorder is independently related to the development of social skills. Few studies have directly compared social skills in children with ODD-only, ADHD-only, and ADHD and ODD (Frankel & Feinberg, 2002; Matthys, Cuperus, & Van Engeland, 1999). Furthermore, no previous studies have examined the association between ADHD symptoms, ODD symptoms, and social skills in preschool children. Disentangling the association between each disorder and social skills will be a significant contribution to the literature.

Previous research has not examined the association between child ODD and adaptability.

#### Previous Research on Marital Conflict Strategies, Social Skills, and Adaptability

Few studies have examined the relationship between marital conflict strategies and social skills in children. In the studies that have been conducted, the association between marital conflict strategies and social skills is unclear. For example, Goodman, Barfoot, Frye, and Belli (1999) examined the relation between marital conflict strategies and school-aged children's social problem-solving skills. They found that mothers who used aggressive conflict strategies had children whose solutions to social problems were rated as less effective. However, mothers who used reasoning during conflicts had children with more effective social problem-solving skills. Other researchers have found that being exposed to destructive marital conflict is associated with poor problem-solving abilities and poor social competence (Finger, Eiden, Edwards, Leonard, & Kachadourian, 2010; Lindsey, Colwell, Frabutt, & Mac-Kinnon-Lewis, 2006). However, being exposed to constructive marital conflict is associated with greater prosocial behavior in school-aged children (McCoy, Cummings, & Davies, 2009). Overall, the findings suggest that although children's social skills can be negatively impacted if they model aggressive strategies (as opposed to using reasoning), their social skills may actually improve from witnessing constructive marital conflict (Goodman, 1999).

More research is needed on how children's development of social skills is influenced by their parents' use of positive versus negative conflict strategies. Children who witness conflicts during which parents use positive conflict strategies to resolve disagreements may benefit from the experience while the social skills of children of

parents who use negative conflict strategies may suffer. Furthermore, the research has consistently shown that children with behavior problems are more likely to be exposed to marital conflict (Cummings & Davies, 2002). Therefore, it is especially important to understand the relationship between marital conflict strategies and social skills in this group of at-risk children; however, previous research has not examined the association in children with behavior problems. Overall, the relationship between marital conflict strategies and social skills remains unclear; however, the existing evidence suggests that children's social skills are significantly influenced by the nature of the marital conflict they witness.

Previous research has not examined the association between marital conflict strategies and child adaptability.

#### Previous Research on Parental Warmth, Social Skills, and Adaptability

Warm/accepting parenting has been found to be associated with parent-ratings of children's prosocial skills (McCoy et al., 2009). Eiden and colleagues (2009) found that parental warmth at age 2 predicted child social competence at age 5 in the children of alcoholic and non-alcoholic parents. Similarly, Spinrad and colleagues (2007) found that maternal warmth at 30 months was significantly related to mother and caregiver ratings of social competence. Webster and colleagues (2013) found that paternal warmth at age 4 was significantly related to children's social skills at age 8. However, other studies have failed to find an association between parental warmth and child social skills. For example, Pettit and colleagues (1997) failed to find a significant association between maternal warmth and child social skillfulness for children assessed in kindergarten and then reassessed as sixth graders. Overall, the association between parental warmth and

social skills remains unclear, but several findings suggest that warmth is a potentially important predictor, and more research is needed to fully understand the association. Furthermore, no previous studies have examined the association between parental warmth and social skills in a sample of preschool children with behavior problems.

Previous research has not examined the association between parental warmth and adaptability.

#### Previous Research on Parental Depression, Social Skills, and Adaptability

Children of parents with depression are significantly more likely to display poor social competence (Anderson & Hammen, 1993; Leiferman, 2002; Malmberg & Flouri, 2011). For example, Anderson and Hammen (1993) found that eight to sixteen year old children of depressed women were less socially active and less socially competent than the children of bipolar, medically ill, and psychiatrically normal women. Similarly, Aikens, Coleman, and Barbarin (2008) found that parental depression and parental anxiety were significantly correlated with child social immaturity in preschool children. Herbert and colleagues (2013) found that paternal depression at age 3 predicted social skills at age 6 in a sample of preschoolers with behavior problems. Overall, current research suggests that children of parents with depression are more likely to have social skills deficits. However, few studies have examined this association in preschool children with behavior problems. Furthermore, the current study will shed light on how paternal depression, which is understudied (Wilson & Durbin, 2010), independently influences social skill development.

Previous research has not examined the association between parental depression and child adaptability.

## The Present Study

In sum, despite convincing evidence that behavior problems are associated with poorer social skills, very little is known about individual differences in social skills among children with behavior problems, nor about predictors of social skills within this group. The present investigation will expand on the existing literature by examining the development of social skills and adaptability longitudinally in young children (i.e., age three to six) with behavior problems. Additionally, the present investigation adds to the sparse literature on adaptive skills in at-risk minority children, with half of the sample representing African-American, Latino, and multiethnic children. The study will simultaneously examine child-focused predictors (i.e., ODD and ADHD symptoms) and parent-focused predictors (i.e., marital conflict strategies, depression, and warmth). Furthermore, the study will examine the parent predictors separately for mothers and fathers. The study's main questions are detailed in the following section.

