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Adoptive and Nonadoptive Mother–Child Behavioral Interaction: A Comparative Study at 4 Years of Age

Joan T. D. Suwalsky, Christina M. Padilla, Cynthia X. Yuen, E. Parham Horn, Alexandra L. Bradley, Diane L. Putnick, and Marc H. Bornstein

Child and Family Research, Eunice Kennedy Shriver National Institute of Child Health and Human Development, Bethesda, MD

Abstract

Comparable samples of low-risk adopted and nonadopted children and mothers were observed during 3 tasks at age 4 years. Quality of mother-child interactions, child level of functioning in 4 domains, and maternal parenting satisfaction and social support were assessed. Adopted children were as competent as nonadopted children on measures of developmental functioning. Both groups of mothers expressed high satisfaction and support as parents. However, ratings of child, maternal, and dyadic behavior when interacting were all lower for adoptive dyads than for nonadoptive dyads, and adoptive dyads with boys accounted for the maternal and dyadic group differences.

Keywords

Adoption; mother-child interaction; low-risk adoption

A literature has developed in the last 50 years indicating that adoption is a beneficial alternative for children who cannot be reared by their biological parents (Hoksbergen, 1999; Juffer & van IJzendoorn, 2007; Palacios & Sanchez-Sandoval, 2003). At the same time, adoption is associated with behavioral and learning difficulties for some children (Bimmel, Juffer, van IJzendoorn, Bakermans-Kranenburg, 2003; Juffer & van IJzendoorn, 2005;

Address correspondence to: Joan T. D. Suwalsky, M. A., Research Psychologist, Child and Family Research, *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, National Institutes of Health, Rockledge 1, Suite 8030, 6705 Rockledge Drive, MSC 7971, Bethesda, MD 20892-7971, U.S.A. Joan.Suwalsky@nih.gov.
Christina M. Padilla, B.A., PhD/MPP, Candidate in Psychology and Public Policy, Georgetown University, 2617 Garfield St., NW, Washington, DC 20008, U.S.A. cpadilla0329@gmail.com
Cynthia X. Yuen, B.A., PhD, Candidate in Developmental Psychology, University of Illinois at Urbana-Champaign, 618 Psychology Building, 603 E. Daniel St., Champaign, Illinois, 61820, U.S.A. cyuen7@illinois.edu
E. Parham Horn, B.A., Postbaccalaureate Trainee, Child and Family Research, *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, National Institutes of Health, Rockledge 1, Suite 8030, 6705 Rockledge Drive, MSC 7971, Bethesda MD 20892-7971, U.S.A. e.parham.horn@gmail.com
Alexandra L. Bradley, B.A., Master of Public Health Candidate, Department of Prevention and Community Health: Maternal and Child Health, Milken Institute School of Public Health, The George Washington University, 950 New Hampshire Ave NW, Washington, DC 20052, U.S.A. alexandrabradley@gmail.com
Diane L. Putnick, Ph.D., Research Statistician, Child and Family Research, *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, National Institutes of Health, Rockledge 1, Suite 8030, 6705 Rockledge Drive, MSC 7971, Bethesda MD 20892-7971, U.S.A. Diane.Putnick@nih.gov
Marc H. Bornstein, Ph.D., Chief, Child and Family Research, *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, National Institutes of Health, Rockledge 1, Suite 8030, 6705 Rockledge Drive, MSC 7971, Bethesda MD 20892-7971, U.S.A. Marc.H.Bornstein@nih.gov

Nickman et al., 2005; Stams, Juffer, Rispen, & Hoksbergen, 2000; van IJzendoorn, Juffer, & Poelhuis, 2005). In the effort to more fully understand how adoption both supports children's healthy development and is associated with risk, research attention has expanded from a focus primarily on developmental outcomes in clinical samples of adopted children to the examination of adoptive family functioning in community samples (Palacios & Brodzinsky, 2010; Reuter, Keyes, Iacono, & McGue, 2009). Few studies, however, have directly observed behavioral interactions in adoptive parents and children beyond the earliest years. Knowledge about how interaction patterns compare in non-clinical adoptive and nonadoptive families will further our understanding of how the family built by adoption supports healthy child development.

