Chapter 6
Prenatal Coparenting Under High Arousal Predicts Infants' Cognitive Development at 18 Months

Dana Shai and Rotem Bergner

The main aim of this chapter is to introduce an innovative new approach to the behavioral assessment of prenatal coparenting observations under high-arousal conditions. Specifically, we were interested in observing coparenting dynamics of expectant parents while they interacted with their (imagined) baby during a low-stress play task, the Prenatal Lausanne Trilogue Play (PLTP, Carneiro et al. 2006), and also during our newly developed high-stress caregiving task. Another aim is to assess the long-term implications of these prenatal family dynamics for infants' cognitive development.

Over the last three decades, research has shown that coparenting plays an important role in shaping various aspects of children's development. Studies have also demonstrated that the quality of postpartum coparenting can be predicted, prior to birth based on couples' dynamics during pregnancy. A key aspect in determining the quality of the coparental relationship is parents' ability to communicate and work well together in situations in which they feel stressed. In this sense, the coparental relationship is challenged everyday as parents try to collaborate on caring for, nurturing, and protecting their children. Yet, in most, if not all studies, the prenatal coparenting relationship has been studied under conditions that do not fully challenge parents. Therefore, in this chapter, we wish to demonstrate the ecological importance of studying prenatal coparenting under high-arousal conditions, i.e., while pregnant couples interact with an inconsolable "infant" represented by a computer-programmed doll, in predicting infants' cognitive development at 18 months.

D. Shai (✉) · R. Bergner
SEED Center, The Academic College Tel-Aviv-Yaffo, Tel Aviv, Israel
e-mail: danamc@mta.ac.il

Defining Coparenting

Throughout history and around the world, one of the essential tasks identified with adulthood is parenting young children, which in most cases takes place within a coparenting system (McHale 1995, 2007; McHale et al. 2004a). According to Salvador Minuchin's (1974) structural family theory, the family system is headed by the "executive subsystem," or coparenting system, which is related to, yet distinct from, the preexisting romantic relationship between the partners (Belsky et al. 1995; McHale 1995, 1997; McHale, and Rasmussen 1998; Schoppe-Sullivan et al. 2004).

The coparenting relationship emerges when at least two individuals have the shared aim (by mutual agreement or societal norms) and commitment to hold conjoint leadership and responsibility for rearing a child and caring for his or her wellbeing (Burney and Leerkes 2010; McHale 1995; Van Egeren and Hawkins 2004). At its core, coparenting is a triadic structure (McHale and Fivaz-Depeursinge 1999; McHale and Rasmussen 1998; Talbot and McHale 2004) involving the extent to which parents work together in their parental roles (Feinberg 2003; McHale 1995), support or undermine each other's parenting efforts (Belsky et al. 1996; Favez et al. 2013; McHale 1995), and share a focus and desire to rear children the best they can (Burney and Leerkes 2010; Margolin et al. 2001). Coparenting is concerned principally with the degree of collaboration, affirmation, and support between adults raising children for whom they share responsibility for caring, educating, and nurturing (Feinberg 2003; McHale 2007; McHale et al. 2004a).

Why Coparenting?

There is an impressive body of research showing that the quality of the coparenting system accounts for a significant part of the individual variance in children's development, psychopathology, and adjustment at different ages (McHale 2007; McHale et al. 2004a; Teubert and Pinquart 2010). Coparental quality has been linked to preschoolers' academic and social skills (Cabrera et al. 2012; Dopkins Stright and Neitzel 2003), as well as to children's emotion regulation skills and social adjustment (McHale and Rasmussen 1998; Karreman et al. 2008).

In terms of socioemotional difficulties, disrupted coparenting has been associated with greater difficulties with inhibition as early as 18 months (Belsky et al. 1996; Lindsey and Caldera 2005), higher levels of toddlers' externalizing behavior problems (Belsky et al. 1996; Jacobvitz et al. 2004; McHale and Rasmussen 1998; Schoppe et al. 2001; Schoppe-Sullivan et al. 2009), and greater behavioral and peer relationship problems (Katz and Low 2004; McHale and Rasmussen 1998; Schoppe et al. 2001) as well as fewer prosocial behaviors (Scrimgeour et al. 2013). Of note is that the majority of research investigated associations between parents' coparenting quality and children's socioemotional functioning and trajectories. In contrast, far fewer studies have focused on possible links between coparenting quality and child cognitive development.

Prenatal Coparenting

In appreciation of the significance of coparenting dynamics for children's development, researchers have attempted to identify coparenting patterns as early as possible, and examined whether coparenting could be observed reliably as early as during pregnancy (Altenburger et al. 2014; Carneiro et al. 2006; Fivaz-Depeursinge et al. 2010; Kuersten-Hogan 2017; Shai 2018). Indeed, there is empirical support for the continuity between pre- and postnatal coparenting patterns. Expectant parents' representations of their future coparenting relationship have also been associated with their postpartum coparenting relationship (Kuersten-Hogan 2017; McHale and Rotman 2007; McHale et al. 2004a, b). Kuersten-Hogan (2017) proposed that parents' mental representations, including their views, emotions, and internal world regarding family relations (Mayseless 2006), form during pregnancy, if not earlier. These parental representations also "involve cognitive facets of the coparenting relationship such as caregivers' perceptions of the overall quality of their coparenting relationship, appraisals and anticipations of their own and their partners' specific coparenting behaviors, perceived differences between partners' parenting attitudes, and partners' violated expectations of childcare responsibilities" (Kuersten-Hogan 2017 p. 3).

In addition to studies demonstrating the predictive power of prenatal coparental *representations* on postnatal coparental behavioral dynamics, studies examining prenatal coparental *behavioral patterns* reveal a similar pattern. In these studies, prenatal behavioral patterns of family alliance and coparenting were assessed using the PLTP (Carneiro et al. 2006; for detailed descriptions see Chap. 3 of this book). The PLTP is a semi-standardized paradigm used to assess prenatal family alliance and coparenting in a playful, low-stress context (Fivaz-Depeursinge et al. 2010). Prior studies have shown that postpartum qualities of mother–father–infant coordination can be detected by observing pregnant couples' enactments of family interactions which remain fairly stable over time (Carneiro et al. 2006; Favez et al. 2013). Prenatal coparenting observations appear to be helpful in providing specific and useful insights into the family's particular dynamics, resources, problems, hierarchies, and roles related to their postpartum coparenting relationship (McHale 2011; McHale and Fivaz-Depeursinge 2010).