## Questions

Are child ADHD symptoms associated with child social skills and adaptability? I predict that more ADHD symptoms at age 3 will be associated with concurrent poor social skills and low adaptability. I predict that children with more ADHD symptoms at age 3 will show less improvement in social skills and adaptability from 3 to 6 years of age.

Are child ODD symptoms associated with child social skills and adaptability? I predict that more ODD symptoms at age 3 will be associated with concurrent poor social skills and low adaptability. I predict that children with more ODD symptoms at age 3 will show less improvement in social skills and adaptability from 3 to 6 years of age.

Is parental marital conflict associated with child social skills and adaptability? I predict that greater use of negative conflict strategies by mothers and fathers at age 3 will be associated with concurrent poor social skills and low adaptability. I predict that children of mothers and fathers who use more negative conflict strategies at age 3 will show less improvement in social skills and adaptability from 3 to 6 years of age. I predict that greater use of positive conflict strategies by mothers and fathers at age 3 will be associated with concurrent well-developed social skills and high adaptability. I predict that children of parents who use more positive conflict strategies at age 3 will show greater improvement in social skills and adaptability from 3 to 6 years of age.

Is parental warmth associated with child social skills and adaptability? I predict that higher maternal and paternal warmth at age 3 will be associated with concurrent well-developed social skills and high adaptability. I predict that children of parents who show higher parental warmth at age 3 will show greater improvement in social skills and adaptability from 3 to 6 years of age.

Is parental depression associated with child social skills and adaptability? I predict that more maternal and paternal depressive symptoms at age 3 will be associated with concurrent poor social skills and low adaptability. I predict that children of parents with more parental depressive symptoms at age 3 will show less improvement in social skills and adaptability from 3 to 6 years of age.

## CHAPTER 2

### METHOD

#### Participants

Participants were 163 children (90 boys, 73 girls) and their 163 mother figures and 140 father figures who took part in a 4-year longitudinal study of preschool aged children with behavior problems. Children were 3 years old at screening and 35 to 50 months ( $M = 44$  months,  $SD = 3.4$ ) at the first home visit (T1). Data were collected from families at 1-year (T2;  $n = 160$ ), 2-year (T3;  $n = 139$ ), and 3-year (T4,  $n = 145$ ) follow-up visits. The sample included European American (49.5%), Latino American (21.5%; mostly Puerto Rican), African American (13.0%), and multiethnic (15.5%) children. The median family income at T1 was \$56,584. Most mothers (84.4%) and fathers (88.8%) had high school diplomas, and 33.2% of mothers and 29.2% of fathers had bachelor's degrees. All mothers lived with their children; fathers who did not live with their children full-time were invited to participate if they spent time with their children on a regular basis each week. All mothers participated at T1; 22 of the 140 fathers did not participate at T1, but participated at one or more later time points.

#### Procedure

Children with significant externalizing problems were recruited from 3-year-old children ( $n = 1752$ ) whose parents completed a screening packet which they received through mail (via state birth records), pediatrician offices, child care centers, and community centers. A smaller group of typically developing children were also recruited but are not the focus of this study. Inclusion criteria were (a) no evidence of intellectual disability, deafness, blindness, language delay, cerebral palsy, epilepsy, autism, or

psychosis based on parent report; (b) parent reported concern about the child's activity level, defiance, aggression, or impulse control; and (c) Behavioral Assessment System for Children – Parent Report Scale (BASC-PRS; Reynolds & Kamphaus, 1992)

Hyperactivity and/or Aggression subscale *T* scores at or above 65. Parents were told that the goal of the study was to understand factors that help young children with behavior problems outgrow their difficulties and they were paid for participating. Fifty-nine percent of recruited behavior problem children participated. Written informed consent was obtained from all parents who participated. The study was conducted in compliance with Internal Review Board of the University of Massachusetts at Amherst.

#### Measures

Social skills. The preschool and child versions of the BASC-PRS were used, depending on the age of the child. On the preschool version of the form, the Social Skills subscale consists of 13 items for the parent rating scales. On the child version of the form, the Social Skills subscale consists of 14 items for the parent rating scales. Example items include “Compliments others,” “Offers help to other children,” Shows interest in others’ ideas,” and “Has a good sense of humor.” Response options for each item range from 1 (never) to 4 (almost always) (Reynolds & Kamphaus, 1992). The Social Skills subscale has a test-retest reliability of .91 and an internal consistency of .86 (Reynolds & Kamphaus, 1992). The validity of the BASC is well-established, however, the validity of the Adaptive Skills Composite, which is composed of the Adaptability and Social Skills subscales, is moderate (Gladman & Lancaster, 2003; Reynolds & Kamphaus, 1992). The *T*-score on the Social Skills subscale were calculated for maternal report.