It has been theorized that protective factors in childhood (e.g., having been adopted in the first half year of life, having a secure attachment to parents) should buffer negative effects of risk factors (e.g., having been adopted) and promote resilience (Rutter, 1990). Our goal in this study was to ask for a group of children adopted under very favorable conditions—healthy infants adopted before 6 months of age by married couples of higher SES—the basic question of whether mothers and children had developed a well-functioning relationship by preschool age. We examined the quality of interactions between mothers and their 4-year-old children in a community sample of adoptive families and nonadoptive families matched on important demographic variables. A behavioral coding system grounded in attachment theory was used (Egeland et al., 1995) to assess maternal sensitivity and support and child affective responsiveness and exploration during joint age-appropriate tasks. We also consider several child (gender, behavioral adjustment, self-concept, intelligence, and adaptive behavior) and mother (maternal parenting satisfaction and social support) factors in relation to these interactions.

Dyadic Interaction

The quality of mother-child interaction has been shown to be moderately stable from infancy through adolescence (Pianta, Sroufe, & Egeland, 1989; Weinfield, Ogawa, & Egeland, 2002). Greater maternal sensitivity and support are associated with better social and cognitive development in both adopted and nonadopted children (Jaffari-Bimmel, Juffer, van IJzendoorn, Bekermans-Kranenburg, & Mooijart, 2006; Pianta, Erickson, Wagner, Kreutzer, and Egeland, 1990; Stams, Juffer, & van IJzendoorn, 2002). Maternal sensitivity has been positively linked to attachment security (Beijersbergen, Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2012; Erickson, Sroufe, & Egeland, 1985; NICHD, 2001), and relationship quality has been linked to child academic functioning and behavioral adjustment from preschool through adolescence (Carlson, 1998; Lorber & Egeland, 2011; Yates, Obradovic, & Egeland, 2010).

Despite the positive relations between quality of dyadic functioning and developmental outcomes for children, mother-child behavioral interaction has rarely been directly observed in adoptive samples. In one exception, a study of children internationally and transracially adopted at an early age and under favorable conditions in the Netherlands, qualitative aspects of maternal behavior were assessed during interactions of mother-child dyads in age-appropriate task settings at 6, 12, 18, and 30 months as well as at 7 years (Juffer &

Rosenboom, 1997; Stams et al., 2000; Stams et al., 2002). At the earlier ages, maternal sensitivity was similar for adoptive and nonadoptive mothers. By age 7, however, the same adoptive mothers displayed lower levels of responsiveness than nonadoptive mothers. Child behavior in interaction with mother was not reported.

Child Functioning

In infancy and toddlerhood, early-adopted children have generally been found to perform on par with non-adopted children on measures of attachment, behavioral adjustment, and temperament (Juffer & Rosenboom, 1997; Juffer & van IJzendoorn, 2007; Plomin & DeFries, 1985; Singer, Brodzinsky, Ramsay, Steir, & Waters, 1985; Wierzbicki, 1993). Meta-analyses indicate that adopted children have self-esteem comparable to that of nonadopted children from early childhood through adolescence (Juffer & van IJzendoorn, 2007). Adopted children are also found to have measured intelligence comparable to that of their nonadopted classmates (Stams et al., 2000), although, in a discrepancy between ability and achievement that has been labeled the “adoption décalage,” some studies have reported that adopted children exhibit lower school achievement, delays in language development, and a higher incidence of learning problems (Brodzinsky, Schechter, Braff, & Singer, 1984; van IJzendoorn et al., 2005). By middle childhood there is also evidence that adopted children display more behavioral problems, especially of the externalizing type (Brodzinsky, Radice, Huffman, & Merkler, 1987; Juffer & van IJzendoorn, 2005; Verhulst, Althaus, & Versluis-den Bieman, 1990; Wierzbicki, 1993). In this literature, there is relatively little information about the preschool period, an important transition phase between the early years and those years when adoptees appear to be at increased risk of developing behavior and learning difficulties.

Studies focusing on gender differences in adoptive child functioning also indicate few differences in infancy but emerging differences in middle childhood and adolescence. Plomin and DeFries (1985) reported negligible differences in motor skills, language proficiency, cognitive development, temperament, and behavior problems between adopted girls and boys in infancy and toddlerhood. Juffer and Rosenboom (1997) found no differences in boys’ versus girls’ rates of secure attachment to mother in infancy. However, in middle childhood and adolescence, there is evidence that adopted girls are better adjusted than adopted boys in terms of social behavior, impulse control, and externalizing behavior problems and perform better academically, but that adopted boys have higher self-worth and lower levels of depression (Burrow, Tubman, & Finley, 2004; Coon, Carey, Corley, & Fulker, 1992; Stams et al., 2002).

