HHS Public Access

Author manuscript

Soc Dev. Author manuscript; available in PMC 2020 May 01.

Published in final edited form as:

Soc Dev. 2019 May ; 28(2): 347–363. doi:10.1111/sode.12339.

Couple Interaction and Child Social Competence: The Role of Parenting and Attachment

Tricia K. Neppl [Associate Professor],
Dept. of Human Development and Family Studies, Iowa State University

Haley Wedmore,
Dept. of Human Development and Family Studies, Iowa State University

Jennifer M. Senia [Post-Doctoral Research Associate],
Dept. of Psychology, Michigan State University

Shinyoung Jeon [Post-Doctoral Research Associate], and
Early Childhood Education Institute, University of Oklahoma-Tulsa

Olivia Diggs [Doctoral Student]
Dept. of Human Development and Family Studies, Iowa State University

Abstract

The current study examined the association between positive couple interaction and child social competence as mediated through positive parenting and parent-child attachment security. Prospective, longitudinal data came from 209 mothers, fathers, and their biological child. Information regarding observed positive couple interaction, observed positive parenting, and parent-child attachment security were assessed when the child was 2 to 4 years old, and child social competence was assessed at 5 years old. Mothers and fathers were analyzed separately in the model. Results indicated that for both mothers and fathers, positive couple interaction was indirectly associated with child social competence through positive parenting and parent-child attachment. These pathways remained statistically significant even after child social competence at age 2 to 4 was taken into account. Results suggest that couple interaction spills over into parenting which impacts parent-child attachment, which is associated with positive child developmental outcomes.

Keywords

couple interaction; positive parenting; attachment security; child social competence

The family systems theory posits that the family is a system of interconnected parts that share common goals, boundaries, and interrelated functions, for which the whole is greater than the sum of the parts (Fine & Fincham, 2013; Newman & Newman, 2015). Relationships among family members have implications for the development of others

4389 Palmer Suite 2356, Ames, IA 50011; tneppl@iastate.edu; phone: 515-294-8502. 4389 Palmer, Ames, IA 50011; hwedmore@gmail.com. 252C Psychology Building, East Lansing, MI 48824; seniajen@msu.edu. 4502 E. 41st St., Room 4201-G, Tulsa, OK 74135; syjeon@ou.edu. 46 LeBaron Hall, Ames, IA 50011; ondiggs@iastate.edu.

within the family. Thus, couple interaction may be linked to child outcomes (Goldberg & Carlson, 2014). Drawn from this theory, spillover is a term that describes the transmission of the couple relationship to the parent-child relationship, where couple interaction is associated with parent-child interaction (Erel & Burman, 1995; Kouros, Papp, Goeke-Morey, & Cummings, 2014). That is, the quality of the couple relationship and the parent-child relationship are positively related, where qualities of the couple interaction "spill over" to influence the quality of parent-child interaction. This means that qualities such as positive affect and effective communication in the couple relationship affects the parent-child relationship, which then impacts child developmental outcomes (Conger, et al., 1999; Erel & Burman, 1995; Goldberg & Carlson, 2014; Neppl et al., 2009).

Moreover, attachment theory has been widely researched and is recognized as an important theoretical approach for understanding the parent-child relationship and child social development (Brown, Neff, & Mangelsdorf, 2012). Studies show that attachment is associated with favorable short and long-term child outcomes (Scharf, Kerns, Rousseau, & Kivenson-Baron, 2016; Seven, 2010; Verschueren, Marcoen, & Schoefs, 1996; Zhang, 2012). Indeed, it is well documented that sensitive or responsive caregiving is associated with parent-child attachment security, (see De Wolff & van Ijzendoorn, 1997) which is related to positive child developmental outcomes such as social competence (Belsky & Fearon, 2002). That is, positive parenting behavior that includes effective communication and the ability to perceive and accurately interpret child behavior has been associated with both secure attachment and positive child development (Baumrind, 1996; Brooks, 2011; Holden, 2010; Lucassen et al., 2011; Neppl, Conger, Scaramella, & Ontai, 2009; Seven, 2010).

Despite this evidence, less is known about how parenting and parent-child attachment are associated with couple interaction and child outcomes. The purpose of the present investigation is to examine how positive parenting and parent-child attachment security of both mothers and fathers may help explain the association between positive couple interaction and child social competence. To our knowledge, no study has investigated the association between couple interaction and child outcomes as mediated through positive parenting and parent-child attachment in the same model. Additionally, few have examined these relations separately by mother and father. It is important to study such associations as early family interaction plays a fundamental role in child social development. Moreover, the development of social competence is essential to long term behavioral and academic outcomes (Bornstein, Hahn, & Haynes, 2010; Rabiner, Godwin, & Dodge, 2016; Rispoli, McGoey, Koziol, & Schreiber, 2013). Thus, the current study contributes an advanced understanding of how positive couple interaction and positive parenting as defined by the use of clear communication, being attentive and responsive to the verbalizations and behavior of the other person, and being happy or optimistic, as well as parent-child attachment security work together in toddlerhood to predict child social competence in the preschool years. We used longitudinal data in order to evaluate relative change in social competence across time by controlling for social competence in the toddler years.

Couple Interaction, Parent-Child Interaction, and Attachment

There is a strong association between couple interaction and parenting behavior (Erel & Burman, 1995; Krishnakumar & Beuhler, 2000). For example, there is evidence that a satisfying couple relationship was found to increase responsiveness toward childrearing (Hoghughi & Long, 2004). This type of couple relationship was associated with parenting that was consistent, confident and competent. Relatedly, constructive marital conflict was found to be associated with warm and accepting parenting, which was related to children's social adjustment (McCoy, George, Cummings, & Davies, 2013). There also is an association between couple interaction and parent-child attachment. For example, Frosch, Mangelsdorf, and McHale (2000) found that positive marital engagement was associated with more secure attachment security. Thus, a healthy positive couple relationship that includes positive affect and cooperation fosters a secure attachment between parent and child. Taken together, these findings illustrate that positive couple interaction leads to more secure attachments promoting positive child developmental outcomes.

The Impact on Child Social Competence

In early childhood, parents are important social agents in the development of their child's behavior. Thus, both parenting and secure parent-child attachment play a significant role in the social development of children (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1988; Brooks, 2011; Goldberg, Muir, & Kerr, 1995; Hoghughi & Long, 2004). Indeed, studies show that positive parenting is associated with higher levels of child social competence (Heinonen, Räikönnen, & Keltikangas-Järvinen, 2003; Schneider, Atkinson, & Tardif, 2001). For example, Anderson, Roggman, Innocenti, and Cook (2013) found that high levels of affection and responsiveness were associated with children's socioemotional outcomes in prekindergarten. Additionally, Rispoli and colleagues (2013) found that parental responsiveness during the preschool years was associated with child social competence at entry to kindergarten.

Parenting also plays a critical role in the development of a secure parent-child attachment (Ainsworth et al., 1978; Bowlby, 1982). It is argued that early attachment relationships characterized by sensitive, responsive parents lead to mutual responsiveness in the relationship as the child grows older (Brooks, 2011). Thus, parenting is associated with a secure attachment which leads to positive child outcomes (Baumrind, 1996; Brooks, 2011; Heinonen et al., 2003; Holden, 2010). Moreover, Verschueren, et al. (1996) found that parent-child secure attachment was related to the development of a child's positive self-identity, which in turn, was associated with higher levels of social competence. Moreover, Fearon, Bakermans-Kranenburg, van Ijzendoorn, and Lapsley (2010) conducted a meta-analysis and found that securely attached children engaged in more effective social behaviors and adapted more readily in the transition from preschool to the elementary school years (Seven, 2010).