Adaptability. On the preschool version of the BASC, the Adaptability subscale

consists of 10 items for the parent rating scales. On the child version of the form, the Adaptability subscale consists of 7 items for the parent rating scales. Example items include “Is easily soothed when angry,” “Tries new things,” and “Adjusts to changes in routine” (Reynolds & Kamphaus, 1992). Response options for each item range from 1 (never) to 4 (almost always). The Adaptability subscale has a test-retest reliability of .85 and an internal consistency of .70 (Reynolds & Kamphaus, 1992). The T-score on the Adaptability subscale was calculated for maternal report.

Marital conflict strategies. At T1, married or cohabiting couples completed the Conflicts and Problems-Solving Scales – Violence Form (CPS-V; Kerig, 1996), which includes 69 items describing positive (9) and negative (60) conflict strategies. The validity of the CPS-V is well-established (El-Sheikh, Cummings, Kouros, Elmore-Staton, & Buckhalt, 2008; Kerig, 1996) and the Cronbach’s Alpha (internal consistency) of the CPS-V was .95 for mothers and for fathers. Members of the couple independently rated how often (i.e., never, rarely, sometimes, or often) each strategy was used by themselves and their partners during disagreements. Examples of negative conflict strategies include “make accusations,” “be sarcastic,” and “threaten to hurt other.” Examples of positive conflict strategies include “try to understand what the other is really feeling” and “express thoughts and feelings openly.” Each parent was given a mean score on negative conflict strategies where high scores indicate greater use of negative strategies and each parent was given a mean score on positive conflict strategies where high scores indicate greater use of positive strategies.

Parental depression. Parent depression was measured at T1 using the Millon Clinical Multiaxial Inventory–III (MCMI-III; Millon, Davis, & Millon, 1997), a 175-item

questionnaire of symptoms of disorders listed in the Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM–IV; American Psychiatric Association, 1994). Since we wanted to capture parental depression at T1, eight of the 33 items contained in the three depression subscales were not included because they assess symptoms over a long time-frame. Prototypical items for the Major Depression subscale (Millon et al., 1997) were double-weighted. Combined raw scores of these three subscales (Major Depression, Dysthymia, and Depressive Personality) were used; higher scores indicated greater depression. Previous research with this data set (Harvey, Stoessel, & Herbert, 2011) found an internal consistency of .93 for maternal and paternal depression symptoms (depressive, dysthymic, and major depressive disorders).

Parental warmth. At T1, mothers and fathers were asked to record their interactions with their children at home using two 60 min tapes per parent. Parents were instructed to select times that tended to be challenging and to behave as they normally would. The first 15 min of each side of one tape was coded for each parent because a preliminary review of the tapes suggested that this was sufficient to capture a wide variety of behavior. Trained research assistants who were unaware of the child's behavior status rated warmth separately for mothers and fathers, and two raters overlapped for one-fourth of participants. Warmth referred to being positively attentive to the child; using praise, encouragement, and terms of endearment; conveying affection; being supportive and available; being cheerful in mood and tone of voice; and/or conveying interest, joy, enthusiasm, and warmth in interactions with the child. Global ratings of maternal and paternal warmth (intraclass correlation [*ICC*] = .53 for mean warmth ratings) were made every 5 min and ranged from 1 (*not warm*) to 7 (*extremely*

*warm*). This method of recording parenting has been shown to be sensitive to detecting changes in parent-child interactions following parent training (Danforth, Harvey, Ulaszek, & McKee, 2006) and to distinguish referred from not-referred children (Jacob, Tennenbaum, Seilhamer, Bargiel, & Sharon, 1994; Phelps & Slater, 1985). The average of the three ratings was calculated for each parent.

ADHD and ODD symptoms. Maternal report of ADHD and ODD symptoms at T1 was used in the current study. ADHD symptoms were measured by using the symptom count from the ADHD section of the Disruptive Behavior Rating Scale (DBRS; Erford, 1993). ODD symptoms were measured by averaging the symptom count from the ODD section of the DBRS. The DBRS is a 26-item parent-report questionnaire that assesses symptoms of hyperactivity, inattention, and ODD. Eighteen items of the DBRS assess symptoms of inattention and hyperactivity and the remaining 8 items assess symptoms of ODD. Examples of items assessing inattention/hyperactivity include “is easily distracted,” “talks excessively,” and “has difficulty organizing tasks and activities.” Examples of items assessing ODD symptoms include “argues with adults,” “is spiteful or vindictive,” and “deliberately annoys people.” Response options for each item range from 0 (not at all) to 3 (very often). Symptom counts were calculated by adding the number of responses of 2 or 3.

The DBRS is a valid measure of ADHD and ODD symptoms in preschool and school-aged children (DuPaul, Anastopoulos et al. 1998; Friedman-Weieneth, Doctoroff, Harvey, & Goldstein, 2009). The reliability, as well as convergent and discriminant validity of the DBRS, have also been established (DuPaul, Power, McGoe, Ikeda, & Anastopoulos, 1998; Erford, 1997).