When Emotions Run High: Coparenting Relationships Under High Arousal

Noteworthy is that the PLTP (Carneiro et al. 2006; Favez et al. 2006; Fivaz-Depeursinge et al. 2010) enables the examination of coparenting within a positive, playful atmosphere, and by doing so, it reflects families' prenatal coparenting dynamics under low-stress conditions. This task does indeed simulate many daily moments in the lives of families. Nonetheless, the coparenting system of families

with young babies can also, quite often, be activated under stressful conditions. Indeed, McHale et al. (2000) state that keeping a positive and well-functioning coparental dynamics, including balanced participation and accommodation of one another's involvement with the child, could be challenging when confronted with high arousal and distress (Katz and Gottman 1996; McHale 1995).

The stressors that young parents may face are almost endless, and infants' characteristics and behaviors can exert significant influences on levels of parenting stress. From birth, children influence their parents' lives in multiple ways, since they serve as active agents and participants in the parent-child relationship (Cole 2003). Indeed, and in line with the transactional model (Sameroff 1975), the infant is sometimes the source of stress and strain on the coparenting unit. For example, Cook et al. (2009) found that children's negative affect was a significant predictor of undermining coparenting, such that more temperamentally difficult children had parents who undermined each other's parenting more frequently and intensely. These findings underscore the importance of conducting comprehensive assessment of coparenting quality that include stressful situations with an actual (or the symbolized) child. The child's presence – especially when distressed, fussy, or inconsolable – is likely to activate and challenge the coparenting unit in a way that pleasant, playful tasks, simply cannot.

It is for this reason that we contend that comprehensive prenatal assessments of coparenting behaviors should strive to also include enactments and representations of difficult infant behaviors so as to increase the likelihood that the coparental unit is activated. Such an inclusion could further illuminate the multifaceted and complex construct of coparenting during pregnancy, and allow us to examine the extent to which parents work together in their parenting role under conditions of high arousal, in other words, conditions that simulate the messy everyday reality that many young parents face regularly. Surely, the infant is not an active participant during prenatal observations of family interactions, which represents a potential problem in evaluating challenging coparenting dynamics during pregnancy. We argue that an approach to observing prenatal coparenting behavior in a way that simulates real-life interactions – complex and challenging as they may be – would achieve higher ecological validity and further our understanding of the different facets of the coparenting relationship emerging during pregnancy.

It could be argued that the PLTP provides a context for observing coparenting dynamics under mildly stressful conditions. After all, expectant parents are put into an unusual situation in which they are asked to play with a faceless doll and to pretend to have just met their newborn baby. In addition, knowing that they are being watched, videotaped, and somewhat evaluated adds some stress to the PLTP for most couples. The PLTP could further elicit some distress in expectant parents who are vividly envisioning, perhaps for the very first time, what it would feel like to be a parent and to interact with the baby and as a family, especially if they anticipate some coparenting conflict or lack of support from their partner. Therefore, for some parents the PLTP may constitute a somewhat overwhelming, intimidating, or threatening context. Without doubt, these considerations could elicit some distress and raise expectant parents' arousal. Nonetheless, the PLTP is not designed to negatively activate the family dynamics, to challenge the parents, or to examine their functioning

under stress or high arousal. On the contrary, the task was designed to elicit a remarkable and blissful moment of the first time the father, mother, and baby are together as three. Indeed, the instructions for the task are fashioned to elicit positive representations and feelings: "It's the first time you are together and I'm asking you to play this fabulous moment for us" (Favez et al. 2013, p. 27). Even if the procedure inadvertently activates negative feelings in some parents, these are not the result of an empirically designed and standardized attempt at creating a stressful situation for parents.

The only task we could locate that examines coparenting behaviors under stressful conditions and in the presence of the baby is the "Onesie Task" (Schoppe-Sullivan et al. 2007). In the Onesie Task, couples are given a "onesie" (baby bodysuit) and are asked to change the infant into this outfit together. This task is designed to assess coparenting behavior during a joint child-care task, a situation that is considered to be more stressful than triadic free play. This task was typically administrated when infants were 3.5 months old. Important in this context is the fact that this task was designed for the assessment of *postnatal* not prenatal coparenting.

Taken together, we found no existing experimental procedures that measure (1) *prenatal coparenting*, (2) at the *behavioral* level while (3) activating the coparental system to work together under *high arousal*, and (4) in the presence of the *represented child*. We argue that a robust measurement of prenatal coparenting dynamics would benefit from including and addressing these four factors, thereby increasing the ecological validity and enhancing our understanding of the different facets of the coparental relationship prior to the infant's birth.

We developed a special prenatal observation task to meet all of these criteria: the Inconsolable Doll Task (IDT; Shai 2018). The IDT includes all four key aspects that we deem important, i.e., it measures prenatal coparenting at the behavioral level, while expectant parents are induced to feel high levels of stress during a caregiving task with their represented baby. Specifically, in the IDT, expectant parents are asked to take care of and sooth a crying baby, which is symbolized by the RealCare Baby® II-Plus infant simulator (Realityworks, Eau Claire, WI, USA). The parents are blind to the experimental manipulation of the computerized doll being programmed to be inconsolable, dooming the expectant couples' efforts to sooth the doll to fail. The doll's cry simulates the realistic cry of a real baby, with natural variations in intensities, pitch, duration, and volume. In this way, we believe that the IDT enables researchers to evaluate coparenting dynamics prenatally in the presence of an imaginary infant and under highly stressful conditions for parents. This prenatal observational context allows us to examine couples' ability to work together as a team and to solve an everyday parenting challenge in light of the stress evoked by the inconsolable simulated baby.

Our Study Aims

The aim of our study was twofold: First, we intended to establish convergent and predictive validity as well as reliability for our newly developed high-arousal IDT (see also Shai 2018) through examining concurrent associations with low-arousal

family alliance dynamics (LTP; Fivaz-Depeursinge et al. 1996) and self-reported coparenting (CRS; Feinberg et al. 2012). Secondly, we sought to determine whether prenatal coparenting behavioral patterns under high arousal would predict 18-month-olds' cognitive development above and beyond the existing observational measures during low-stress situations, thus establishing the procedure's predictive validity. In consideration of the possibility that infants' cognitive development was solely explained by biological or general environmental influences (e.g., Rowe et al. 1999; Van Bakel and Riksen-Walraven 2002) or by the child's contributions (e.g., Cook, et al. 2009; Laxman et al. 2013) rather than by the influence of coparenting, we controlled for parents' educational levels and infants' temperament in analyses that tested the predictive value of prenatal coparenting for infants' cognitive functioning.