Finally, there are studies that have examined the mediating influence of parenting and attachment on couple interaction and child outcomes. For example, Ratcliffe, Norton, and Durtschi (2016) found that mothers' positive parental engagement had a mediating effect on the association between couple interaction and child outcomes. Additionally, Krishnakumar

and Beuhler (2000) reviewed a number of studies that found ineffective parenting partially or fully mediated the association between couple conflict and child maladjustment, while other studies showed no indirect effect. Moreover, El-Sheikh and Elmore-Staton (2004) found that parent-child conflict and parent-child attachment partially mediated the relation between marital conflict and child negative outcomes. This is important as couple conflict may disrupt parenting practices that are important for the development of secure attachments which lead to positive development. All in all, this suggests that further investigation on the mediating role of parenting and attachment is needed in order to contribute a more complete understanding of these relations, particularly in terms of positive behavior. The current study addresses these limitations by examining the association between positive couple interaction, positive parenting, parent-child attachment security, and child positive behavior.

Parent Gender

Over the years, there has been increased attention on the importance of examining family relationships based on parent gender (see El-Sheikh & Elmore-Staton, 2004). Indeed, the family systems theory posits that children experience their parents in many family configurations, such as parent-child dyads, mother-father-child triads, and as a whole family. There is evidence that parental engagement in a triadic relationship (e.g. mother-father-child) may be unique for mothers and fathers (Fine & Fincham, 2013). For example, the association between couple conflict and its transfer to the parent-child relationship has been shown to be stronger for fathers as compared to mothers (Krishnakumar & Beuhler, 2000). This finding suggests that fathers may experience greater difficulty separating interaction with their romantic partner from interaction with their child. One explanation suggests that men are not as strongly socialized for caretaking as women and may benefit more from a cooperative partner and co-parent (Erel & Burman, 1995).

Most studies have primarily investigated the antecedents and child outcomes of mother-child attachment with little attention to the impact of fathers (Brown et al., 2012). That is, few studies have examined father-child attachment and child outcomes (Roskam, Meunier, & Stievenart, 2011; Fearon, et al., 2010), and even less have examined mother- and father-child attachment and child outcomes in the same model (Grossmann, Grossmann, & Kindler, 2005; Kochanska & Kim, 2013). Research has suggested that a secure attachment between father and child predicted social competence in the preschool years (Zhang, 2012). Additionally, Dumont and Paquette (2013) found that the father-child attachment relationship evaluated at ages 12–18 months old predicted children's socio-emotional development at 2.5 to 3 years of age. Furthermore, Boldt, Kochanska, Yoon, and Nordling (2014) found that children with the combination of low security with both parents ensued the lowest level of competence in their broader ecologies of school and peer groups. Based on this limited research, future studies should explore the effects of both mothers and fathers in relation to child developmental outcomes. The present study addresses this by examining positive parenting and parent-child attachment separately for mothers and fathers.

The Present Investigation

The present study evaluated the association between observed positive couple interaction and child social competence as mediated through observed positive parenting and parent-child attachment security. Specifically, couple interaction, parenting, and attachment were assessed when the child was either 2, 3, or 4 years old. Child social competence was assessed when the child was 5 years old, while controlling for earlier levels when the child was 2 to 4 years old. It was expected that positive couple interaction would spill over to parenting, which would be associated with a secure parent-child attachment, which would be related to child social competence. Also, because we controlled for social competence of the child during the toddler years, the model predicts relative change in child adjustment over time. Finally, we tested parallel path differences (Neppl, Jeon, Schofield, & Donnellan, 2015; Vandenberg, & Lance, 2000) across mothers and fathers. We employed a nested model approach to examine whether the hypothesized paths toward child social competence differed in magnitude for mothers and fathers.

The current study contributes to this body of literature by examining the effects of positive couple interaction on positive child behavior over time, as many studies have investigated the link between couple conflict and poor child outcomes (Bradford, Vaughn, & Barber, 2008; Brock & Kochanska, 2015; Davies, et al., 2016; Hentges, Davies, & Cicchetti, 2015; Rhoades, 2008; Richmond & Stocker, 2008). In addition, the direct effects of couple interaction, parenting, and attachment on child social competence have each been recognized in previous research (Goldberg & Carlson, 2014; Heinonen et al., 2003; Veríssimo, Santos, Fernandes, Shin, & Vaughn, 2014). However, to our knowledge, few studies have examined couple interaction, parenting, and parent-child attachment as predictors of child social competence within the same model. In addition, where there is a tendency for previous developmental studies to primarily focus on mothers, we included both mothers and fathers in the current analyses. Moreover, most research has focused on how negative aspects of couple interaction or parenting influence child outcomes, therefore, findings of the current study offer increased understanding of the predictive value of positive family processes on positive child outcomes.

Method

Participants

Data come from the Family Transitions Project (FTP), a longitudinal study consisting of 559 target youth and their families. The FTP is the product of two earlier studies: the Iowa Youth and Families Project (IYFP) and the Iowa Single Parent Project (ISPP). The IYFP included 451 target adolescents from two parent-families, and data were collected annually from 1989 through 1992. When interviewed in 1989, target adolescents were in seventh grade (*M* age = 12.7 years; 236 females, 215 males). Families were recruited from schools in eight rural counties. Due to the rural nature of the sample there were few minority families (approximately 1% of the population); therefore, all participants were Caucasian. Families were primarily lower middle- or middle-class with a median family income of $33,700. The ISSP included 108 target adolescents and their single mother, and data were collected annually from 1991 through 1993. The participants were Caucasian, primarily lower middle-

or middle-class, that lived in the same general geographic area as those in the IYFP. Families from the IYFP and the ISSP were combined in 1994 to create the FTP (see Conger & Conger, 2002; Neppl, Senia, & Donnellan, 2016). At that time, target adolescents were in 12th grade. In 1995, one year after graduating from high school, target adolescents participated in the study with a romantic partner. In 1997, when targets averaged 21 years, the study was expanded to include the target's first-born child. A child was eligible to participate when he or she was at least 18 months of age. By 2005, children in the FTP ranged in age from 18 months to 13 years old. Thus, the FTP has followed the target from as early as 1989 through 2005 (*M* target age = 29.07 years), with a 92% cumulative retention rate.

The present study includes 209 target parents (M age = 25; males = 85) with an eligible child who participated in the study at least once by 2005. Eligible children were the first born biological child of the target participant. There were 26 participants who were eligible but did not participate. The current study also included the target's romantic partner (spouse, cohabitating partner, or boy/girlfriend) who was the other biological parent to the target's child (married/cohabitating = 83%). Thus, all parents were the biological parent to the child. Assessments occurred at two developmental time periods. The first when the child was 2, 3, or 4 years old and again when that same child was 5 years old. The first time period included 202 children ranging from 2 to 4 years old (*M* = 2.14 months; boys = 114). For example, 86% were 2-year-olds, 13% were 3-year-olds, and 1% were 4-year-olds. The second time period included 189 children (boys = 105). There were 182 who participated at both time periods, with 20 only participating at the first time period and 7 only at the second time period. For the first time period, data were analyzed from the first assessment of each child between the ages of 2 and 4 years old. Age at first assessment varied somewhat because not all participants were available to be interviewed when the child first became eligible to participate at 18 months of age, and some children were already older than 18 months when children first were included in the study in 1997. In addition, since the same child could participate at age 2–4, we include data only from the first time a child was assessed during that time period to assure that the same child is not counted within that age range multiple times. For the purpose of this study, data were classified as mother- and father-report rather than by status of target- and romantic–partner. Therefore, mother could be either the target or the target's romantic partner. Means, standard deviations, minimum and maximum scores and factor loadings for study variables are provided in Table 1.