## CHAPTER 3

### RESULTS

#### Analyses

All models were run using MPLUS (Muthén & Muthén, 1998-2010). Latent growth curve models were used to estimate initial level, change over time, and T4 outcome for social skills and adaptability. For each question, two models (i.e., T1 and T4) were run to determine the association between the predictor and the outcome. T1 models estimated initial level and change from age 3 to 6 for social skills and adaptability. The linear and intercept growth factors were separately regressed on each predictor. In these models, the intercept is defined as the level of the outcome when time is zero (i.e., age 3). The linear growth factor represents the linear rate of change (slope) per year. Predicting the linear rate of change estimated from T1 models allows one to examine predictors of linear change, controlling for initial social skills and adaptability levels (estimated by the intercept in the T1 Models). T4 models estimated social skills and adaptability at age 6. T4 models were constructed in which time was centered at T4 (set to 0 at T4; calculated by subtracting T4 age from child age in years at each time point) so that the intercept represented T4 outcome level.

Full Information Maximum Likelihood, which uses all observed information (including cases with some missing data), was used to estimate parameters.

#### Descriptive Statistics

Intercorrelations and descriptive statistics for study variables at T1 are presented in Tables 1 and 2. The following variable pairs had strong positive correlations ( $r = .40$  or higher): ADHD and ODD, maternal negative conflict strategies and paternal negative

conflict strategies, T1 social skills and T1 adaptability, and maternal depression and paternal depression. Maternal positive conflict strategies and maternal negative conflict strategies were strongly negatively correlated. Social skills and adaptability were significantly correlated at each time point; the correlations range from small to medium. The effect sizes of the correlations between social skills or adaptability and each predictor range from small to medium.

#### Unconditional Growth Models

Initially, unconditional growth models were used to estimate the rate of change over time for social skills and adaptability. The average linear growth factor was significantly different from zero for social skills ( $\beta = 1.14$ ,  $SE = 0.26$ ,  $p < .001$ ) indicating that the average social skills score increased over time. Additionally, there was significant variability in the slopes ( $\sigma = 3.02$ ,  $SE = 1.44$ ,  $p = .04$ ) which indicates that children do not develop social skills at the same rate. The average linear growth factor was not significantly different from zero for adaptability ( $\beta = -0.03$ ,  $SE = 0.32$ ,  $p = 0.94$ ). However, there was significant variability in the slopes for adaptability,  $\sigma = 5.06$ ,  $SE = 2.09$ ,  $p = .01$ ), which indicates that children do not develop adaptability at the same rate.

Question 1: Are child ADHD symptoms associated with child social skills and adaptability?

Greater ADHD symptoms at age 3 were concurrently associated with fewer social skills and lower adaptability. There was no association between ADHD symptoms and improvement in social skills or adaptability from 3 to 6 years of age. Greater ADHD symptoms at age 3 were associated with fewer social skills at age 6 (Table 3).

Question 2: Are child ODD symptoms associated with child social skills and adaptability?

Greater ODD symptoms at age 3 were associated with fewer social skills and lower adaptability. There was no association between ODD symptoms and improvement in social skills and adaptability from 3 to 6 years of age. Greater ODD symptoms were associated with fewer social skills and lower adaptability at age 6 (Table 3).

Question 3: Are positive and negative parental marital conflict strategies associated with child social skills and adaptability?

Greater use of positive conflict strategies by mothers at age 3 was associated with higher social skills but not associated with adaptability. There was no association between maternal positive conflict strategy use and improvement in social skills and adaptability from age 3 to 6. There was no association between maternal positive conflict strategy use and social skills or adaptability at age 6 (Table 3).

Greater use of negative conflict strategies by mothers at age 3 was not associated with social skills or adaptability. There was no association between maternal negative conflict strategy use and improvement in social skills and adaptability from age 3 to 6. Greater maternal negative conflict strategy use was associated with lower adaptability at age 6, but there was no association with social skills (Table 3).

Greater use of positive conflict strategies by fathers at age 3 was not associated with social skills or adaptability. Greater paternal positive conflict strategy use was associated with greater improvement in social skills and adaptability from age 3 to 6. Paternal positive conflict strategy use was associated with greater social skills and greater adaptability at age 6 (Table 3).

Greater use of negative conflict strategies by fathers at age 3 was not associated with social skills or adaptability. Greater paternal negative conflict strategy use was associated with less improvement in adaptability from age 3 to 6 but there was no association with social skills. There was no association between paternal negative conflict strategy use and social skills or adaptability at age 6 (Table 3).

Question 4: Is parental warmth associated with child social skills and adaptability?

There was no association between maternal warmth at age 3 with social skills or adaptability. There was no association between maternal warmth and improvement in social skills and adaptability. There was no association between maternal warmth or social skills and adaptability at age 6 (Table 3).

Greater paternal warmth at age 3 was associated with higher social skills but was not associated with adaptability. Greater paternal warmth was associated with more improvement in social skills from age 3 to 6 but there was no association with adaptability. There was no association between paternal warmth and social skills or adaptability at age 6 (Table 3).

Question 5: Is parental depression associated with child social skills and adaptability?

Higher maternal depression was associated with fewer social skills and lower adaptability at age 3. There was no association between maternal depression and improvement in social skills or adaptability. At age 6, higher maternal depression was associated with fewer social skills and lower adaptability (Table 3).