Parental Satisfaction and Social Support

Maternal parenting satisfaction and social support from family members and other groups are associated with the successful transition to parenthood in adoptive and nonadoptive families (Bird, Peterson, & Miller, 2002; Elek, Hudson, & Bouffard, 2003). In one report, comparing the two groups, adoptive parents were found to be more satisfied with their parental roles even though adoptive and nonadoptive parents received comparable levels of support from the grandparents of their children (Ceballo, Lansford, Abbey, & Stewart,

2004). Levy-Schiff, Goldschmit, and Har-Evan (1991) reported that the more support adoptive parents received and the higher their expectations of life with a child, the more satisfaction they felt after their child arrived. Social support has been shown to act as a buffer for stress and mental health issues in adoptive families (Bird et al., 2002). Although adoptive families tend to function very well overall, parents who report experiencing the most distress also perceive their extended families as being less supportive of the decision to adopt (Palacios & Sanchez-Sandoval, 2006).

This Study

This study was designed to investigate the quality of behavioral interactions between mothers and their 4-year-old children in families built by adoption and by birth. A group of adoptive families with first children who had arrived in the home before 5 months of age and a group of nonadoptive families comparable on multiple important sociodemographic variables were studied. A first goal was to compare adoptive and nonadoptive families in terms of the quality of child, maternal, and dyadic behavior while jointly engaged in ordinary tasks—reading a story, working on a puzzle, making a drawing. Based on the research of Stams et al. (2000), which found that adoptive mothers' sensitivity declined from infancy/toddlerhood to middle childhood, we predicted that adoptive dyads might interact less harmoniously at preschool age than nonadoptive controls. A second goal was to examine selected child (gender, behavioral adjustment, self-concept, intelligence, and adaptive behavior) and maternal (parenting satisfaction and social support) factors that might help explain group differences found in quality of dyadic interaction. We reasoned that less optimal mother-child interaction might be associated with less mature child functioning or reduced maternal parenting satisfaction and social support. In all analyses comparing adoptive and nonadoptive samples, important sociodemographic characteristics were controlled to remove potential confounding variance.

Method

Participants

The sample consisted of 68 European American mothers (33 who had adopted and 35 who had given birth) and their 4-year-old children (15 girls in each group). Families were part of a larger longitudinal study of normative development and were recruited through adoption agencies and mailings in a major U. S. East coast metropolitan area. In adoptive families, children were adopted as healthy infants before 5 months of age by married couples. Twenty-seven European American infants were adopted domestically (70% privately and 30% with the assistance of an agency), arriving in the adoptive home at an average of 7.8 days of age (range = 0–36); 41% of these adoptive parents had been present at the child's birth. Six children had been adopted internationally (33% privately and 67% with the help of an agency; 4 were Korean, 1 was of Polish ancestry, and 1 was Brazilian of Portuguese ancestry), arriving home at an average of 72 days of age (range = 11–128). (We repeated the main analyses on adoptive-nonadoptive differences in behavioral interaction without the international adoptees, and all statistical decisions regarding significance were the same; therefore, they were retained.) Dyads in the adoptive and nonadoptive groups were equated

on child age and gender, whether or not the mother reported any serious child health or behavior problems since birth, maternal age, education, hours of employment, and marital status, and family SES (Table 1).

Procedure

Mothers and their 4-year-old children made a single visit to the laboratory. During the visit, the children engaged in a variety of tasks assessing multiple aspects of their socioemotional and cognitive functioning. Mothers were also asked to complete questionnaires about their children, themselves, and their families. To assess quality of dyadic interaction, three tasks lasting a total of approximately 30 min were used – a picture book reading, a cooperative puzzle, and a cooperative drawing – with varying demand characteristics designed to elicit a range of mother-child behavioral exchanges. To assess whether the children's behavior during the session was typical, mothers completed an evaluation of the visit at the conclusion of the visit. Questions about the child's performance and comfort level were rated on 8-point (range = 0–7) graphic rating scales with higher scores indicating more positive evaluations. Both groups scored similarly on measures of whether children behaved typically ($M_A = 4.78$, $SD_A = 1.07$; $M_{NA} = 4.91$, $SD_{NA} = .88$) $t(63) = .53$, $p = .60$; liked the experimenters ($M_A = 4.94$, $SD_A = 1.00$; $M_{NA} = 5.18$, $SD_{NA} = .72$), $t(65) = 1.12$, $p = .267$; and were comfortable during the visit ($M_A = 4.94$, $SD_A = 1.05$; $M_{NA} = 5.00$, $SD_{NA} = .98$), $t(64) = .25$, $p = .80$. Approximately 2 weeks after the laboratory visit, the Vineland Adaptive Behavior Scales were administered by a trained experimenter, who had not interacted with the child during the laboratory visit, during a 1-hr telephone interview with mother.