Procedures

From 1997 through 2005, each target parent, his/her romantic partner, and the target's first-born child were visited in their home each year by a trained interviewer. During the visit, the target parent and his/her romantic partner completed a number of questionnaires, some of which included measures of attachment and child behavioral outcomes. Parents completed questionnaires that were appropriate for their child's developmental level. In addition to questionnaires, the target parent and his or her romantic partner engaged in a 25-minute observed couple interaction task. Finally, each parent and their child also participated in an observed interaction task. Both interaction tasks were designed to elicit a range of behaviors including positive or prosocial family interaction patterns and parenting behaviors. Trained

observers coded the quality of these interactions using the Iowa Family Interaction Rating Scales (Melby et al., 1998), which has been shown to demonstrate adequate reliability and validity (Melby & Conger, 2001). The observers used to code the couple interaction task were different than the observers who coded the parent-child interaction task. Therefore, different informants generated the behavioral scores for positive couple interaction and positive parenting. All coders participated in rigorous training which included practice coding to criterion. To ensure reliability, 25% of the observed interaction tasks were rated by two randomly assigned independent coders. The number of coders varied in any given wave but averaged 10 coders per interaction task.

Measures

Positive couple interaction

Couple interaction was assessed during the observational discussion task where the couple discussed various topics such as childrearing, employment, and other life events. Sample discussion questions included, “when and how much do we see each other” and “how satisfied are we with the way we handle household responsibilities.” During the discussion task, targets and their romantic partner discussed questions from a series of cards. They took turns reading questions and the person reading the card was instructed to read each question out loud and give his or her answers first. Then, the other person was to give their answer next and the couple could talk together about the answers that were given. They were instructed to go on to the next card once they felt as though they had said everything they wanted to say about each question.

Three constructs were used to measure positive couple interaction which included positive mood, communication, and listener responsiveness. Positive mood is measured by the degree to which the person appears content, happy, and optimistic and/or demonstrates positive behavior toward self, others or things in general. High scores in communication indicate statements that are clear, direct, and reflect awareness of the content of the other person’s statements. Listener responsiveness assesses the degree to which the person attends to, shows interest in, acknowledges, and validates the verbalizations of the other person through the use of nonverbal and verbal assents. Each construct was used as a separate indicator for a latent construct. A separate latent construct was created for the wife’s behavior to the husband, and the husband’s behavior toward the wife. Ratings were scored on a nine-point scale, ranging from low (*no evidence of the behavior*) to high (*the behavior is highly characteristic*). Scores for positive couple interaction were internally consistent (α = .81 and α = .80 for wives and husbands, respectively) and interrater agreement was high (.92).

Positive parenting.

Using the observed parent-child interaction task, parents and children were provided a puzzle that was slightly above the child’s developmental skill level. The child participated in two separate puzzle tasks, one with each parent. The activity lasted five minutes each and parents were told that they could provide assistance but that the child was supposed to complete the puzzle alone. Constructs were the same as those used in the couple discussion task (positive mood, communication, and listener responsiveness), thus the definition of

behavior is the same as outlined above with small adaptations for interactions with young children. For example, listener responsiveness includes how parents engage, reflect, and interpret both verbal and nonverbal signals from the child. Each construct was used as a separate indicator for a latent construct. A separate latent construct was created for each parent. That is, a construct was created for mother's behavior toward her child, as well as a separate construct for father's behavior toward the child. Ratings were scored on a nine-point scale, ranging from low (*no evidence of the behavior*) to high (*the behavior is highly characteristic*). The internal consistency was .74 and .80 (for mothers and fathers, respectively). The interrater reliability was adequate (.86) for mothers and fathers.

Attachment security.

The Attachment Q-sort (AQS; Waters & Deane, 1985) was used to assess parent-child attachment. Parents were asked to sort through 90 cards that describe specific behavioral characteristics based on how characteristic the behavior is of their child. We followed the same procedure as Frosch, et al. (2000) where mothers and fathers independently completed the AQS in their homes in order to support the use of the Q-sort to tap the characteristics of two different attachment relationships. Sample items included "child readily shares with you or lets you hold things if you ask to" and "when the child is upset by your leaving he/she continues to cry or even gets angry after you are gone." Test/re-test reliability of the Q-sort was found in a study involving early school-aged children (Ontai & Thompson, 2002). Procedures aimed at assuring validity of this measure were followed in the administration of this assessment. Such procedures include not revealing the construct being measured to the parent, ensuring that the parent is properly trained, giving the AQS items to the parent in advance so the parent has ample time to review them, and providing supervision during the act of sorting in order to respond to questions that may arise (Teti & McGourty, 1996).

In the first step of the AQS, parents were sent the cards via mail and asked to review behaviors listed on the cards and to consider them as they observed their child. Parents were asked to sort the cards into three piles prior to the home visit, "Unlike My Child", "Neither Like or Unlike My Child", and "Like My Child". In the second step of the AQS, in-home interviewers asked parents to further sort the three piles into nine piles "Extremely Unlike My Child", "Very Unlike My Child", "Somewhat Unlike My Child", "Unlike My Child", "Neither Like or Unlike My Child", "Somewhat Like My Child", "Like My Child", "Very Much Like My Child", and "Extremely Like My Child". Parents were then allowed to change the position of any cards to be more accurate after observing their child further. After the cards are placed in nine piles, parents choose ten cards to go in each of the nine piles through a forced distribution process. The piles are then sorted once more so that items uncharacteristic of the child are placed low in the sort (piles 1–3) and items that are highly characteristic are placed high in the sort (piles 7–9).

After the final sort is completed, attachment security was calculated by assigning each card a score depending on its placement. The parent sort scores were then correlated with the criterion sort scores as based on ratings by attachment experts (see Waters & Deane, 1985). Higher correlations indicate greater attachment security whereas lower correlations indicate insecure attachments. A separate manifest construct was created for each parent. That is, a

construct was created for mother's attachment to her child, as well as a separate construct for father's attachment toward the child.

Child social competence.

At both time points, child social competence was analyzed using mother and father-reported data separately from the Preschool Socio-affective Profile (PSP) which measures social competence using a composite of eight items (LaFreniere & Dumas, 1996). Reliability and validity of this measure was established by LaFreniere and Dumas (1996) for use with three to six year olds. The ten items of the PSP were rated by parents on a 3-point scale (0 – "not true"; 1– "somewhat true or sometimes true"; and 2 – "very true or often true"). Sample items included "helps with everyday tasks" and "works easily with other children." Mother and father report of social competence were each used as separate manifest constructs at both time points. The internal consistency was .74 for mothers and .75 for fathers.

Control variables.

Control variables included mother and father age, parental relationship status, per capital income, as well as gender and age of the child. Past evidence suggests these characteristics may be related to the predictors in this study. For example, a meta-analysis by Schneider et al. (2001) revealed minimal differences in attachment security and social competence between boys and girls. Couple status influences parenting behaviors including warmth, monitoring and parental support (Simons & Johnson, 1996). Cohabiting or single parents are found to be less educated and to have a lower income than parents who are married (Holden, 2010). Finally, since the present study included children who were 2 to 4 years old at the first time point, we controlled for child age as well. Thus, control variables measured at time 1 when the child was 2 to 4 years old included age of parent, parental relationship status (1= married or cohabitating, 0= not married or cohabitating), per capita income, gender of child (0= male, 1= female), and child age. Per capita income was measured by calculating the family's total income and then dividing this by the number of members in the household.