Higher paternal depression was not associated with social skills or adaptability at age 3. Higher paternal depression was associated with less improvement in adaptability

from age 3 to 6 but there was no association with social skills. Higher paternal depression was associated with fewer social skills and lower adaptability at age 6, (Table 3).

### Summary

In summary, at age 3, ADHD, ODD, and maternal depression were associated with fewer social skills and lower adaptability. Paternal warmth and maternal positive conflict strategies were associated with higher social skills. From age 3 to 6, greater paternal positive conflict strategies were associated with greater improvement in social skills and adaptability. Additionally, fathers' warmth was associated with greater improvement in social skills. From age 3 to 6, paternal depression and paternal negative conflict strategies were associated with less improvement in adaptability. Greater paternal positive conflict strategies were associated with higher social skills and adaptability at age 6. ODD, maternal depression, and paternal depression were associated with fewer social skills and lower adaptability at age 6. ADHD was associated with fewer social skills at age 6. Maternal negative conflict strategies were associated with lower adaptability at age 6.

### Combined Models

Once separate models were run for each predictor, multiple predictor models were run to understand the association between the predictors and each outcome controlling for other significant predictors. Again, two models (i.e., T1 and T4) were run to determine the association between the predictors and the outcome. First, the predictors found to significantly predict the intercept or slope for social skills were simultaneously placed into an overall model predicting social skills. Then the predictors found to significantly predict T4 social skills were placed in an overall model. Similarly, two separate overall

models were constructed for adaptability. Once all predictors that significantly predicted intercept, slope, or T4 social skills or adaptability were added, if any estimates had a significance level greater than .2, the least significant predictor was dropped one at a time until there were no predictors with a significance level greater than .2.

Multiple predictor models for social skills. The initial T1 multiple predictor model for social skills included ADHD, ODD, maternal positive conflict strategies, paternal conflict strategies, maternal depression, and paternal warmth. During data analysis, ADHD was dropped from the model because the significance level was greater than .2. All other variables remained in the final model. At age 3, higher maternal depression ( $\gamma = -.31, SE = 0.12, p = .01$ ) and greater ODD symptoms ( $\gamma = -.89, SE = 0.31, p = .004$ ) were associated with fewer social skills. Higher paternal warmth was associated with greater social skills at age 3, ( $\gamma = 3.15, SE = 1.06, p = .003$ ). Contrary to predictions, greater paternal warmth ( $\gamma = -.87, SE = 0.44, p < .05$ ) and maternal positive conflict strategy use ( $\gamma = -1.54, SE = 0.76, p < .05$ ) were associated with less improvement in social skills from age 3 to 6. Greater paternal positive conflict strategy use ( $\gamma = 1.94, SE = 0.68, p = .004$ ) was associated with greater improvement in social skills from age 3 to 6.

The initial T4 multiple predictor model for social skills included ADHD, ODD, paternal positive conflict strategies, maternal depression, and paternal depression. During data analysis, ADHD was dropped because the significance level was greater than .2. Next, paternal depression was dropped from the model. All other variables remained in the final model. At age 6, higher maternal depression was associated with fewer social skills,  $\gamma = -.26, SE = 0.11, p = .02$ .

Multiple predictor models for adaptability. The initial T1 multiple predictor model for adaptability included ADHD, ODD, maternal depression, paternal depression, paternal positive conflict strategies, and paternal negative conflict strategies. During data analysis, paternal negative conflict strategies were dropped from the model because the significance level was greater than .2. All other variables remained in the final model. At age 3, greater ODD symptoms ( $\gamma = -1.01$ ,  $SE = 0.48$ ,  $p = .04$ ) and higher maternal depression ( $\gamma = -.41$ ,  $SE = 0.13$ ,  $p = .002$ ) were associated with lower adaptability. Contrary to predictions, greater paternal positive conflict strategy use was associated with lower adaptability at age 3,  $\gamma = -5.39$ ,  $SE = 1.98$ ,  $p = .006$ . Higher paternal depression was associated with less improvement in adaptability from age 3 to 6,  $\gamma = -.15$ ,  $SE = 0.06$ ,  $p = .01$ . Greater paternal positive conflict strategy use was associated with greater improvement in adaptability from age 3 to 6,  $\gamma = 2.34$ ,  $SE = 0.84$ ,  $p = .005$ .

The initial T4 multiple predictor model for adaptability included ODD, maternal depression, paternal depression, maternal negative conflict and paternal positive conflict strategies. During data analysis, maternal negative conflict strategies were dropped from the model because the significance level was greater than .2. Next, maternal depression was dropped from the model. All other variables remained in the model. At age 6, ODD symptoms ( $\gamma = -.60$ ,  $SE = 0.28$ ,  $p = .04$ ) and paternal depression ( $\gamma = -.54$ ,  $SE = 0.15$ ,  $p = .001$ ) were associated with lower adaptability.

## CHAPTER 4

### DISCUSSION

The present investigation expanded on the existing literature by examining the development of social skills and adaptability longitudinally in young children (i.e., age three to six) with behavior problems. The study simultaneously examined parent-focused predictors (i.e., marital conflict strategies, depression, and warmth) and child-focused predictors (i.e., ODD and ADHD symptoms). The findings and implications are discussed in the following sections.