Measures

Demographic information—All mothers completed a Family Description Questionnaire, providing family sociodemographic information.

Behavioral interactions—The Teaching Tasks Scales (TTS; Egeland et al., 1995) were used to code child, maternal, and dyadic behavior during the book reading, puzzle, and drawing tasks. Grounded in attachment theory and reflecting an organizational perspective, these scales (and adaptations of them) have been used extensively to assess the quality of mother-child behavioral interaction from toddlerhood through adolescence. In this study, 9 scales were used: 4 scales focused on child behavior, 4 on maternal behavior, and 1 on dyadic behavior. Child scales were Positive Orientation (degree that the child displayed positive regard and sharing of happy feelings toward the mother); Noncompliance (unwillingness to take mother's suggestions or comply with her requests); Persistence (degree of focus on completing the tasks); and Negativity (anger, dislike, or hostility shown toward the mother). Maternal scales were Supportive Presence (involvement and provision of a secure base for the child); Quality of Instruction (ability to provide the child with timely and appropriate scaffolding); Intrusiveness (behaviors that demonstrate a lack of respect for the child's autonomy); and Hostility (behaviors that are dismissive, demeaning, or rejecting of the child). A single scale, Dyadic Quality of Relationship, assessed the extent to which the dyad functioned positively and harmoniously. All scales ranged from 1 to 7, with a higher score indicating a greater degree of the construct being evaluated. All interactions were rated independently by two coders. If their scores for any scale differed by 1 point, the

average was used. If their scores differed by more than 1 point, the two coders arrived at a consensus score for that scale. Coders did not know that some children in the sample had been adopted. Although the physical appearance of mother and infant could be different for internationally adopted dyads, coders were more likely to attribute these differences to the ethnicity of the baby's father than to adoption. Interrater reliability was assessed using average absolute agreement intraclass correlation coefficients (ICC) in a two-way random effects model (McGraw & Wong, 1996). Six coders achieved training reliability on all scales with a coder trained by the authors of the scales, ICCs ranging from .70 to .97.

Because the 9 TTS shared variance (range = 4 – 67%) we performed a principal components analysis with oblimin rotation (to allow correlated components) to determine whether the 9 scales could be reduced to a smaller number of dimensions. Two components emerged with eigenvalues over 1, explaining 57.85% and 11.28% of the variance in the scales. The pattern matrix indicated that the 4 child scales loaded on the first factor (absolute rotated loadings = .76–.95), and the 4 mother scales loaded on the second factor (absolute rotated loadings = .52–.81). The dyadic quality of relationship scale loaded primarily on the child factor (rotated loading = .78), but for theoretical reasons we chose to retain this scale as an indicator of Dyadic Behavioral Interaction. The 4 child and 4 mother scales were averaged after reversing the negatively-valenced scales (child Noncompliance and Negativity and maternal Intrusiveness and Hostility) to form scales of the Child's and Mother's contributions to Behavioral Interaction, respectively.

Child behavioral adjustment—The Preschool Behavior Questionnaire (PBQ; Behar & Stringfield, 1974) assesses problem behaviors of the child as reported by mother. Each of 30 questions was rated on a 3-point scale for the degree to which a target behavior applied to the child: 0=*Doesn't apply*, 1=*Applies sometimes*, and 2=*Certainly applies*. The summary Total Problem Behavior score was used in these analyses; Cronbach's alpha reliability = .81.

Child self-concept—The Pictorial Scale of Perceived Competence and Social Acceptance (Harter & Pike, 1984) assesses child self-concept in 4 different domains: Physical Competence, Cognitive Competence, Peer Social Acceptance, and Maternal Acceptance. Twenty-four questions were scored on 4-point rating scales ranging from least competent to most competent. For each question, children were presented with two pictures—one positive and the other negative. They were asked to point to the picture that was more like them. Then, they were asked to point to either a large circle or small circle to indicate the relative magnitude of their response. For example, children were presented with two pictures, one of a child who is good at puzzles (pictured with an almost complete puzzle) and one of a child who is not so good at puzzles (pictured with an incomplete puzzle). Children were told to pick the picture that was more like them and were then prompted to indicate with the large and small circles whether they were “a lot” or “just a little bit” like the child in the picture they chose. Cronbach's alpha reliability for the scales ranged from .49 to .63, which is in line with previous studies of child-reported self-concept using this scale (Madigan, Winsler, Maradiagga, & Grubba, 2002).