Results

Analytic Strategy

Attrition analyses were conducted to ascertain if participants included at both time points differed from those who only participated at the first time point. We tested whether there was a systematic difference between the two groups in terms of demographic variables (parent gender, parent age, marital status, and per capital income) and predictor variables (positive couple interaction, positive parenting, and parental attachment). There was only a significant difference in parent gender between the two groups (t= −2.11, p=.036), where fathers were more likely to be missing at the second time point.

Structural equation modeling was analyzed using M*plus* Version 7.0 (Muthen & Muthen, 2012) with full information maximum likelihood (FIML) procedures (Arbuckle, 1997). FIML is a widely recommended and commonly used procedure in longitudinal research to estimate missing data (Allison, 2003). Compared to other procedures, such as listwise or pairwise deletion, FIML provides a better estimation of model parameters (Jeličić, Phelps, &

Lerner; 2009). The root mean square error of approximation (RMSEA; Browne & Cudeck, 1993) and the comparative fit index (CFI; Hu & Bentler, 1999) indicated a good fit of the model with the data. RMSEA under .05 indicate close fit to the data, values between .05 and .08 represent reasonable fit (Hu & Bentler, 1999). A well-fitting model should have a CFI greater than .90 and preferably greater than .95.

To verify how well the observed measures (i.e. indicators) represent the latent constructs for positive couple interaction and positive parenting, we tested confirmatory factor analysis (CFA) models. Both the CFA model for couple interaction, χ^2 (5, $N = 209$) = 13.25, p = .02, CFI = .99, TLI = .96, RMSEA = .08, and positive parenting, χ^2 (5, $N = 209$) = 8.44, p = .13, CFI = .99, TLI = .97, RMSEA = .06 fit the data well. Next, the statistical model was tested in two different ways. First, the model was estimated with the inclusion of the control variables in the analysis. We used all control variables as predictors of social competence at age 5, as well as covariates with the other predictor variables in the model. Next, the model was estimated without the inclusion of the controls. Both sets of the model generated the same pattern of results, so we examined a series of nested models (see Table 2) without the control variables. We used three steps to test theoretical assumptions in a statistically rigorous way. First, *Model 1a* (free model across parent gender) freely estimated all factor loadings separately for mothers and fathers. *Model 1b* constrained wife and husband positive couple interaction indicators as well as mother and father positive parenting indicators to have an equivalent measurement model. For example, wife positive mood was equally constrained with husband positive mood [i.e. positive mood (a), listener responsiveness (b), and communication (c)]. Likewise, mother positive mood was equally constrained with father positive mood [i.e., positive mood (d), listener responsiveness (e), and communication (f)]. *Model 1b* provides information about whether the constructs of couple interaction and positive parenting are the same between mother and father. The fit of the two models (i.e., *Model 1a* and *1b*) to the data was not significantly different, $\Delta \chi 2$ (4) = 5.63, p = .23, leading us to not reject the null hypothesis that these constructs are the same between mother and father.

Model 1c tested whether the hypothesized paths differed in magnitude between parent and child. More precisely, the regression path from couple interaction to mother parenting (g), mother parenting to mother-child attachment (h), mother-child attachment to child social competence at age 5 reported by mother (i), couple interaction to mother-child attachment (j), couple interaction to child social competence at age 5 reported by mother (k) and mother parenting to child social competence at age 5 reported by mother (l) and the parallel paths for father [i.e., couple interaction to father parenting (g), father parenting to father-child attachment (h), and father-child attachment to child social competence at age 5 reported by father (i) couple interaction to father-child attachment (j), couple interaction to child social competence at age 5 reported by father (k)] were equated. This approach gives evidence about whether the mother-path and father-path to child were statistically significantly different or not. The fit of the two models (i.e., *Model 1b* and *1c*) to the data was not significantly different, $\Delta \chi 2$ (7) = 3.69, p = .81, leading us to not reject the null hypothesis that the parallel paths are the same between mother and father. According to chi-square difference test results within the nested model approach, we selected Model 1c as the final model without significant model fit loss from Model 1a through Model 1c. Therefore, there

were no differences between the mother path from couple interaction to child social competence as reported by mother and the father path from couple interaction to child social competence as reported by father.

Correlations among Constructs

Table 3 shows the correlations among theoretical constructs including observed couple interaction, observed parenting, attachment security, and child social competence for mothers and fathers separately. The control variables are also included in the correlational analyses. The patterns of associations were consistent with expectations and justified the formal test of the model.

Structural Equation Analyses

According to chi-square difference test results within the nested model approach, we selected Model 1c as the final model without significant model fit loss from Model 1a through Model 1c. That is, the latent constructs of couple interaction and positive parenting were not significantly different between mothers and fathers, and there were no differences between mother paths from couple interaction to child social competence and father paths from couple interaction to child social competence. Thus, the final model (see Figure 1) includes equally constrained paths from mother to child and father to child. In order to give more information on the relative strength of the pathways in the model, we provided a standardized coefficient for each path (see Figure 1). For mothers, wife to husband couple interaction was significantly associated with mother parenting, as well as mother-child attachment security. Mother parenting was significantly associated with mother-child attachment security. Moreover, mother-child attachment security was significantly associated with child social competence at age 5 as reported by mother. Child social competence at age 2 as reported by mother was also significantly associated with child social competence at age 5 reported by mother. The same pathways were also significant for fathers.

Indirect effects.—In addition to examining the direct associations within the model, we also examined the significance of the mediating pathways through which couple interaction may be associated with child social competence at age 5. All indirect analyses were conducted using the capabilities of M*plus* to estimate indirect effects (Muthen & Muthen, 2012). Since multivariate normality can be easily violated with multiple indirect effects, a re-sampling approach, bootstrapping, is recommended in a multiple mediator context (Preacher & Hayes, 2008). Thus, we tested mediation with the bootstrap option in M*plus*, conducted a biased- corrected bootstrap model (n=1000), and have obtained confidence intervals (CI) of the indirect effects. For both parental pathways, there was a significant indirect association from positive couple interaction to social competence at age 5 through positive parenting and parent-child attachment security (b = .003, 95% confidence interval [CI] [.001 – .006]; β = .007). That is, couple interaction was associated with parenting, which was related to parent-child attachment security, which was then associated with child social competence. Furthermore, couple interaction was associated with attachment which was associated with child social competence (b=.006, 95% [CI] [.001–.016]; β = .022). We also tested the indirect effect from couple interaction to parenting to social competence, however it was not significant. Thus, there were two significant indirect pathways from

positive couple interaction to child social competence even after controlling for earlier child social competence at age 2–4.

Supplementary analyses—A structural equation model that included a pathway from couple interaction to parent-child attachment to positive parenting behavior was also examined. This is because these constructs were measured at the same time point, with no chronology to rule out other orders. Results showed that positive couple interaction was associated with parent-child attachment (for mother: β = .22, SE = .07; for father b =.21 SE =.07), which was related to positive parenting (for mother: b = .17, p <.01; for father b = .19, p <.01). However, positive parenting did not predict social competence. Thus, we could not reject the null hypothesis of an indirect pathway from couple interaction to child social competence.

Discussion

The present investigation evaluated connections between couple interaction, parenting, parent-child attachment security, and child development across time. Specifically, we examined the association between positive couple interaction and child social competence as mediated through positive parenting and parent-child attachment security while controlling for earlier levels during the toddler years. This study adds to the existing literature by examining the association between these variables within the same model. In addition, while many studies have investigated the link between couple conflict and poor child outcomes, fewer studies have examined positive aspects of the couple relationship on child development (Chang, 2016; Goldberg & Carlson, 2014; Manning, Davies, & Cicchetti, 2014). For example, qualities such as positive affect and the ability to communicate with each other are positively related to child well-being (Conger, Rueter, & Elder, 1999; Goldberg & Carlson, 2014). Moreover, few studies have examined the unique role of mothers and fathers separately, as most have primarily focused on mother-child attachment. The current investigation also used multiple informants, including ratings of couple and parent-child interaction by trained observers. This approach reduces method biases resulting from the reliance on a single informant.