Methods

Study Sample

The data used in the current study is that of the RIPPLE longitudinal study, which includes 109 Israeli families of co-habiting heterosexual couples expecting their first child. All mothers were in their third trimester (M = 29.7 weeks of gestation, SD = 2.55, range = 22.27–37.08 weeks). Families were recruited through Internet advertisements, flyers, and medical centers and were paid 250 Israeli shekels (equivalent to $72.00 at the time) for their participation in the prenatal phase. All parents were fluent in written and spoken Hebrew and lived in central Israel. The mothers' mean age was 30.82 years (SD = 3.63, range = 23–42), and the fathers' mean age was 32.41 years (SD = 4.01, range = 23–42). Families' SES (defined in relation to the average salary in Israel at the time) varied from low (27.5% of the sample) to middle (35.7%) and high (37.7%). The average number of years of education was 15.36 years (SD = 2.41) for the fathers and 16.3 years (SD = 2.10) for the mothers. None of the parents reported at-risk pregnancies or known neurological or psychological disorders. In the fourth phase of the study (18 months), infants were an average of 17.7 months old (range 17.7–15.4 months, SD = 4.35), and 55 of them were boys (55.75%).

Measuring Prenatal Coparental Dynamics Under High Arousal

To measure the prenatal coparental dynamics under high-arousal conditions during the IDT, we made use of the Interactional Dimensions Coding System (IDCS; Julien et al. 1989; Kline et al. 2004). The coding system examines an array of both positive and negative verbal and nonverbal dyadic communicative behaviors in stressful and

conflictual contexts, and includes both individual and interactional (dyadic) dimensions. Since the focus of the current study was specifically on the *coparenting quality*, only the *dyadic* variables were considered. Originally, there were four dyadic scales, three negative ones and one positive one (see Shai 2018 for a full description). For the purpose of the current report, we created two global coparental interactional scales: one for measuring positive, and a second for measuring negative dyadic coparenting dynamics.

The **positive dyadic coparental dynamics** subscale measures the interactional synchrony during the IDT. *Interactional synchrony* denotes the extent to which the partners demonstrate harmony and coordination in their interaction. During a highly synchronized coparenting interaction, partners work together to try and console the "baby," listen to and respond to each other's suggestions, and think together about possible solutions. For example, during a highly synchronous coparenting interaction, an expectant father might be holding the crying "baby," slowly swaying from side to side, and the expectant mother might be approaching the father and caressing him from behind to join their rhythmic movement (Shai 2018).

The **negative dyadic coparental dynamics** subscale is a composite of three separate measures: negative escalation, editing, and dominance. (1) *Negative escalation* refers to the extent to which destructive communication and negative affect are reciprocated between partners. For example, one expectant couple demonstrated high negative escalation in our study when the expectant mother entered the room in which the expectant father was with the inconsolable "baby" and exclaimed, "Your child eats a lot!", to which the mother responded with, "My baby?!? And what, when he is calm, he is your baby?" (2) *Dominance* assesses the asymmetries in spousal control over the interaction. An example of dominance would be an expectant father holding the "baby", and the expectant mother constantly touching the baby or removing the blanket without consulting the father. In this scenario, even though the father is holding the baby, there is a strong sense of maternal gatekeeping. Physically, the mother does not move away from the father and "baby" and does not allow the father to freely explore his attempt at soothing the inconsolable "baby." (3) *Editing* refers to asymmetries in the attempts spouses make to prevent negative escalation. The following shows an example of editing from our study:

> As soon as the expectant father passes the inconsolable "baby" to the expectant mother, the doll happens to stop crying as programmed a priori. The mother, unaware that "baby's" silence was coincidental, says, "Oops, I think I killed her; yep, I killed her." and the expectant father replies, "I think she is all right. She is fine." (Shai 2018).

Ratings for each of these four mutually exclusive subscales were made on a 9-point Likert-type scale ranging from very low (1) to very high (9). Each interaction was divided into three equal segments coded separately and averaged into a mean score on each dimension. The interactions were coded by three trained coders blind to all other aspects of the study. The ICCs were 0.89 for negative escalation, 0.93 for dominance, 0.73 for editing, and 0.85 for synchrony. In our subsequent analyses, we used the two global coparental interactional scales measuring positive and negative dyadic coparenting dynamics.

Measuring Prenatal and Postnatal Coparental Dynamics Under Low Arousal

We also used additional observation tasks in our study, the prenatal and postnatal Lausanne Trilogue Play, to measure prenatal (PLTP; Carneiro et al. 2006) and postnatal (LTP, Fivaz-Depeursinge and Corboz-Warnery 1999) family dynamics and alliances under conditions of low arousal (see Chap. 3 in this book for further details on the LTP and PLTP). The *prenatal family alliance* was assessed using the PLTP coding scheme, which includes five subscales: (1) *coparental playfulness* towards the task, referring to the couple's ability to create a playful space and co-construct the game; (2) *structure of the play* – the couple's ability to structure the play in four parts according to the instructions, and to give sufficient time for the play to be established; (3) *intuitive parenting behaviors*, such as baby talk; (4) couples' *cooperation*, pertaining to the degree of cooperation achieved by the couple during the play; and (5) *family warmth*, which includes the positive bond and mood between partners during the play interaction (Carneiro et al. 2006). Each scale utilizes a 5-point Likert-type rating system ranging from 1 (inappropriate) to 5 (appropriate), with higher scores indicating more positive familial interactions. In accordance with previous studies, we computed a global score of prenatal alliance ranging from 5 to 25, with higher scores reflecting more positive family dynamics. The Intraclass Correlation Coefficient (ICC) Interrater Reliability (IRR) using 25% of the sample was 0.87.

The *postnatal family alliance* was assessed using the Family Alliance Assessment Scale (FAAS; Lavanchy Scaiola et al. 2008) to analyze the postnatal LTP (Fivaz-Depeursinge and Corboz-Warnery 1999). The FAAS is a global scale that evaluates the family as a whole. This scale is built on four hierarchically interactive functions, namely, (1) participation, (2) organization, (3) focalization, and (4) affect sharing. Additionally, there is consideration of coparenting and child involvement. Each scale utilizes a 5-point Likert-type rating system ranging from 1 ("inappropriate") to 5 ("appropriate"). The ratings were summed to create a global score, ranging between 0 and 30, with higher scores reflecting a more positive family alliance. The Intraclass Correlation Coefficient (ICC) Interrater Reliability (IRR) using 25% of the sample was 0.92 (Witte et al. 2019).