Child intelligence—The Wechsler Preschool and Primary Scale of Intelligence-Revised (WPPSI-R; Wechsler, 1989) is a standardized measure of intelligence-related abilities in

children from 3 to 6.5 years of age, divided into Performance and Verbal sections. Five of 12 subtests were administered: two Performance subtests (Block Design and Picture Completion) and three Verbal subtests (Information, Arithmetic, and Similarities). In a standardization sample of 200 4-year-old children, split-half reliability coefficients were .93 for Performance IQ, .96 for Verbal IQ, and .97 for Full IQ. The prorated Full IQ score was used in this study.

Child adaptive behavior—The Vineland Adaptive Behavior Scales – Interview Edition, Survey Form (VABS; Sparrow, Balla, & Cicchetti, 1984) yields a maternal report of child adaptive behavior in four areas: Communication Skills, Daily Living Skills, Social Skills, and Motor Skills. As construed by the VABS, adaptive behavior is “the performance of the daily activities required for personal and social sufficiency” (p. 6), that is the child’s performance rather than the child’s ability. The Adaptive Behavior Composite score, created by combining the four adaptive behavior domains, was used. In a standardization sample of 200 4-year-old children, the split-half reliability coefficient for the Adaptive Behavior Composite was .96. Test-retest reliability of the Composite was .89 for 74 children between 36 and 59 months of age.

Maternal parenting satisfaction—Mothers rated a single question, developed for this study, on how satisfying the experience of parenting had been for them. Ratings ranged from 1 to 6 (1 = *Much less satisfying than hoped*; 6 = *Much more satisfying than hoped*).

Maternal social support—Using a measure developed in our laboratory, mothers rated the degree of social support provided to them by 7 sources. Ratings ranged from 0 to 5 (0 = *No contact or definitely not supportive*; 5 = *Consistently and strongly supportive*). Two summary measures were derived. Extended Family Support was computed by taking the average of support from maternal grandparents, paternal grandparents, and other relatives. Community Support was computed by taking the average of support from friends, neighbors, pediatrician, and clergy/church. We consider these social support aggregates to be indices of items (and not scales) because their respective items are conceptually related as indicators of support available to the mother, but they are not necessarily statistically related (see Streiner, 2003). For example, the likelihood of a mother feeling that her pediatrician is highly supportive may be unrelated to the likelihood of a mother feeling that her neighbors are highly supportive, but both provide community support to her.

Results

Preliminary Analyses

About 2.32% of the data points in this study were missing completely at random (Little’s MCAR $\chi^2(232) = 268.05$, $p = .052$), and fewer than 8% of data points were missing on any single variable. Therefore, the missing values were imputed using the EM algorithm (Dempster, Laird, & Rubin, 1977). Preliminary analyses indicated that TTS were not normally distributed. All subsequent analyses were based on transformed scores, but descriptive statistics are presented in their original metrics for ease of interpretation.

Although the 3 TTS shared 47–71% of their variance, each scale was theoretically meaningful, and all 3 scales were retained and analyzed separately.

We considered child age; maternal education, hours of employment, and parenting satisfaction; and family socioeconomic status as potential covariates for all analyses. Maternal age was correlated negatively with the Child Behavioral Interaction scale ($r = -.28$, $p = .020$). Because samples were comparable on maternal age, and maternal age shares variance with maternal education and family SES, age was not included as a covariate in the analyses. All other variables were unrelated to TTS scores and were thus excluded from further analyses. Data were analyzed with PASW (SPSS) Statistics 21 with 2-tailed tests and $\alpha = .05$.

Analytic Plan

Main analyses proceeded in two stages. First, group (adoptive, nonadoptive) by child gender analyses of variance (ANOVAs) were performed for the 3 behavioral interaction scales, the 7 measures of child functioning, and the 3 measures of parenting satisfaction and social support. Partial eta-squared (η^2_p) indicates effect size (percentage of variance accounted for by the target variable, controlling for other predictors, where $\eta^2_p \approx .01$ is interpreted as a small effect, $\eta^2_p \approx .06$ as a medium effect, and $\eta^2_p \approx .14$ as a large effect; Cohen, 1988). Second, to determine whether child functioning and parenting factors helped explain group differences in dyadic interactions, analyses of covariance (ANCOVAs) were computed for the behavioral interaction scales by group and gender, controlling for any child or parenting factor that had a significant mean difference by group or that was significantly correlated with an individual scale.

Adoptive-Nonadoptive Comparisons

Statistical results for differences between adoptive and nonadoptive dyads are presented in Table 2, and (to save space) only significant results are discussed below.