Our findings are in line with the family systems theory on the interconnectedness of family relationships and child well-being. Results from the current study were found to be invariant across mothers and fathers where positive couple interaction as experienced when children were ages 2 to 4 was related to child social competence at age 5 through positive parenting and parent-child attachment. This was true even after earlier child social competence was taken into account. Specifically, positive couple interaction was related to positive parenting which was associated with parent-child attachment security. Parent-child attachment security was associated with child social competence in the preschool years. However, there was not a significant indirect effect of positive couple interaction to child social competence via positive parenting. This may be due to the way in which positive parenting was measured.

The current findings are consistent with previous studies that have examined associations between couple interaction and family processes (Erel & Burman, 1995; Krishnakumar & Beuhler, 2000). Such findings suggest that when mothers and fathers are more positive

towards each other, the child is more likely to engage in socially competent ways. Specifically, results are consistent with others who have found that when mothers and fathers treat each other positively, they are more likely to engage in positive interactions toward their child and have a more secure parent-child attachment (Ainsworth et al., 1978; Grych, 2002; Hoghughi & Long, 2004). Thus, current results provide support for the spillover of positive behaviors where it may be that positive couple behavior is related to positive parenting for both mothers and fathers. This is consistent with McCoy, et al. (2013) who found that constructive couple relations were related to higher levels of parental engagement during middle childhood for both parents. However, the current results vary from prior research that has found differences by parent gender. For example, couple conflict has been found to be associated with inconsistent discipline for fathers but not mothers (McCoy, et al., 2013). Thus, it may be that couple conflict and parenting may be different based on parent gender, whereas constructive or positive couple interaction may not (McCoy, et al., 2013). Moreover, the current findings expand on limited research examining the association between father behavior and secure father-child attachment. For example, Brown et al. (2012) found that father sensitivity was associated with attachment. Finally, consistent with previous research (Seven, 2010; Zhang, 2012), results from the current study found that parent-child attachment security was associated with child social competence.

The results of this study should be interpreted with several limitations in mind. First, the results may not be generalizable due to a lack of racial, ethnic, or geographic diversity in the sample. Moreover, the original sample stemmed from two parent families during the farm crisis in the rural Midwest. However, research examining couple interaction, parenting, and child outcomes have shown similar spillover findings using more diverse samples (Aytac & Rankin, 2009; Ponnet, 2014; Solantuas, Leinonen, & Punamäki, 2004). Thus, while the current findings are encouraging, this model should be replicated with a more diverse sample. Second, previous research has demonstrated that the observed AQS shows greater discriminant validity than the self-report AQS (van Ijzendoorn et al., 2004). However, the AQS measure has been used in multiple studies over several decades and its content validity is high (Waters & Deane, 1985). Moreover, because parent report AQS was used in the current study, method similarity may partly account for the stronger direct link of attachment with social competence. In addition, couple interaction, parenting, and attachment were collected at the same time point which may limit tests of mediation. Third, a larger sample size is necessary to examine model differences between mothers and fathers in relation to child gender. This would increase the understanding of how parenting and attachment may operate differently for girls and boys. Finally, while most of the children at time 1 were 2 years old, there were several that were either 3 or 4 years old. Although we controlled for child age in the model, there may be developmental differences in terms of children's socio-emotional development that could impact parenting.

The current findings yield important implications for intervention. For example, research indicates how family members should not interact, yet has not offered as much evidence to support how family members should interact (Mackenbach et al., 2014). Because previous research has focused largely on negative couple and parenting interaction, results of this study help to further understand how positive couple relations and positive parenting are associated with a secure attachment and positive outcomes for children. Results point to

specific ways in which couple interaction could be improved and translated to the parent-child relationship. Specifically, findings contribute further support for the role of communication, listener responsiveness and positive mood in shaping family relationships to be more positive, to be associated with parent-child attachment, and associated with more positive child outcomes such as social competence. This suggests that intervention at the couple level could be particularly helpful in strengthening parenting as well as parent-child attachment and thus lead to more positive outcomes. Thus, interventions designed to improve child outcomes, might be more effective by targeting both the parent-child relationship and also the relationship between the parents (Cowan, Cowan, & Barry, 2011; Cowan, Cowan, & Heming, 2005).

In sum, the present results show that positive couple interaction was indirectly associated with child social competence through positive parenting and a secure parent-child attachment. Indeed, this is one of the first studies to use a prospective, longitudinal design to help advance the understanding of such associations separately by mother and father in the same model. In addition, the results add to the dearth of information regarding the influence of father-child attachment on child social competence, particularly during the preschool years. Results suggest that mothers and fathers both play a significant role in shaping the positive outcomes of children.

Acknowledgments

This research is currently supported by a grant from the National Institute on Aging (AG043599). The content is solely the responsibility of the authors and does not necessarily represent the official views of the funding agencies. Support for earlier years of the study also came from multiple sources, including the Eunice Kennedy Shriver National Institute of Child Health and Human Development (HD064687), National Institute of Mental Health (MH00567, MH19734, MH43270, MH59355, MH62989, MH48165, MH051361), the National Institute on Drug Abuse (DA05347), the National Institute of Child Health and Human Development (HD027724, HD051746, HD047573), the Bureau of Maternal and Child Health (MCJ-109572), and the MacArthur Foundation Research Network on Successful Adolescent Development Among Youth in High-Risk Settings.

References

Ainsworth MD, Blehar MC, Waters E, Wall S (1978). Patterns of Attachment: A Psychological Study of the Strange Study New York: Lawrence Erlbaum Associates.

Allison PD (2003). Missing data techniques for structural equation modeling. Journal of Abnormal Psychology, 112, 545–557. 10.1037/0021-843X.112.4.545 [PubMed: 14674868]

Anderson S, Roggman LA, Innocenti MS, & Cook GA (2013). Dads' parenting interactions with children: checklist of observations linked to outcomes (PICCOLO-D). Infant Mental Health Journal, 34, 339–351. 10.1002/imhj.21390

Arbuckle JL (1997). AMOS user's guide Version 3.6 Chicago: Small Waters.

Aytaç IA, & Rankin BH (2009). Economic crisis and marital problems in Turkey: Testing the family stress model. Journal of Marriage and Family, 71, 756–767. 10.1111/j.1741-3737.2009.00631.x

Baumrind D (1996). The discipline controversy revisited. Family Relations, 45, 405–414. 10.2307/585170

Belsky J & Pasco Fearon RM (2002). Early attachment security, subsequent maternal sensitivity, and later child development: Does continuity in development depend upon continuity of caregiving? Attachment & Human Development, 4, 361–387. 10.1080/14616730210167267 [PubMed: 12537851]

Boldt LJ, Kochanska G, Yoon JE, & Koenig Nordling J (2014). Children's attachment to both parents from toddler age to middle childhood: Links to adaptive and maladaptive outcomes. Attachment & Human Development, 16, 211–229. 10.1080/14616734.2014.889181 [PubMed: 24605850]

Bornstein MH, Hahn CS, & Haynes OM (2010). Social competence, externalizing, and internalizing behavioral adjustment from early childhood through early adolescence: Developmental cascades. Development and psychopathology, 22, 717–735. 10.1017/S0954579410000416 [PubMed: 20883577]

Bowlby J (1982). Attachment and loss: Vol 1. Attachment New York: Basic Books.