Measuring Prenatal and Postnatal Coparenting Representations

To assess *representations of the coparental relationship*, we used the Coparenting Relationship Scale (CRS; Feinberg et al. 2012; see Shai 2018 for a full description). The CRS is a multidomain self-report questionnaire used to capture parental coparental perceptions. We modified the questionnaire to measure couples' *prenatal coparenting representations*. This included asking expectant parents to state

their ideas and perceptions regarding their future coparenting relationship, once the baby was born. The prenatal version included 30 items,[1] divided into six sub-scales: *coparenting agreement* assessed whether parents' views of how to rear a child are similar (i.e., "My partner and I will have the same goals for our child"); *coparenting closeness* measured the shared celebration of the child's attainment of developmental milestones, the experience of working together as a team, and witnessing one's partner develop as a parent (i.e., "My relationship with my partner will be stronger than before we had a child"); *coparenting support* measured affirming the other parent's competency as a parent, acknowledging and respecting the other's contributions, and upholding the other's parenting decisions and authority (i.e., "My partner will ask my opinion on issues related to parenting"); *coparenting undermining* measured undermining of the other parent by using criticism, disparagement, and blame (i.e., "It will be easier and more fun to play with the child alone than it will be when my partner is present too"); *endorse partner parenting* (i.e., "My partner will be sensitive to our child's feelings and needs"); and *division of labor* assessed the division of childrearing labor between parents (i.e., "My partner will like to play with our child and then leave all the dirty work to me"). Ratings of the CRS subscales were made on 7-point Likert-type scales ranging from "Not true of us" (1) to "Very true of us" (7). High scores on the agreement, closeness, support, endorsement, and division subscales reflect a more positive coparenting relationship, whereas higher scores on the undermining subscale reflect a more negative coparenting relationship. We used the global CRS score, which is the mean of all of the items. Cronbach's alphas for internal consistency for both the fathers' and mothers' global CRS scores, both during pregnancy and at 9 months, were 0.91.

Measuring Infant Cognitive Development

To test our outcome measure, namely, *infant cognitive development* at 18 months, we used the Mullen Scales of Early Learning (MSEL; Mullen 1995; see Shai 2018 for full details). The MSEL assessment captures the child's cognitive, fine motor, and receptive and expressive language developed at 18 months. It consists of four cognitive scales (visual reception, fine motor, receptive language, and expressive language) and one gross motor (not included in the current inquiry). A composite score of the four cognitive scales represents "g" or "general intelligence." The scores of each scale are summed and standardized. The MSEL provides a normative and standardized general score ($M = 100$, $SD = 15$). The MSEL was administrated by highly trained graduate students, who were trained by a certified developmental psychologist.

---

[1] The subscale of "Exposure to Conflict" which includes five items was removed due to lack of relevance to the pregnancy period.

Results from Our Coparenting Study

In this section, we provide a summary of our empirical findings, which we then illustrate with two brief case examples in the next section.

Convergent Validity of the IDT First, we found evidence to support the *convergent validity* of our newly developed IDT (see Table 6.1). Our analyses showed significant associations between dyadic behavioral dynamics under high arousal as activated in the IDT task and existing and well-established coparenting measures, namely, the observational PLTP (Carneiro et al. 2006) and the representational CRS (Feinberg et al. 2012). Specifically, comparing prenatal ratings of behavioral dynamics under high and low arousal (the IDT and PLTP, respectively) revealed significant negative associations between the global scores of negative dyadic dynamics observed during the IDT, and family alliance measured during the PLTP. That is, the more negative the dyadic interactions were in the IDT, the less positive the family alliance was during the prenatal LTP. In addition, positive dyadic dynamics observed during the IDT were positively correlated with prenatal family alliances during the PLTP, indicating that greater positive dyadic interactions in times of difficulty and distress as simulated in the IDT were associated with more positive family alliance during prenatal play interactions under low-arousal conditions. Negative dyadic dynamics observed during the IDT did not correlate significantly with family alliance observed during the postnatal LTP, though greater positive dynamics observed during the IDT were associated with greater family alliance observed during the postnatal LTP.

When examining associations between prenatal coparental behaviors observed during the IDT and prenatal coparental representations assessed using the CRS, we found that both positive and negative dyadic dynamics showed significant associations with expectant mothers' representations of prenatal coparenting, though expectant fathers' representations were only marginally correlated with negative dynamics during the IDT (see Table 6.1). Of note was that observed prenatal family alliances were not correlated with parental coparenting representations during pregnancy. In addition, parental education or family SES was unrelated to any aspects of prenatal or postnatal coparenting.

Coparenting Dynamics During the IDT and Infant Cognitive Functioning Another aim in our study was to test the *predictive validity* of our newly developed IDT, which assessed prenatal coparenting under high-arousal conditions. To this end, we examined whether dyadic behavioral coparenting dynamics during the IDT predicted infants' cognitive functioning while taking into account our other pre- and postnatal coparenting measures. The first analysis revealed that greater negative dyadic dynamics observed under high-arousal conditions of the IDT in pregnancy predicted lower cognitive functioning scores in infants at 18 months. This finding remained significant even when controlling for variance explained by *prenatal family alliance* observed during low stress conditions (PLTP) and *prenatal self-reported perceptions* of coparenting (CRS). Other prenatal copar-

Table 6.1 Zero-order correlations between study variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Negative Dynamics IDT		−0.44***	−0.24*	−0.26*	−0.19†	−0.04	−0.04	−0.18	0.03	0.12	0.10	0.06
2. Positive Dynamics IDT			0.44***	0.21*	0.12	0.31**	0.10	0.18	0.00	0.24	0.29	0.13
3. PLTP				0.07	−0.05	0.43***	0.14	0.20	0.17	0.02	0.04	0.13
4. Mom Prenatal CRS					0.45***	0.15	0.60***	0.46***	−0.03	−0.08	−0.07	−0.17†
5. Dad Prenatal CRS						0.05	0.56***	0.56***	−0.02	−0.08	−0.12	−0.08
6. Postnatal LTP							0.24	0.11	0.02	0.04	0.27*	0.09
7. Mom Postnatal CRS								0.52***	0.08	0.04	0.07	−0.09
8. Dad Postnatal CRS									0.07	0.01	0.03	−0.01
9. SES										0.12	0.30**	−0.04
10. Mom education											0.27**	−0.12
11. Dad education												−0.18†
12. Infant temperament												

Note. $†p < 0.1$; $*p < 0.05$; $**p < 0.01$; $***p < 0.001$. *IDT* Inconsolable Doll Task, *PLTP* Prenatal Lausanne Trilogue Play, *CRS* Coparenting Relationship Scale, *SES* Socioeconomic Status

Table 6.2 Standardized regression coefficients for infants' cognitive development scores regressed on prenatal dyadic interactive behaviors, prenatal family alliance (PLTP), and prenatal reported coparenting (CRS)

	Step 1			Step 2		
	β	SE	p	β	SE	p
SES	0.00	2.53	0.99	0.02	2.46	0.84
Mom education	−0.00	0.71	0.99	0.05	0.70	0.69
Dad education	0.05	0.75	0.69	0.06	0.72	0.62
Child temperament	0.10	1.99	0.41	0.13	1.95	0.29
Prenatal LTP	0.13	2.53	0.33	0.12	2.45	0.37
Prenatal positive coparental dynamics	−0.03	1.09	0.85	−0.18	1.19	0.24
Mom prenatal CRS	0.23	2.97	0.10	0.19	2.91	0.16
Dad prenatal CRS	−0.00	2.96	0.99	−0.01	2.87	0.93
Prenatal negative coparental dynamics				−0.32*	1.52	0.03

Note. * $p < 0.05$. *SES* Socioeconomic Status, *LTP* Lausanne Trilogue Play, *CRS* Coparenting Relationship Scale

enting assessments and positive dyadic prenatal coparenting under high arousal, namely, synchrony, did not predict individual differences in infants' cognitive functioning at 18 months (See Table 6.2).