#### The Association between ODD, ADHD, Social Skills, and Adaptability

At age 3, ADHD and ODD were significantly associated with low social skills and adaptability. These findings support previous research which demonstrates that ADHD is associated with low social competence, poor social cognition, and difficulty forming and maintaining peer relationships (Demopoulos et al., 2013; Feinberg, 2002; Landau & Moore, 1991; Nixon, 2001). This study is one of few studies which directly examined the association between ADHD and adaptability but the findings support previous research (Manning & Miller, 2001). Furthermore, this study is the first to examine the association between ADHD and adaptability in preschoolers. The findings also support previous research that associated ODD with social impairment, hostility towards peers, and poor social-problem-solving (Coy et al., 1999; Frankel & Feinberg, 2002; Webster-Stratton & Lindsay, 1999). As discussed earlier, theory suggests that poor attentional control, poor self-regulation, and misinterpretation of social interactions may hinder the development of social skills in children with ADHD and ODD.

Contrary to predictions, there was no association between ODD or ADHD and improvement in social skills and adaptability from age 3 to 6. ADHD was associated with lower social skills at age 6. As discussed earlier, this finding supports previous research (Feinberg, 2002; Landau & Moore, 1991; Nixon, 2001).

ODD was associated with lower social skills and adaptability at age 6. Similarly, the findings support previous research that found that ODD is associated with social impairment, hostility towards peers, and poor social-problem-solving (Coy et al., 1999; Frankel & Feinberg, 2002; Webster-Stratton & Lindsay, 1999). Previous research has not examined the association between adaptability and ODD. However, this study suggests that these factors are associated with adaptability and future studies should continue to investigate this association.

#### The Association between Maternal and Paternal Depression, Social Skills, and Adaptability

At age 3, maternal depression was significantly associated with low social skills and adaptability. The findings also support previous research associating maternal depression and poor social competence (Anderson & Hammen, 1993; Leiferman, 2002; Malmberg & Flouri, 2011). The associations between adaptability and maternal depression have not been examined in prior studies but the current findings found an association.

Contrary to predictions, at age 3 there was no association between paternal depression and either outcome (social skills or adaptability). Few studies have explicitly examined the association between paternal depression and social skills and adaptability (Wilson & Durbin, 2010). However, the few studies that have been conducted suggest

that there is an association between paternal depression and child outcomes (Wilson & Durbin, 2010).

Paternal depression was associated in significantly less improvement in adaptability from age 3 to 6. Previous research has not examined these associations. However, given that adaptability describes a child's tendency to adapt to changes, explore new places and situations, recover from negative emotions, and exhibit positive emotions when interacting with others, it is plausible that children with a depressed parent would not see their parents modeling this behavior as a result of their depressed mood (Reynolds & Kamphaus, 1992). Given that young children often model their parents' behavior, without this example children might not develop the foundational skills associated with adaptability.

Maternal depression and paternal depression were associated with lower social skills and adaptability at age 6. As noted earlier, these findings support previous research associating maternal depression and poor social competence (Anderson & Hammen, 1993; Herbert et al., 2013; Leiferman, 2002; Malmberg & Flouri, 2011). Furthermore, given that maternal and paternal depression were measured at T1, these findings suggest that the effects of parental depression persists for at least three years or parental depression may be ongoing.

#### The Association between Maternal and Paternal Positive Conflict Strategies, Social Skills, and Adaptability

At age 3, maternal positive conflict strategies were associated with higher social skills. This finding supports previous research associating constructive marital conflict with greater prosocial behavior in school-aged children (McCoy et al., 2009). These

findings suggest that even young children's social skills can be strengthened by parental factors. Contrary to predictions, at age 3 no association was found between paternal positive conflict strategies and either outcome (i.e., social skills or adaptability).

Paternal positive conflict strategies were associated with improvement in both social skills and adaptability from age 3 to 6. Previous research has suggested that there is an association between parental conflict strategies and social skills (Goodman et al., 1999; Lindsey et al., 2006). Therefore, the current findings are consistent with the notion that children may learn social rules and communication strategies from their parents and children are able to use these skills in their peer relationships. Previous literature has not examined the association between paternal positive conflict strategies and adaptability. However, the current findings suggest that there is an association and future studies should continue to investigate this association.

Paternal positive conflict strategies were associated with greater social skills and higher adaptability at age 6. As discussed earlier, perhaps children are more influenced by parental conflict styles as they age because they are more aware of the conflict styles and better able to imitate their parents.

#### The Association between Maternal and Paternal Negative Conflict Strategies, Social Skills, and Adaptability

Contrary to predictions, at age 3 there was no association between maternal negative conflict strategies or paternal negative conflict strategies and either outcome. Parental conflict strategies had not previously been examined in the literature in relationship to children's social skills and adaptability. It is possible that children do not model their parents' conflict strategies in their peer relationships, despite previous

evidence suggesting such an association (Bandura, 1989; Grusec 1992; Guralnick, 1999). It is also possible that our measure of parental conflict strategies did not capture the types of strategies that preschoolers would be able to reliably imitate.