Bowlby J (1988). Developmental psychiatry comes of age. American Journal of Psychiatry, 145, 1–9. 10.1176/ajp.145.1.1 [PubMed: 3276225]

Bradford K, Vaughn LB, & Barber BK (2008). When there is conflict interparental conflict, parent–child conflict, and youth problem behaviors. Journal of Family Issues, 29, 780–805. 10.1177/0192513X07308043

Brock RL, & Kochanska G (2015). Decline in the quality of family relationships predicts escalation in children's internalizing symptoms from middle to late childhood. Journal of Abnormal Child Psychology, 43, 1295–1308. 10.1007/s10802-015-0008-9 [PubMed: 25790794]

Brooks J (2011). The Process of Parenting (8th ed.). New York, NY: McGraw-Hill.th

Brown GL, Neff C, Mangelsdorf SC, (2012). Father involvement, paternal sensitivity, and father-child attachment in the first 3 years. Journal of Family Psychology, 26, 421–430. 10.1037/a0027836 [PubMed: 22468691]

Browne MW, & Cudeck R (1993). Alternative ways of assessing model fit. Sage Focus Editions, 154, 136–136. 10.1177/0049124192021002005

Chang ES (2016). Kirogi women's psychological well-being the relative contributions of marital quality, mother–child relationship quality, and youth's educational adjustment. Journal of Family Issues 10.1177/0192513X16632265

Conger RD, & Conger KJ (2002). Resilience in Midwestern families: Selected findings from the first decade of a prospective, longitudinal study. Journal of Marriage and Family, 64, 361–373. 10.1111/j.1741-3737.2002.00361.x

Conger RD, Rueter MA, & Elder GH Jr (1999). Couple resilience to economic pressure. Journal of personality and social psychology, 76, 54 10.1037/0022-3514.76.1.54 [PubMed: 9972553]

Cowan CP, Cowan PA, & Barry J (2011). Couples' groups for parents of preschoolers: Ten-year outcomes of a randomized trial. Journal of Family Psychology, 25, 240–250. 10.1037/a0023003 [PubMed: 21480703]

Cowan CP, Cowan PA, & Heming G (2005). Two variations of a preventive intervention for couples: Effects on parents and children during the transition to elementary school. In Cowan PA, Cowan CP, Ablow J, Johnson VK, & Measelle J (Eds.), The family context of parenting in children's adaptation to elementary school (pp. 277–312). Mahwah, NJ: Erlbaum.

Davies PT, Hentges RF, Coe JL, Martin MJ, Sturge-Apple ML, & Cummings EM (2016). The multiple faces of interparental conflict: implications for cascades of children's insecurity and externalizing problems. Journal of Abnormal Psychology, 125, 664–678. 10.1037/abn0000170 [PubMed: 27175983]

De Wolff MS, & Van IJzendoorn MH (1997). Sensitivity and attachment: A meta-analysis on parental antecedents of infant attachment. Child Development, 68, 571–591. 10.1111/j.1467-8624.1997.tb04218.x [PubMed: 9306636]

Dumont C, & Paquette D (2013). What about the child's tie to the father? A new insight into fathering, father–child attachment, children's socio-emotional development and the activation relationship theory. Early Child Development and Care, 183, 430–446. 10.1080/03004430.2012.711592

El-Sheikh M, & Elmore–Staton L (2004). The link between marital conflict and child adjustment: Parent–child conflict and perceived attachments as mediators, potentiators, and mitigators of risk. Development and Psychopathology, 16, 631–648. 10.1017/S0954579404004705 [PubMed: 15605629]

Erel O, & Burman B (1995). Interrelatedness of marital relations and parent-child relations: a meta-analytic review. Psychological Bulletin, 118, 108–132. 10.1037/0033-2909.118.1.108 [PubMed: 7644602]

Fearon RP, Bakermans-Kranenburg MJ, van Ijzendoorn MH, Lapsley AM (2010). The significance of insecure attachment and disorganization in the development of children's disorganizing behavior:

A meta-analytic study. Child Development, 81, 435–456. 10.1111/j.1467-8624.2009.01405.x [PubMed: 20438450]

Fine MA, & Fincham FD (Eds.). (2013). Handbook of family theories: A content-based approach New York: Routledge.

Frosch CA, Mangelsdorf SC, & McHale JL (2000). Marital behavior and the security of preschooler–parent attachment relationships. Journal of Family Psychology, 14, 144–161. 10.1037/0893-3200.14.1.144 [PubMed: 10740688]

Goldberg JS, & Carlson MJ (2014). Parents' relationship quality and children's behavior in stable married and cohabiting families. Journal of Marriage and Family, 76, 762–777. 10.1111/jomf.12120 [PubMed: 25125703]

Goldberg S, Muir R, Kerr J (1995). Attachment Theory: Social, Developmental, and Clinical Perspectives New York: The Analytic Press.

Grossmann K, Grossmann KE, & Kindler H (2005). Early care and the roots of attachment and partnership representations. In Grossman KE, Grossman K, & Waters E (Eds)., Attachment from Infancy to Adulthood: The Major Longitudinal Studies (pp. 98–136). New York: Guilford Press.

Grych J (2002). Marital relationships and parenting. In Bornstein M (Ed.), Handbook of parenting: Vol. 4. Social conditions and applied parenting (2nd ed., pp. 203–225). Mahwah, NJ: Erlbaum.

Heinonen K, Räikönnen K, Keltikangas-Järvinen L (2003). Maternal perceptions and adolescent self-esteem: A six-year longitudinal study. Adolescence, 38, 669–687. [PubMed: 15053494]

Hentges RF, Davies PT, & Cicchetti D (2015). Temperament and interparental conflict: the role of negative emotionality in predicting child behavioral problems. Child Development, 86, 1333–1350. 10.1111/cdev.12389 [PubMed: 26110397]

Hoghughi M, & Long N (2004). Handbook of Parenting Theory and Research for Practice Thousand Oaks, CA: Sage.

Holden GW (2010). Parenting, a Dynamic Perspective Thousand Oaks, CA: Sage.

Hu LT, Bentler PM (1999). Cutoff criteria for fit indexes in covariance structure analysis: Coventional criteria versus new alternatives, Structural Equation Modeling, 6, 1–55. 10.1080/10705519909540118

Jeličić H, Phelps E, & Lerner RM (2009). Use of missing data methods in longitudinal studies: the persistence of bad practices in developmental psychology. Developmental psychology, 45, 1195–1199. 10.1037/a0015665 [PubMed: 19586189]

Kochanska G, Kim S. (2013). Early attachment organization with both parents and future behavior problems: From infancy to middle childhood. Child Development, 84, 283–296. 10.1111/j.1467-8624.2012.01852.x [PubMed: 23005703]

Kouros CD, Papp LM, Goeke-Morey MC, & Cummings EM (2014). Spillover between marital quality and parent–child relationship quality: Parental depressive symptoms as moderators. Journal of Family Psychology, 28, 315–325. 10.1037/a0036804 [PubMed: 24821519]

Krishnakumar A, Beuhler C (2000). Interparental conflict and parenting behaviors: A meta-analytic review. Family Relations, 49, 25–44. 10.1111/j.1741-3729.2000.00025.x

LaFreniere PJ, & Dumas JE (1996). Social competence and behavior evaluation in children ages 3 to 6 years: The short form (SCBE-30). Psychological Assessment, 8, 369–377. 10.1037/1040-3590.8.4.369

Lucassen N, Tharner A,Van IJzendoorn MH, Bakermans-Kranenburg MJ, Volling B, Verhulst FC,… Tiemeier H (2011). The association between parental sensitivity and infant-father attachment security: A meta-analysis of three decades of research. Journal of Family Psychology, 25, 986–992. 10.1037/a0025855 [PubMed: 22004434]

Mackenbach JD, Ringoot AP, van der Ende J, Verhulst FC, Jaddoe VV, Hofman A, Jansen PW, & Tiemeier HW (2014). Exploring the relation of harsh parental discipline with child emotional and behavioral problems by using multiple informants. The generation r study. Plos ONE, 9, 1–9. 10.1371/journal.pone.0104793

Manning LG, Davies PT, & Cicchetti D (2014). Interparental violence and childhood adjustment: How and why maternal sensitivity is a protective factor. Child Development, 85, 2263–2278. 10.1111/cdev.12279 [PubMed: 25132541]

McCoy KP, George MR, Cummings EM, & Davies PT (2013). Constructive and destructive marital conflict, parenting, and children's school and social adjustment. Social Development, 22, 641–662. 10.1111/sode.12015

Melby JN, Conger RD, Book R, Rueter M, Lucy L, Repinski D, et al. (1998). The Iowa Family Interaction Rating Scales (5th ed.): Iowa State University: Institute for Social and Behavioral Research.