Behavioral interactions—The main effects of adoptive group were significant for the Child, Mother, and Dyadic Quality of Relationship scales, with adoptive dyads scoring lower than nonadoptive dyads on all scales (Table 2). Group by Child gender interactions were significant for the Mother scale, $F(1,64) = 10.05$, $p = .002$, $\eta^2_p = .136$, and the Dyadic scale, $F(1,64) = 10.19$, $p = .002$, $\eta^2_p = .137$ (Figure 1). For both, the group main effect was explained by less optimal interactions of dyads with adopted boys, who performed less well than dyads with nonadopted boys and (for the mother scale) less well than dyads with both adopted and nonadopted girls. On the Dyadic scale, dyads with nonadopted boys scored higher than all three other groups.

Child functioning—The main effect of group was significant for Adaptive Behavior, with adopted children scoring higher than nonadopted children (Table 2).

Main effects of child gender were found for Total Problem Behaviors, Full IQ, and Adaptive Behavior. Boys scored worse than girls on all 3 scales.

Parenting factors—The main effect of group was significant for maternal perception of community social support (Table 2). Adoptive mothers reported higher community support than did nonadoptive mothers.

Covariation of Child Functioning and Parenting Factors with Measures of Behavioral Interaction

To determine whether child functioning and parenting factors helped to explain group differences in dyadic interactions, we computed analyses of covariance (ANCOVAs) of the TTS by Group and Gender, controlling for any factor that had a significant mean difference by group or that was significantly correlated with a TTS. Covariates included child Cognitive Competence, Peer Acceptance, Physical Competence, Full IQ, Adaptive Behavior, Extended Family Support, and Community Support. Child behavioral interaction was correlated with child, maternal, and dyadic behavioral interactions for adoptive dyads, but few correlations existed for nonadoptive dyads. Adopted children who had lower Peer Acceptance, who displayed lower levels of Adaptive Behavior, and who were assessed to be lower in intelligence had interactions with their mothers that were less harmonious. For nonadopted families, Community Support was positively correlated with maternal (but not child or dyadic) behavior. Results of ANCOVAs (Table 3) indicated that none of the covariates explained differences between adoptive and nonadoptive groups. Controlling for Peer Acceptance, Full IQ, Adaptive Behavior, and Community Support, the main effects of group remained significant for child, mother, and dyadic behavioral interactions.

Discussion

In this study, we examined the quality of behavioral interaction of adopted and nonadopted children and their mothers at an age--4 years--that has not previously been reported. The adopted sample represented a group at low risk for developmental problems because babies had all been adopted within the first 6 months, had experienced stable care prior to adoption, had been healthy since birth, and had been adopted into intact families. We found, first, that both adoptive and nonadoptive dyads were functioning in the adaptive ranges of the 7-point scales used to assess quality of interaction. That is, average scores of 5.25 and 5.95 for maternal behavioral interaction, 5.62 and 6.18 for child behavioral interaction, and 4.89 and 5.69 for dyadic behavioral interaction fell in the moderately high to very high range of the scales. We also found no differences in children's developmental competence in behavioral adjustment, self-esteem, intelligence, and adaptive behavior. Our data showed that, at age 4, adopted children, under the conditions specified here, showed no deficits and were as or more competent than nonadopted children. Furthermore, adoptive mothers expressed parenting satisfaction and levels of social support as high as or higher than nonadoptive mothers. These findings lend support to the picture that has emerged in the literature indicating that adoption into a well-functioning home in the first 6 months of life is associated with healthy child development, generally comparable to that of nonadopted children (McCall, van IJzendoorn, Juffer, Groark, & Groza, 2011).

Against this backdrop of overall developmental competence and parenting satisfaction and support, we found group differences for all 3 summary scores of mother-child interaction.

Although adoptive and nonadoptive dyads scored in the adaptive range, adoptive mothers were less sensitive, more intrusive, and exhibited lower quality of instruction; adopted children were less positive, more negative, and less compliant; and, as a result, the quality of dyadic interaction in adoptive dyads was lower compared to nonadoptive dyads. Our data are in line with those of Stams, Juffer, Rispen, and Hoksbergen (2000), who reported that adoptive mothers of 7-year-old children were less sensitive than nonadoptive mothers when interacting with their children in two joint tasks in the home setting. The present study indicates that less harmonious interaction in adoptive dyads is reflected in the child's behavior as well as in the mother's and is evident as early as age 4.