Paternal negative conflict strategies were associated with significantly less improvement in adaptability from age 3 to 6. Similarly, it is possible that children who witness their fathers' negative conflict strategies are less likely to learn how to recover from negative emotions and less likely to exhibit positive emotions when interacting with others.

Maternal negative conflict strategies were associated with lower adaptability at age 6. This association did not exist at age 3, which may suggest that as children age and become more aware of their parents' conflicts, they are more likely to be negatively impacted by negative conflict strategies.

The Association between Maternal and Paternal Warmth, Social Skills, and Adaptability

At age 3, paternal warmth was associated with higher social skills. This finding supports previous research associating parental warmth and social competence in young children (Eiden et al., 2009; Spinrad et al., 2007; Webster et al., 2013). Social learning theory suggests that children learn social skills from their parents. Warm parents likely spend more time with their children which increases the opportunities for children to observe and learn social skills.

Contrary to predictions, higher paternal warmth was associated with significantly less improvement in social skills from age 3 to 6 and there was no association between maternal warmth and improvement in social skills from age 3 to 6. Previous research on the association between maternal and paternal warmth and social skills is mixed. Some

studies have found that that high paternal warmth is associated with higher social skills (Webster et al., 2013) while other studies have found that there is no association between maternal or paternal warmth and social skills (Pettit et al., 1997). It is also possible that since the majority of mothers and fathers in our sample were very warm in their interactions with their children, there is not enough variability in warmth to detect significant changes in social skills over time or parental warmth may not be associated with social skills.

Contrary to predictions, at age 6 there was no association between maternal or paternal warmth and either outcome (i.e., social skills or adaptability).

#### Summary

Overall, the most significant predictors of children's social skills and adaptability are ODD symptoms, maternal and paternal depression, and paternal positive conflict strategies. Given that the association between paternal positive conflict strategies and child functioning is rarely studied, these findings point to the importance of continuing to identify areas of resilience for children with behavior problems. This study is consistent with maternal and paternal depression seriously impacting a child's development. Although maternal depression has been extensively studied in the literature, this study reveals that paternal depression may also have serious consequences for children's development. Child ODD symptoms may be particularly strongly associated with poor social skills because children with ODD symptoms are likely rejected by peers and adults and have few opportunities to practice their social skills or learn new skills from others. These findings suggest that children with ODD symptoms may be at a greater risk for poor social skills and adaptability than children with ADHD symptoms. Future research

should continue to differentiate the effects of ADHD and ODD symptoms on children's development.

#### Limitations and Future Directions

The current study had several limitations. First, the outcome measures of social skills and adaptability were solely based on maternal report. Similarly, the child-focused predictors, ODD and ADHD, were also solely based on maternal report. Future studies, should incorporate multiple reporters in multiple settings, such as teachers and parents, in order to gain a complete picture of children's functioning. Second, although age 3 to 6 is an important time in a child's development, this time period is relatively short and it is likely that a longer time period would give us more information about the association between these predictors and social skills and adaptability. Third, the predictor variables were all measured at T1, and given that a great deal of change occurs in early childhood, it is possible that child ODD and ADHD symptoms may have increased or decreased from age 3 to 6. Parent-focused predictors (i.e., warmth, depression, and conflict strategies) may have also changed since age 3. Parents may have sought therapy for depression or marital problems or the problems may have gotten worse since T1. Future studies should consider associating predictors and outcomes at each time point.

This study contributes to the limited literature on the development of social skills and adaptability in children with behavior problems. The findings suggest that maternal factors, paternal factors, and child factors are independently related to the development of social skills and adaptability. Furthermore, these findings demonstrate that some children with behavior problems are able to flourish despite the challenges they encounter in early life.

Table 1: Intercorrelations, Means, and Standard Deviations of Study Variables at Time 1

Variable	<i>M (SD)</i>	<i>n</i>	1	2	3	4	5	6	7	8	9	10	11
1. ADHD	3.04 (1.80)	124	–										
2. ODD	2.39 (1.96)	124	.75***	–									
3. Mom’s depression	5.74 (6.28)	153	.25**	.29**	–								
4. Dad’s depression	3.47 (5.12)	118	.29**	.17	.41***	–							
5. Mom’s warmth	4.51 (0.95)	149	-.28**	-.19*	-.26**	.11	–						
6. Dad’s warmth	4.63 (0.80)	103	.02	-.04	.08	.11	.19	–					
7. Mom’s positive conflict strategies	2.20 (0.37)	116	-.15	-.16	-.16	-.02	-.02	.09	–				
8. Dad’s positive conflict strategies	2.02 (0.45)	116	-.26**	-.18	-.19*	-.25**	.18	.07	.18	–			
9. Mom’s negative conflict strategies	.40 (0.23)	116	.25**	.28**	.38***	.28**	-.12	.06	-.41***	-.20*	–		
10. Dad’s negative conflict strategies	.39 (0.21)	116	.14	.13	.09	.32**	-.02	.11	-.14	-.31**	.65***	–	
11. T1 social skills	45.29 (10.53)	160	-.28**	-.33***	-.26**	-.07	.17*	.22*	.25**	-.01	-.13	.12	–
12. T1 adaptability	43.83 (10.41)	161	-.14	-.28**	-.29***	-.03	.04	.14	.17	-.11	-.06	.11	.64***