Melby JN, & Conger RD (2001). The Iowa Family Interaction Rating Scales: Instrument summary. In Kerig PK & Lindahl KM (Eds.), Family Observational Coding Systems: Resources for Systematic Research (pp. 33–57). Mahwah, NJ: Lawrence Erlbaum Associates.

Muthén LK, & Muthén BO (2012). Mplus user's guide *(5th ed.)* Los Angeles, CA: Muthén & Muthén.

Neppl TK, Conger RD, Scaramella LV, & Ontai LL (2009). Intergenerational continuity in parenting behavior: Mediating pathways and child effects. Developmental Psychology, 45, 1241–1256. 10.1037/a0014850 [PubMed: 19702389]

Neppl TK, Jeon S, Schofield TJ, & Donnellan MB (2015). The impact of economic pressure on parent positivity, parenting, and adolescent positivity into emerging adulthood. Family Relations, 64, 80–92. 10.1111/fare.12098 [PubMed: 25678730]

Neppl TK, Senia JM, & Donnellan MB (2016). The effects of economic hardship: Testing the family stress model over time. Journal of Family Psychology, 30, 12–21 10.1037/fam0000168 [PubMed: 26551658]

Newman BM, & Newman PR (2015). Theories of human development New York: Psychology Press.

Ontai LL, & Thompson RA (2002). Patterns of attachment and maternal discourse effects on children's emotion understanding from 3 to 5 years of age. Social Development, 11, 433–450. 10.1111/1467-9507.00209

Ponnet K (2014). Financial stress, parent functioning and adolescent problem behavior: An actor-partner interdependence approach to family stress processes in low-, middle-, and high-income families. Journal of Youth and Adolescence, 43, 1752–1769. 10.1007/s10964-014-0159-y [PubMed: 25053382]

Preacher KJ, & Hayes AF (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. Behavior Research Methods, 40, 879–891. 10.3758/BRM.40.3.879 [PubMed: 18697684]

Rabiner DL, Godwin J, & Dodge KA (2016). Predicting academic achievement and attainment: the contribution of early academic skills, attention difficulties, and social competence. School Psychology Review, 45, 250–267. 10.17105/SPR45-2.250-267

Ratcliffe GC, Norton AM, & Durtschi JA (2016). Early romantic relationships linked with improved child behavior 8 years later. Journal of Family Issues, 37, 717–735. 10.1177/0192513X14525618

Rhoades KA (2008). Children's responses to interparental conflict: A meta-analysis of their associations with child adjustment. Child Development, 79, 1942–1956. 10.1111/j.1467-8624.2008.01235.x [PubMed: 19037959]

Richmond MK, & Stocker CM (2008). Longitudinal associations between parents' hostility and siblings' externalizing behavior in the context of marital discord. Journal of Family Psychology, 22, 231–240. 10.1037/0893-3200.22.2.231 [PubMed: 18410210]

Rispoli KM, McGoey KE, Koziol NA, & Schreiber JB (2013). The relation of parenting, child temperament, and attachment security in early childhood to social competence at school entry. Journal of School Psychology, 51, 643–658. 10.1016/j.jsp.2013.05.007 [PubMed: 24060065]

Roskam I, Meunier JC, Stievenart M (2011). Parent attachment, childrearing behavior and child attachment: Mediated effects predicting preschoolers externalizing behavior. Journal of Applied Developmental Behavior, 32, 170–179. 10.1016/j.appdev.2011.03.003

Scharf M, Kerns KA, Rousseau S, & Kivenson-Baron I (2016). Mother-child attachment and social anxiety: Associations with friendship skills and peer competence of Arab children. School Psychology International, 37, 271–288. 10.1177/0143034316631179

Schneider BH, Atkinson L, & Tardif C (2001). Child-parent attachment and children's peer relations: A quantitative review. Developmental Psychology, 37, 86–100. 10.1037/0012-1649.37.1.86 [PubMed: 11206436]

Seven S (2010). Attachment and social behaviors in the period of transition from preschool to first grade. Social Behavior and Personality, 38, 347–356. 10.2224/sbp.2010.38.3.347

Simons RL, & Johnson C (1996). Mother's parenting. In Simons R (Ed.), Understanding differences between divorced and intact families (pp. 81–93). Thousand Oaks, CA: Sage.

Solantaus T, Leinonen J, & Punamäki RL (2004). Children's mental health in times of economic recession: Replication and extension of the family economic stress model in Finland. Developmental Psychology, 40, 412–429. 10.1037/0012-1649.40.3.412 [PubMed: 15122967]

Teti DM, & McGourty S (1996). Using mothers versus trained observers in assessing children's secure base behavior: Theoretical and methodological considerations. Child Development, 67, 597–605. 10.2307/1131834 [PubMed: 8625730]

Vandenberg RJ, & Lance CE (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. Organizational research methods, 3, 4–70. 10.1177/109442810031002

van Ijzendoorn MH, Vereijken JL, Bakermans-Kranenburg MJ, Riksen-Walraven JM (2004). Assessing attachment security with the attachment q sort: Meta-analytic evidence for the validity of the observer AQS. Child Development, 75, 1188–1213. 10.1111/j.1467-8624.2004.00733.x [PubMed: 15260872]

Veríssimo M, Santos AJ, Fernandes C, Shin N, & Vaughn BE (2014). Associations between attachment security and social competence in preschool children. Merrill-Palmer Quarterly, 60, 80–99.

Verschueren K, Marcoen A, and Schoefs V (1996). The internal working model of the self, attachment, and competence in five-year-olds. Child Development, 67, 2493–2511. 10.2307/1131636 [PubMed: 9022252]

Waters E, & Deane KE (1985). Defining and assessing individual differences in attachment relationships: Q-methodology and the organization of behavior in infancy and early childhood. Monographs of the Society for Research in Child Development, 50, 41–65. 10.2307/3333826

Zhang X (2012). Bidirectional longitudinal relations between father-child relationships and Chinese children's social competence during early childhood. Early Childhood Research Quarterly, 28, 83–93. 10.1016/j.ecresq.2012.06.005