We reasoned that the quality of mother-child interaction might be influenced by the child's developmental competence and/or mothers' perceptions of parenting satisfaction and social support, but follow-up analyses of covariance found no evidence that this was so. Group differences in maternal, child, and dyadic interaction did not attenuate when those factors were controlled. Child gender, however, did emerge as a factor in the less harmonious interactions of adoptive dyads. Quality of maternal behavior was lower with adopted boys than with any of the other three sets of mother-child dyads, and the quality of dyadic interaction was lower for adopted boys and their mothers than for nonadopted boys and their mothers. Thus, by age 4, gender may be a factor operating differently in adoptive and nonadoptive dyads in influencing the quality of interaction.

The adopted child's perception and understanding of adoption change with increasing age and become gradually less positive and more complex throughout childhood and into adolescence (Brodzinsky, 1990; Brodzinsky, Singer, & Braff, 1984; Brodzinsky, Smith, & Brodzinsky, 1998; Singer, Brodzinsky, & Braff, 1982). In the preschool years, children begin to differentiate between adoption and birth. Adopted children start to label themselves as adopted, although they do not yet understand what adoption really means. Brodzinsky et al. (1984) reported evidence for gender differences in understanding of adoption at ages 4–5 years (with adopted boys having a more advanced understanding than adopted girls) and ages 12–13 (with the opposite being true). Adoptive parents are confronted with the task of adjusting their telling of the child's adoption story in light of his/her changing understanding and, in many cases, increased questions about the circumstances of his/her birth and adoption. For all members of the adoptive family, these developmental changes and demands can be sources of stress, and it is possible that they create disequilibrium in the mother-child dyad. Stams et al. (2000) reported that the sensitivity of adoptive mothers in their study had declined by age 7 from what it had been when their children had been infants and toddlers. Unfortunately, analyses by gender were not reported. Clearly, additional research aimed at tracing influences, including child gender, on the mother-child relationship in community samples of adoptive families is warranted.

Strengths and Limitations

This investigation presents a first report of behavioral interactions between 4-year-old children and their mothers in a group of low-risk adoptive families and a comparable group of families who gave birth to their children. With a focus on dyadic interaction during common, everyday activities, the study adds valuable information to an emerging literature

examining mother-child relationships in community samples of adoptive families. Studies of this type promise insight into the social environments that adoptive families create and share. Knowledge of those social processes will both complement and extend the focus on family structural characteristics and child outcomes, especially in clinical samples, that has dominated the adoption literature until relatively recently. A further strength of this study is the extent to which the two samples were comparable on important factors that are frequently not controlled in adoption studies: child gender and parity; maternal age, education, and hours of employment; and family marital status and SES. A limitation of this investigation is the relatively small sample size, which limits both statistical power (leading to Type II errors) and the potential representativeness of the sample. The participants were European American mother-child dyads from medium to high socioeconomic status families, which also limits the generalizability of the findings to adoptive families with similar characteristics. Furthermore, the number of statistical tests being conducted on the relatively small sample may have increased the probability of finding a significant effect when it is not true in the population (a Type I error). This study also examines mother-child interaction in relation to selected contemporaneous child and mother characteristics, limiting its ability to account for the influence of pre-existing maternal, child, or dyadic factors. Finally, fathers were not included in the study.

Conclusions

A positive and reassuring picture of on-target development in important domains in preschool-age adopted children emerges from this investigation, as well as a view of adoptive mothers as very satisfied and strongly supported in their parenting role. Adopted children and their mothers also interact in ways that are within the adaptive range. At the same time, a consistent difference in the quality of dyadic functioning between adoptive and nonadoptive pairs emerges that is not explained by aspects of the child's functioning or mother's parenting support. Child gender emerged as a factor associated with these differences. Adopted boys experienced the least optimal maternal behavior of any group, although group $\times$ gender effects did not appear for the child's behavior with mother (nor did they appear for the child's perception of acceptance by mother on the Harter Scales). Further carefully controlled studies of children adopted under optimal circumstances (minimizing risk factors associated with the child's early history) should examine parent-child relationships within the adoptive family. It is possible that subtle differences in how family relationships form and mature in the context of unique issues that confront adoptive families will be confirmed. If so, an understanding of those differences will, in turn, inform our understanding of longer-term developmental outcomes in adopted children. A more differentiated picture of normative adoptive family functioning will deepen our understanding of the balance between risk and resilience that adoption, an important alternative form of family building, holds for children and their parents.

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Figure 1. Group and gender interactions for mother and dyadic behavioral interaction scales. Error bars represent the standard errors

Note. For mother behavioral interaction: Adoptive girls $M = 6.01$, $SD = .56$, Adoptive boys $M = 5.29$, $SD = .84$, Non-adoptive girls $M = 5.99$, $SD = .71$, Non-adoptive boys $M = 6.32$, $SD = .56$. For dyadic behavioral interaction: Adoptive girls $M = 5.30$, $SD = 1.08$, Adoptive boys $M = 4.56$, $SD = 1.06$, Non-adoptive girls $M = 5.23$, $SD = .82$, Non-adoptive boys $M = 6.03$, $SD = .95$

*All noted differences are significant at $p < .05$.