In a final analysis, we examined whether prenatal negative dyadic dynamics during high-arousal conditions explain the unique variance of infants' cognitive development at 18 months over and above *postnatal* assessments of family alliance and coparental reports. Results showed that higher ratings on prenatal negative dyadic dynamics during the IDT predicted infants' lower scores on the early learning composite at 18 months when controlling for positive dyadic dynamics during the IDT (high arousal), postnatal coparenting dynamics during low-arousal conditions (LTP), and postnatal self-reported perceptions of coparenting (See Table 6.3). In some, our findings show that negative dyadic dynamics observed during the IDT continued to predict infants' cognitive development even when taking into account parents' prenatal and postnatal coparenting representations, coparenting behaviors under low arousal, and after controlling for child temperament, family SES, and parents' educational levels.

Case Illustrations of Coparental Dynamics Under High (IDT)- and Low (PLTP)-Arousal Conditions

In this section, we provide descriptions of prenatal coparenting dynamics in two families from our study: One family who was rated high on the negative scale of coparental dynamics under high-arousal conditions, (IDT) and a second family who was rated low on this scale. We also include these families' descriptions of coparenting dynamics observed during the low-arousal conditions of the PLTP.

Family 1 During the IDT (Low in Negative Coparental Dynamics)

The "baby" is crying in mother's arms as father enters the room. Mother turns to father and says, "He doesn't want to eat." Father asks, "Do you want to give him to me?" Mother hands the "baby" over to father wrapped up in a blanket. Father asks, "Does he want to rest?" "No," replies mother. Father asks with a smile, "Maybe you made him angry?" Then, both exchange their thoughts and ideas using a calm voice and tone. "Did he eat? Maybe he's too hot?" asks father. "No…he doesn't want to eat. He didn't poop and he doesn't want to eat," says mother. "Maybe he is tired?" asks father. Mother replies, "I tried laying him in bed but suddenly he woke up and cried again. Maybe we should try again?" The father places the "baby" in the crib, mother approaches too. When "baby" calms down in the crib, mother sits on the chair and father approaches her. Mother says, "A few minutes ago he was like this as well but then suddenly he woke up." Mother smiles at father while seated and he is standing by her. "Baby" makes a relaxed sound and mother looks satisfied at father. Father says, "Why are you looking at him? Let's do something together." Mother laughs and talks quietly because the "baby" is sleeping and says with a smile, "Because he is so cute, he really reminds me of you." Father asks mother if she wants to drink something. Mother replies, "Yes, but he didn't eat…" The baby starts fussing again and mother sighs. "Oh dear, he's starting again!" she says in a cute but sad tone while looking at father with a sad smile. After a few bouts of crying, they both approach "baby" and place a hand on his stomach. "Maybe now he wants to eat?" suggests mothers. The "baby" is crying fiercely now, screaming on top of his lungs. Father keeps rocking him in the crib while stroking him. Mother says, "He is really screaming, maybe I should pick him up?" Father replies, "Let's try, maybe he will calm down on his own in a moment."

Table 6.3 Standardized regression coefficients for infants' cognitive development scores regressed on prenatal dyadic interactive behaviors, postnatal family alliance (LTP), and postnatal reported coparenting (CRS)

	Step 1			Step 2		
	β	SE	p	β	SE	p
SES	0.06	3.33	0.72	0.10	3.16	0.50
Mom education	0.05	0.91	0.78	0.09	0.87	0.55
Dad education	0.02	0.97	0.93	0.01	0.92	0.94
Child temperament	−0.05	2.70	0.74	0.00	2.58	0.95
Postnatal LTP	0.30	0.40	0.08	0.34	0.38	0.03
Prenatal positive coparental dynamics	0.10	1.43	0.51	−0.20	1.75	0.30
Mom postnatal CRS	0.04	3.85	0.85	0.06	3.63	0.74
Dad postnatal CRS	0.08	3.89	0.65	0.04	3.68	0.81
Prenatal negative coparental dynamics				−0.45*	2.07	0.02

Note. * $p < 0.05$. *SES* Socioeconomic Status, *LTP* Lausanne Trilogue Play, *CRS* Coparenting Relationship Scale

In this vignette, we witness coparents during pregnancy who are working as a team to try and cope with a rather challenging situation. They are supporting each other through the stressful and almost constant crying of the "baby"; they are sharing equal power and control over parenting this "baby." There is no hostility, impatience, criticism, accusation, destructive communication, or negative affect shared between these coparenting partners. They use humor to cope with a difficult situation and thereby avoid potential conflict or escalation. Consistent with the overall pattern we found in our sample, Family 1 who was low in negative dyadic behavioral coparenting dynamics (and high in positive dyadic behavioral coparenting) also scored high on their prenatal family alliance observed during the PLTP.

Family 1 During the PLTP (High Family Alliance)

Family 1 received a rating of 4.1 out of 5 on the PLTP global scale, which is a high rating indicating the prenatal alliance of Family 1 is one of shared joy, excitement, elaboration, and playfulness. Each coparenting partner is able to be with and care for the "baby," and partners transition smoothly and calmly between their roles as caregivers. They consult with one another, advise, think together, and support each other. And they create several moments of triadic interactions, where all three members of the family are equally included showing high levels of family warmth. During numerous moments of play interaction, both partners are smiling at one another and also at "baby." They take turns holding and caring for "baby" and ask each other for help. For example, during one moment of the interaction, father searches for "baby's" hand and removes the glove to hold his hand. Then he approaches mother and asks, "Can you help me put the glove on?" Father turns to mother as she helps him to put the glove on the "baby's" hand while smiling. Both parents demonstrate intuitive parenting behaviors throughout the PLTP. For example, during a different moment of the interaction, mother asks father if he wants to pass "baby" on to her. Father passes the doll to the mother gently while supporting his head. Mother says softly, "Hi little one…" exchanging smiles between the "baby" and the father. Father walks close to mother and "baby" and smiles. Then, father suggests taking a family picture with "baby", and they pretend to take a selfie.