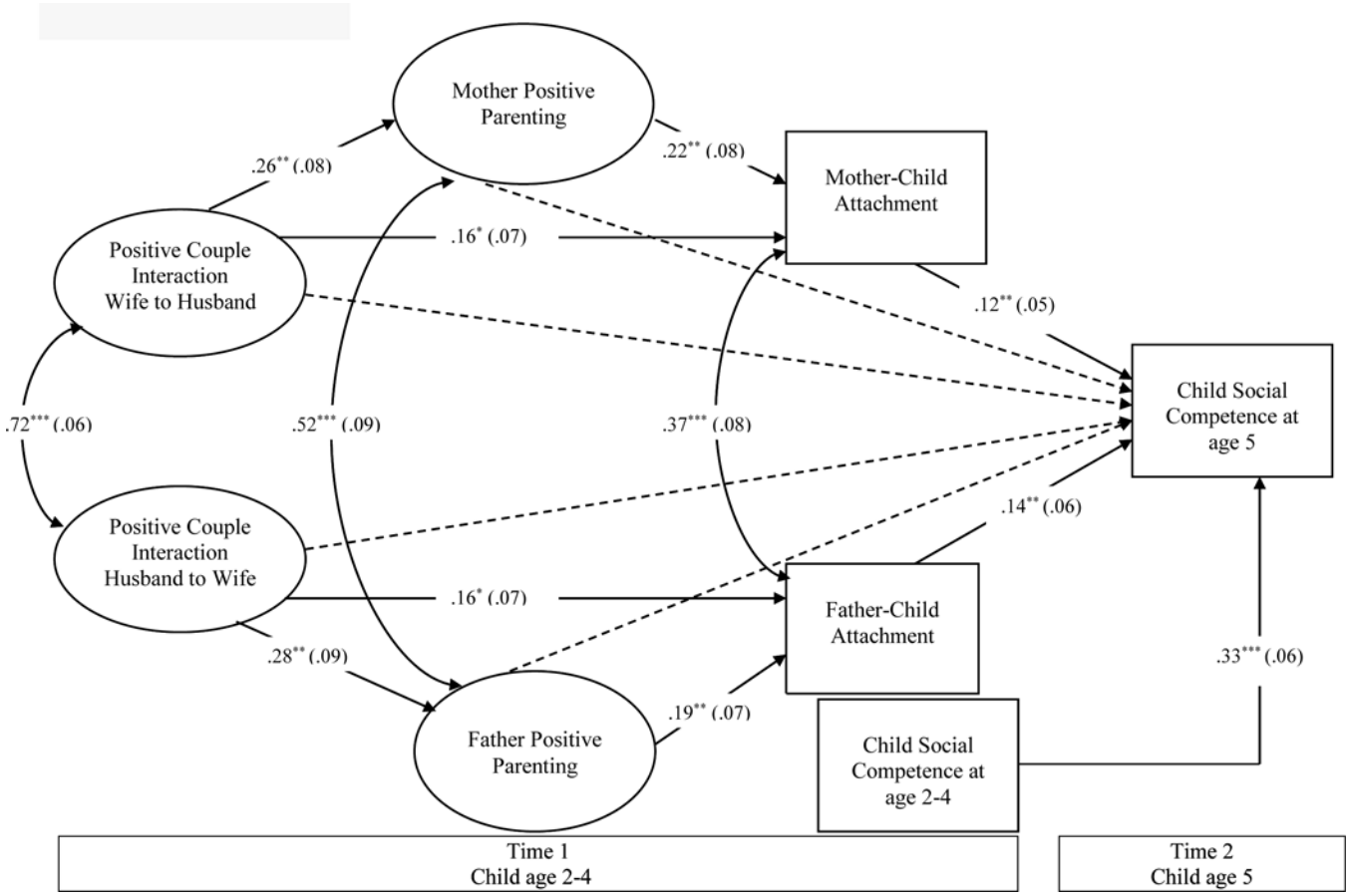

Figure 1.

Statistical Model

Note: Solid lines indicate significant parameters; dashed lines indicate non-significant parameters; Standardized coefficients and standardized errors in parentheses were provided. *$p < .05$, **$p < .01$, ***$p < .001$, Model fit: $\chi 2 = 150.84$, $df = 95$, $p < 0.01$, CFI =.95, TLI=.93, RMSEA =0.05

Table 1.
Descriptive Statistics for Study Variables (N = 209)

Variable	Minimum	Maximum	*M*	*SD*	*Factor Loading*
Couple Interaction Wife to Husband					
Positive Mood	1.00	9.00	6.42	1.54	.57
Communication	1.00	9.00	5.96	1.50	.89
Listener Responsiveness	1.00	9.00	5.40	1.91	.86
Couple Interaction Husband to Wife					
Positive Mood	1.00	9.00	6.29	1.67	.56
Communication	2.00	9.00	5.77	1.60	.93
Listener Responsiveness	1.00	9.00	5.25	1.97	.87
Mother Positive Parenting					
Positive Mood	1.00	9.00	4.81	2.09	.64
Communication	2.00	9.00	5.38	1.31	.85
Listener Responsiveness	1.00	9.00	4.82	1.70	.70
Father Positive Parenting					
Positive Mood	1.00	9.00	5.18	1.91	.69
Communication	2.00	9.00	5.29	1.37	.83
Listener Responsiveness	1.00	9.00	4.89	1.53	.76
Mother-Child Attachment	0.09	0.77	0.39	0.17	
Father-Child Attachment	0.28	0.76	0.34	0.19	
Child Social Competence (SC) at age 5	.50	1.90	1.29	.27	
Child Social Competence (SC) at age 2–4	.40	2.00	1.12	.30	
Mother Age	19.24	39.06	25.00	2.94	
Father Age	18.07	41.10	26.79	3.80	
Per Capita Income	0.00	145166.67	16826.31	14000.81	
Child Age	2	4	2.14	.37	

Table 2.

Chi-Square Difference Tests for Invariance across Parent Gender

	χ^2	*df*	RMSEA	CI	CFI	$\Delta\chi^2$	Δdf	*p*
Model 1a. Free Model across parent gender	141.52	84	.06	.04–.07	.95	–	–	–
Model 1b. Model 1a, with constraints in measurement errors of couple interaction and parenting across parent gender	147.15	88	.06	.04–.07	.95	5.63	4	.23
Model 1c. Model 1b, with restricted pattern of regression weights across parent gender	150.84	95	.05	.04–.07	.95	3.69	7	.81

Note. RMSEA = root mean square error of approximation; CI = confidence interval of the RMSEA value; CFI = Comparative Fit Index; $\Delta\chi 2$ = change in chi-square from the immediately preceding model; Δdf = change in degrees of freedom from the immediately preceding model; p = probability associated with the $\Delta\chi 2$ value.

Table 3.

Correlations among Variables Used in Analyses

Study constructs	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Interaction Wife to Husband	-												
2. Interaction Husband to Wife	.70***	-											
3. Mother Parenting	.23*	.25**	-										
4. Father Parenting	.16	.27*	.54***	-									
5. Mother-Child Attachment	.26**	.18*	.29***	.27**	-								
6. Father-Child Attachment	.18†	.26**	.11	.18†	.39***	-							
7. Child Social Competence at age 5	.17*	.18*	.18*	.13	.36***	.27***	-						
8. Child Social Competence at age 2–4	. 22**	.17*	.12	.04	.34***	.40***	.41***	-					
9. Mother Age	.17*	.17*	.30***	.40***	.29***	.23**	.01	.00	-				
10. Father Age	.03	.01	.16*	.22*	.21**	.19*	.04	.04	.49***	-			
11. Relationship Status	−.17†	−.34***	.06	.04	.08	−.36**	.−.04	−.11	.15*	.25**	-		
12. Per Capita Income	.07	.06	.11	.21*	.09	.05	.05	.10	.21**	.32***	.10	-	
13. Child Gender	.05	.05	−.05	.12	−.14†	−.23**	−.09	−.20**	−.19**	−.12†	−.02	−.05	-
14. Child Age	−.11	−.09	.08	.10	.01	.06	.03	.25***	−.11	−.17*	−.09	.08	.03

Note.

† $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$

Soc Dev. Author manuscript; available in PMC 2020 May 01.