*Note.* ADHD = attention deficit hyperactivity disorder; ODD = oppositional defiant disorder; T1 = time 1.  
\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 2: Intercorrelations, Means, and Standard Deviations of Social Skills and Adaptability

Variable	<i>M</i> ( <i>SD</i> )	<i>n</i>	Time 1 social skills	Time 4 social skills	Time 1 adaptability
Mother reported social skills					
Time 1	45.29 (10.53)	160	—	.53***	.64***
Time 2	47.81 (9.24)	161	.58***	.57***	.31***
Time 3	49.42 (9.63)	137	.40***	.73***	.24**
Time 4	49.32 (8.94)	141	.53***	—	.26**
Mother reported adaptability					
Time 1	43.83 (10.41)	161	.64***	.26**	—
Time 2	45.86 (9.62)	160	.52***	.39***	.51***
Time 3	47.50 (9.90)	137	.33***	.49***	.41***
Time 4	43.77 (9.16)	141	.37***	.66***	.36***

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

Table 3: Predictors of Initial Level and Linear Rate of Change in Adaptability and Social Skills in Single Predictor Models

Predictor Variable	Initial Level		Linear Rate of Change <sup>a</sup>		T4 Outcome	
	Social Skills	Adaptability	Social Skills	Adaptability	Social Skills	Adaptability
	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)
ADHD	-0.83* (0.33)	-1.81*** (0.33)	-0.04 (0.11)	0.02 (0.13)	-0.73* (0.31)	-0.62 (0.32)
ODD	-1.08*** (0.30)	-1.34 *** (0.30)	0.002 (0.11)	-0.03 (0.13)	-0.84** (0.28)	-0.87** (0.29)
Mom's positive conflict strategies	4.85* (2.40)	3.85 (2.47)	-1.16 (0.76)	-0.92 (0.81)	0.22 (2.24)	-0.57 (2.30)
Dad's positive conflict strategies	-1.02 (2.06)	-3.61 (2.03)	1.61** (0.60)	2.64*** (0.69)	4.23* (1.86)	5.60** (1.87)
Mom's negative conflict strategies	-1.77 (3.95)	-1.94 (3.95)	-0.46 (1.14)	-2.18 (1.23)	-2.80 (3.59)	-8.18* (3.55)
Dad's negative conflict strategies	5.99 (4.33)	5.10 (4.40)	-2.33 (1.31)	-2.97* (1.42)	-2.60 (4.02)	-6.08 (4.06)
Mom's warmth	1.57 (0.82)	0.82 (0.85)	-0.14 (0.28)	0.04 (0.29)	0.80 (0.82)	0.68 (0.83)
Dad's warmth	2.99* (1.17)	1.82 (1.17)	-0.90* (0.43)	-0.27 (0.43)	-0.26 (1.17)	0.43 (1.24)
Mom's depression	-0.38** (0.12)	-0.46 *** (0.12)	-0.02 (0.04)	-0.04 (0.05)	-0.36 ** (0.11)	-0.38** (0.11)
Dad's depression	-0.25 (0.18)	-0.13 (0.18)	-0.06 (0.05)	-0.18*** (0.05)	-0.42** (0.16)	-0.64*** (0.15)

<sup>a</sup> Controlling for child's initial level.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 4: Predictors of Initial Level and Linear Rate of Change of Social Skills and Adaptability in Final T1 Multiple Predictor Models

	Initial Level $\beta$ (SE)	Linear Rate of Change <sup>a</sup> $\beta$ (SE)
T1 Social Skills Multiple Predictor Model		
ODD	-.89 (.31)**	.09(.12)
Mom's depression	-.31 (.12)*	.00 (.05)
Dad's warmth	3.15 (1.06)**	-.87 (.44)*
Mom's positive conflict strategies	2.95 (2.31)	-1.54 (.76)*
Dad's positive conflict strategies	-3.42 (1.90)	1.94 (.68)**
T1 Adaptability Multiple Predictor Model		
ADHD	-.30 (.52)	.33 (.19)
ODD	-1.01 (.48)*	-.12 (.19)
Mom's depression	-.41 (.13)**	.06 (.06)
Dad's depression	.03 (.19)	-.15 (.06)*
Dad's positive conflict strategies	-5.39 (1.98)**	2.38 (.84)**

<sup>a</sup> Controlling for child's initial level.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 5: Predictors of Social Skills and Adaptability in Final T4 Multiple Predictor Models

	T4 Outcome <i>β</i> ( <i>SE</i> )
T4 Social Skills Multiple Predictor Model	
ODD	-.56 (.29)
Mom's depression	-.26 (.11)*
Dad's positive conflict strategies	2.88 (1.88)
T4 Adaptability Multiple Predictor Model	
ODD	-.60 (.28)*
Dad's depression	-.54 (.15)**
Dad's positive conflict strategies	3.01 (1.90)

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

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