Family 2 During the IDT (High in Negative Coparental Dynamics)

At the beginning of this interaction, the "baby" is in mother's arms; he is not crying, and the parents are laughing together. Then, the" baby" starts to cry. Father says, "Don't be nervous about it. You check if he has a soiled diaper or something else that might be bothering him." The "baby" cries a strong, powerful cry. Father asks,

"Do you want to give him to me?" Mother speaks to the "baby" and says, "Stop, stop crying... there, shh…there." Father says, "It's not working, it's not good." Mother asks, "Why are you saying that?" Father replies, "Because if it was good, he would have been quiet." Mother continues trying to console "baby". Father says, "If it were a real baby, he'd be quiet." Both parents look at each other and laugh. This brief moment of shared positive affect is an isolated instance in an otherwise affectively negative interaction. The "baby" calms down and seizes to cry. Mother continues rocking "baby" in her arms and says, "That's it, let's put him in the infant seat to rest." Mother continues rocking "baby" and does not place "baby" in the infant seat. Father says, "Don't lay him in the infant seat, it will not be comfortable." Mother looks at the father and then at the "baby" and says to "baby", "Don't be scared" and, while laying him in the infant seat by her feet, continues to tell him, "Don't be scared…" After a few seconds, "baby" starts crying again, at first gradually. Mother says, "Shh…." with a despaired facial expression. Father says, "Go on, take him out!" Mother waits a few seconds and then father pulls the baby seat towards his feet. He says, "You must not wait too long!" Mother suggests to "Try rocking the infant seat without taking him out." Father rocks the infant seat with a frustrated and desperate facial expression. Father says, "Oh, my! Should I take him out and do what you did?" Mother sits and looks at the crying "baby". Father pulls "baby" out of the seat and caresses him. After a few seconds he puts him on his shoulder and presses gently on his belly. The father's facial expression is serious. Mother looks at father, smiles and says to him "It suits you so well!" Father remains serious. He then stands up and walks around the room. The mother remains seated and looks at them, with a despaired and tired expression. Father mumbles, "No…." and looks frustrated. Mother says, "Put him like that, like you did, he will calm down… it takes time to calm down. Don't change the pose. He doesn't like it that way," (when father puts "baby's" face up). Father asks, "They don't like it like this?" Mother shakes her head "no" and sighs impatiently. Mother continues, "If you leave him like that, so at least rock him, come on, do it while rocking, like a vibration." She remains seated and looks at the father nervously. Her tone of voice is edgy and impatient. Father rocks the "baby", while the "baby" continues crying. However, he does not change "baby's" position as mother had suggested. Mother says, "Not like that, put him on your shoulder, honey, and pat his back, good, exactly like that." Father says, "He's not calming down, what should I do? I opened the window to let the baby look outside for a bit." Mother says, "No way, it's not going to work. He has gas." The "baby" calms down. The father continues walking around the room and patting "baby's" back. Father says, "There, he is calming down, he had a reason and cried, but kids also cry for no reason, that's true. You do like that, and that way he calms down, they can do stuff themselves." he says with a smile. Mother raises her voice, "No! What do you mean, they can do stuff themselves?" Her tone is angry and serious. Father says, "A baby can't just like that cry all day for no reason." Mother replies, "He's not going to cry all day long."

This description of our second family during the high-arousal condition of the IDT illustrates a coparental unit who gets trapped in progressively more negative interactions as "baby" continues to cry and does not respond to the parents' efforts

at soothing him. The parents' unsuccessful struggle to calm "baby" escalates into an angry and controlling exchange between them during which each partner tries to tell the other what to do with "baby." Rather than asking each other questions, or jointly wondering what to do with the crying "baby," there are many instructive and even commanding exchanges in which they bark orders at each other without a sense that they are using each other as a source of support and comfort in this difficult moment. When compliments are offered to the partner, they do not seem to be welcomed or well received. The few times when humor is used, it does not manage to lighten the moment or lift the heaviness of the interactive exchange.

Family 2 During the PLTP (Low Family Alliance)

Consistent with their coparenting dynamics during the IDT, Family 2 is showing signs of medium-low family warmth and escalating conflict even during the low-arousal conditions of the PLTP, indicating that their prenatal family alliance is low. Indeed, they received a score of 3 out of 5 on the PLTP global scale for their overall prenatal family alliance. For example, when mother is getting ready to pick up "baby" from the crib, father says with a stern facial expression and tone, "Hold his head, hold his head!" Mother replies, "I'm holding…" and laughs. Mother then rocks "baby" close to her chest, above her belly while leaning on father's shoulder and laughing. She produces crying sounds mimicking the "baby" and says with a smile, "Just kidding." Father says "Do it seriously!" with a little smile.

A little while later during the PTLP, their conflict escalates into an angry exchange over fathers' lack of interest in holding their real baby after birth. The conflict starts when mother asks father, "Do you want to burp him?" to which he responds with "No!" Mother then raises her tone and says, "Yes! Take! And feed him!" but father stretches in his seat and replies, "No… you didn't finish yet… hold on." Mother says with a troubled tone and sad facial expression, "Stop it! I am not kidding; I'm really scared of that part." Father responds to this with a smile, "When he grows up, I'll hold him." The conflict escalates when mother angrily says to father, "Stop it already! When he comes, you are not going to hold him?" she asks angrily. "What…. the moment he comes out?" father asks in response to mother's question. "Yes! After the delivery!" mother says in an angry tone. Father asks in a panic, "Let's say I won't, does it make me bad?" Mother angrily calls out, "Yes!" and then turns her torso and face away from father. "Okay, I'll hold him" father says quietly and also turns away from mother.

During the low-arousal conditions of the PTLP, the coparents in family 2 are demonstrating significant difficulties in creating triangular interactions with one another and their imagined baby. They do not cooperate with one another by taking turns in caring for "baby," and they show a noteworthy lack of support for each other's efforts with baby which was also evident during their interactions during the IDT. Even when the mother explicitly asks the father to take part in helping with their "baby" and reveals her anxiety, he remains uninvolved and leaves his partner unsupported. This elicits anger in the mother, and their conflict escalates until they

both withdraw rather than resolve it, which is illustrated poignantly by each moving away from one another.

Discussion

As these two case examples illustrate, our findings provide evidence for the convergent validity of our newly developed observational task for prenatal coparenting under high-arousal conditions. Both positive and negative dyadic dynamics in the IDT were associated with well-established measures assessing both behavioral and representational facets of prenatal coparenting. The additional examination of coparental functioning during the highly stressful situation created by the IDT helped to deepen our understanding of the multifaceted and complex construct of prenatal coparenting. These findings undoubtedly require further replication. Nonetheless, even when treated as preliminary, they do offer initial support for the validity of the IDT as measure of coparenting dynamics during a stressful context, even before couples actually become parents.

In terms of the predictive validity of the IDT, our findings indicate that negative coparental behaviors observed during the IDT explain unique variance in infants' cognitive development at 18 months that was not accounted for by positive dyadic dynamics observed under high-arousal conditions, nor by parental self-reports or coparenting dynamics observed during low-stress play interactions.