Table 1

Sociodemographic characteristics of adoptive and birth samples

	Adoptive (<i>n</i> = 33)		Nonadoptive (<i>n</i> = 35)		<i>t/χ²</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Child age at visit (months)	48.51	0.84	48.41	0.73	-0.53, <i>ns</i>
Child gender ^a (% female)	45.45		42.86		0.05, <i>ns</i>
Child health and/or behavior problems (% yes) ^a	32.26		30.30		0.03, <i>ns</i>
Mother's age at visit (years)	40.27	4.56	38.52	3.61	-1.76, <i>ns</i>
Mother's education ^b (Hollingshead)	6.52	0.71	6.43	0.70	-0.51, <i>ns</i>
Mother's hours of employment/wk	20.83	17.62	24.80	20.71	0.85, <i>ns</i>
Marital status ^a (% married, living together)	96.70		100.00		1.05, <i>ns</i>
Family SES (Hollingshead) ^c	57.77	6.87	58.10	7.51	0.19, <i>ns</i>

^aTest of group differences is a χ^2 .^bRange = 5–7 (Partial college to Graduate degree).^cRange = 35–66.

Table 2
Group and gender differences in behavioral interaction, child functioning, and parenting factors

	Adoptive (n = 33)			Non-adoptive (n = 35)			η^2_p	Boys (n = 38)			Girls (n = 30)			F	η^2_p	
	M	SD		M	SD			M	SD		M	SD				
Behavioral Interaction																
Child	5.25	.99		5.95	.92	8.88**	0.12	5.59	1.07		5.64	.95		.03	0.00	
Mother	5.62	.81		6.18	.64	10.49**	0.14	5.83	.87		6.00	.63		.89	0.01	
Dyad	4.89	1.12		5.69	0.97	8.50**	0.12	5.33	1.24		5.27	0.94		0.10	0.00	
Child Functioning																
Total Problem Behaviors	14.12	5.63		14.60	5.89	0.15	0.00	15.69	5.04		12.69	6.18		4.94*	0.07	
Cognitive Competence	3.30	0.44		3.34	0.49	0.13	0.00	3.25	0.49		3.41	0.43		1.92	0.03	
Peer Acceptance	3.04	0.46		3.07	0.65	0.01	0.00	3.02	0.60		3.09	0.52		0.30	0.01	
Physical Competence	3.05	0.48		3.04	0.48	0.09	0.00	3.03	0.48		3.06	0.48		0.08	0.00	
Maternal Acceptance	3.25	0.46		3.14	0.50	1.11	0.02	3.17	0.48		3.23	0.48		0.25	0.00	
Full IQ	110.30	15.46		114.83	15.70	1.31	0.02	108.94	16.90		117.31	12.65		5.49*	0.08	
Adaptive Behavior	102.16	12.98		96.07	10.63	4.17*	0.06	95.43	11.50		103.59	11.53		8.39**	0.12	
Parental Satisfaction and Social Support																
Family Supportiveness	4.35	0.89		4.31	0.84	0.05	0.00	4.25	1.00		4.42	0.67		0.63	0.01	
Community Supportiveness	3.90	1.07		3.17	1.12	9.06**	0.12	3.68	1.12		3.32	1.17		1.92	0.03	
Satisfaction with Parenting	5.58	0.71		5.59	0.60	0.00	0.00	5.57	0.64		5.60	0.67		0.05	0.00	

Note. No Group * Gender interactions were significant for the child functioning or parental variables.

* $p < .05$,

** $p < .01$.

Table 3
Controlling adoptive group effects on the behavioral interaction scales for potential explanatory variables

	No covariates		Controlling Peer Acceptance		Controlling Full IQ		Controlling Adaptive Behavior		Controlling Community Support	
	<i>F</i>	η^2_p	<i>F</i>	η^2_p	<i>F</i>	η^2_p	<i>F</i>	η^2_p	<i>F</i>	η^2_p
Child	8.88**	0.12	9.65**	0.13	7.59**	0.11	13.42**	0.17	8.55**	0.12
Mother	10.49**	0.14	10.98**	0.14	9.11**	0.13	9.95**	0.14	10.42**	0.14
Dyad	8.50**	0.12	8.08**	0.12	7.10**	0.10	8.30**	0.12	7.71**	0.11

**
 $p < .01$.