This pattern of findings is intriguing and reveals two important aspects of the prenatal coparenting relationship: First, our findings suggest that positive and negative features of prenatal coparental dynamics may be somewhat independent of each other. Our findings have shown that negative coparental dynamics predicted infants' cognitive devolvement, whereas positive coparental synchrony did not. Clearly, poor quality coparenting during pregnancy constitutes a *risk factor* for children during the postpartum period, a finding that is consistent with previous research. However, it appears that considering isolated positive features of the prenatal coparenting relationship does not necessarily represent a protective factor for children's cognitive functioning, though of course, positive prenatal coparenting dynamics are likely to benefit children by virtue of laying the foundation for supportive postpartum coparenting.

A second implication of our findings is that coparental dynamics unveiled in times of high arousal and stress hold unique importance for infants' cognitive development that could not be predicted by considering prenatal coparenting under low-arousal conditions alone. Neither coparenting behaviors during the low-arousal PLTP and LTP nor coparenting representations predicted infants' cognitive functioning in our study. Pregnant couples' lack of conflict during the stressful coparenting simulation was more predictive of infants' cognitive development than were their supportive coparenting behaviors during low-stress conditions either during pregnancy or after birth. Put differently, in order for infants' cognitive functioning to develop optimally, they need parents who can navigate stressful parenting situations without resorting to unsupportive coparenting behaviors that undermine or

criticize their coparenting partner. Our findings suggest that the nature of the highly stressful simulation task we used during pregnancy activated coparenting dynamics and predicted cognitive development more robustly than the low-stress play contexts did in our study. We believe that the same may be true for postpartum coparenting, which has also historically been studied more commonly during low-stress rather than high-stress conditions. This is an important direction to be further explored in future research in this field.

Clinical Implications

It is very hard, and perhaps even impossible, to prepare someone for parenting. The intensities, complexities, and mixed emotions that parenting gives birth to are novel and cannot be grasped or comprehended until experienced first hand. One of the most challenging moments new parents may encounter is trying, and failing miserably, to comfort their own baby while he or she is wailing relentlessly. Such moments are hard for parents, as individuals, and as coparents. These stressful situations challenge parents' ability to regulate their emotions, to work as a team, to support each other, and to give space and room for the other to parent. Precisely for these reasons, these moments, if simulated in a task that evokes similarly challenging feelings in expecting parents, can be so powerful in illuminating if and how a couple might be likely to struggle in their future coparental relationship after birth; such information may be less likely detected when couples are observed during less evocative and emotionally distressing conditions. Though they considered the role of stress more in general during the transition to parenthood rather than stress specifically arising within the coparenting relationship, Pape Cowan et al. emphasize that partners' distress during the transition can help to explain why some couples are at risk for problems in the postpartum period (Pape Cowan et al. 1985).

We believe that our robust prediction of infants' cognitive functioning is due to the nature of the IDT, i.e., the fact that expectant couples were simulating coparenting dynamics during a highly stressful situation with a challenging "infant" much like the real-life coparenting stressors they most likely experience in the postpartum period. In other words, we believe that coparental dynamics uncovered during pregnancy were foretelling of postpartum dynamics, which inevitably involve stressful parenting situations. Ongoing, long-term negative dynamics between the parents that were hinted at during their interactions during the prenatal IDT thus predicted cognitive development at 18 months. Crucially, our findings suggest that there is no need to wait until the baby is born to detect and address problematic coparental dynamics in clinical interventions with families.

Based on our findings, we suggest that prenatal coparenting intervention should focus not only on how to work together as a couple on enactments of parenting the "baby" but also on addressing specifically how expectant parents can navigate the more challenging coparenting situations new parents are likely to encounter after birth. Such programs could help parents to identify more effective communicative

strategies, problem-solving skills, and coping skills to manage everyday crises during infant care. Several prenatal coparenting interventions have already been developed for expectant couples in recent years (see Chaps. 14, 15, and 16 of this book), though to our knowledge, none of the existing interventions have utilized a programable doll to simulate high-stress situations for expecting parents in order to help them experience and practice coparenting under these conditions. Prenatal interventions could be done using role play in addition to simulations of caregiving interactions with and without the doll simulator, which would elicit a strong real-life experience of challenges that coparents may encounter. These types of prenatal interventions would not only help couples to build and improve their coparenting skills and translate them into practice during their daily lives, (Ferraro et al. 2016) but could also enhance and benefit children's cognitive and emotional development in the first couple of years after birth.

Conclusion

The use of the RealCare Baby® II-Plus infant simulator in our newly developed highly stressful, prenatal observation task proved to be an invaluable tool that allowed for the advancement of prenatal assessments of coparenting dynamics. Our creation of the new IDT constitutes an ethical, yet ecologically valid, prenatal measure of coparenting during a high-stress situation that illuminates the processes and dynamics that parents will inevitably face with their young infants (Shai 2018). It permitted us to simulate a normative and frequently experienced situation in which the infant cries inconsolably and both parents need to work together to determine the reason for the baby's distress and how to help soothe the infant. The authenticity of the doll simulator evoked powerful and genuine responses from expectant parents, which proved to be predictive of infants' cognitive achievements more than a year and a half later (Shai 2018).

References

Altenburger, L., Schoppe-Sullivan, S., Lang, S., Bower, D., & Kamp Dush, C. (2014). Associations between prenatal coparenting behavior and observed coparenting behavior at 9-months postpartum. *Journal of Family Psychology, 28*(4), 495–504. https://doi.org/10.1037/fam0000012.

Belsky, J., Crnic, K., & Gable, S. (1995). The determinants of coparenting in families with toddler boys: Spousal differences and daily hassles. *Child Development, 66*, 629–642. https://doi.org/10.2307/1131939.

Belsky, J., Woodworth, S., & Crnic, K. (1996). Trouble in the second year: Three questions about family interaction. *Child Development, 67*, 556–578. https://doi.org/10.2307/1131832.

Burney, R. V., & Leerkes, E. M. (2010). Links between mothers' and fathers' perceptions of infant temperament and coparenting. *Infant Behavior and Development, 33*, 125–135. https://doi.org/10.1016/j.infbeh.2009.12.002.

Cabrera, N. J., Scott, M., Fagan, J., Steward-Streng, N., & Chien, N. (2012). Coparenting and children's school readiness: A mediational model. *Family Process, 51*, 307–324. https://doi.org/10.1111/j.1545-5300.2012.01408.x.

Carneiro, C., Corboz-Warnery, A., & Fivaz-Depeursinge, E. (2006). The prenatal Lausanne Trilogue Play: A new observational assessment tool of the prenatal co-parenting Alliance. *Infant Mental Health Journal, 27*, 207–228. https://doi.org/10.1002/imhj.20089.

Cole, P. M. (2003). The developmental course from child effects to child effectiveness. In A. C. Crouter & A. Booth (Eds.), *Children's influence on family dynamics: The neglected side of family relationships* (pp. 109–118). Mahwah: Lawrence Erlbaum Associates. https://doi.org/10.4324/9781410607430.

Cook, J. C., Schoppe-Sullivan, S. J., Buckley, C. K., & Davis, E. F. (2009). Are some children harder to coparent than others? Children's negative emotionality and coparenting relationship quality. *Journal of Family Psychology, 23*, 606–610. https://doi.org/10.1037/a0015992.

Dopkins Stright, A., & Neitzel, C. (2003). Beyond parenting: Coparenting and children's classroom adjustment. *International Journal of Behavioral Development, 27*(1), 31–39. https://doi.org/10.1080/01650250143000580.

Favez, N., Frascarolo, F., Carneiro, C., Montfort, V., Corboz-Warnery, A., & Fivaz-Depeursinge, E. (2006). The development of the family alliance from pregnancy to toddlerhood and children outcomes at 18 months. *Infant and Child Development: An International Journal of Research and Practice, 15*, 59–73. https://doi.org/10.1002/icd.430.

Favez, N., Frascarolo, F., Lavanchy Scaiola, C., & Corboz-Warnery, A. (2013). Prenatal representations of family in parents and coparental interactions as predictors of triadic interactions during infancy. *Infant Mental Health Journal, 34*, 25–36. https://doi.org/10.1002/imhj.21372.

Feinberg, M. E. (2003). The internal structure and ecological context of coparenting: A framework for research and intervention. *Parenting: Science and Practice, 3*, 95–131. https://doi.org/10.1207/S15327922PAR0302_01.

Feinberg, M. E., Brown, L. D., & Kan, M. L. (2012). A multi-domain self-report measure of coparenting. *Parenting, 12*, 1–21. https://doi.org/10.1080/15295192.2012.638870.

Ferraro, A. J., Malespin, T., Oehme, K., Bruker, M., & Opel, A. (2016). Advancing co-parenting education: Toward a foundation for supporting positive post-divorce adjustment. *Child and Adolescent Social Work Journal, 33*(5), 407–415. https://doi.org/10.1007/s10560-016-0440-x.

Fivaz-Depeursinge, E., & Corboz-Warnery, A. (1999). *The primary triangle: A developmental system view of mothers, fathers, and infants*. New York: Basic Books.

Fivaz-Depeursinge, E., Frascarolo, F., & Corboz-Warnery, A. (1996). Assessing the triadic alliance between fathers, mothers, and infants at play. In J. P. McHale & P. A. Cowan (Eds.), *Understanding how family-level dynamics affect children's development: Studies of two-parent families* (pp. 27–44). San Francisco: Jossey-Bass. https://doi.org/10.1002/cd.23219967404.

Fivaz-Depeursinge, E., Frascarolo, F., & Corboz-Warnery, A. (2010). Observational tool: The prenatal Lausanne Trilogue Play. *Parenthood and Mental Health*, 121–127. https://doi.org/10.1002/9780470660683.ch12.

Jacobvitz, D., Hazen, N., Curran, M., & Hitchens, K. (2004). Observations of early triadic family interactions: Boundary disturbances in the family predict symptoms of depression, anxiety, and attention-deficit/hyperactivity disorder in middle childhood. *Development and Psychopathology, 16*, 577–592. https://doi.org/10.1017/S0954579404004675.

Julien, D., Markman, H. J., & Lindahl, K. M. (1989). A comparison of a global and microanalytic coding system: Implications for future trends in studying interactions. *Behavioral Assessment, 11*, 81–100. https://doi.org/10.1007/BF00962701.

Karreman, A., Van Tuijl, C., Van Aken, M. A., & Deković, M. (2008). Parenting, coparenting, and effortful control in preschoolers. *Journal of Family Psychology, 22*, 30–40. https://doi.org/10.1037/0893-3200.22.1.30.

Katz, L. F., & Gottman, J. M. (1996). Spillover effects of marital conflict: In search of parenting and coparenting mechanisms. In J. P. McHale & P. A. Cowan (Eds.), *Understanding how family-level dynamics affect children's development: Studies of two-parent families* (pp. 57–76). San Francisco: Jossey-Bass. https://doi.org/10.1002/cd.23219967406.

Katz, L. F., & Low, S. M. (2004). Marital violence, co-parenting, and family-level processes in relation to children's adjustment. *Journal of Family Psychology, 18*, 372–382. https://doi.org/10.1037/0893-3200.18.2.372.

Kline, G. H., Julien, D., Baucom, B., Hartman, S., Gilbert, K., Gonzales, T., & Markman, H. J. (2004). The interactional dimensions coding system: A global system for couple interactions. *Couple Observational Coding Systems*, 113–126. https://doi.org/10.4324/9781410610843.

Kuersten-Hogan, R. (2017). Bridging the gap across the transition to Coparenthood: Triadic interactions and Coparenting representations from pregnancy through 12 months postpartum. *Frontiers in Psychology, 8*, 475. https://doi.org/10.3389/fpsyg.2017.00475.

Lavanchy Scaiola, S. C., Favez, N., Tissot, H., & Frascarolo, F. (2008). Family alliance assessment scale (FAAS). *Coding manual. Deutsche Übersetzung: Schwinn L (2008) Institut für Psychosomatische Kooperationsforschung und Familientherapie, Universitätsklinikum Heidelberg, unveröffentlicht.*

Laxman, D. J., Jessee, A., Mangelsdorf, S. C., Rossmiller-Giesing, W., Brown, G. L., & Schoppe-Sullivan, S. J. (2013). Stability and antecedents of coparenting quality: The role of parent personality and child temperament. *Infant Behavior and Development, 36*, 210–222. https://doi.org/10.1016/j.infbeh.2013.01.001.

Lindsey, E. W., & Caldera, Y. M. (2005). Interparental agreement on the use of control in childrearing and infants' compliance to mother's control strategies. *Infant Behavior and Development, 28*(2), 165–178. https://doi.org/10.1016/j.infbeh.2005.02.004.

Margolin, G., Gordis, E. B., & John, R. S. (2001). Coparenting: A link between marital conflict and parenting in two-parent families. *Journal of Family Psychology, 15*, 3–21. https://doi.org/10.1037/0893-3200.15.1.3.

Mayseless, O. (2006). *Parenting representations*. Cambridge: University Press. https://doi.org/10.1017/CBO9780511499869.

McHale, J. P. (1995). Coparenting and triadic interactions during infancy: The roles of marital distress and child gender. *Developmental Psychology, 31*, 985–996. https://doi.org/10.1037/0012-1649.31.6.985.

McHale, J. P. (1997). Overt and covert coparenting processes in the family. *Family Process, 36*(2), 183–201. https://doi.org/10.1111/j.1545-5300.1997.00183.x.

McHale, J. P. (2007). When infants grow up in multiperson relationship systems. *Infant Mental Health Journal, 28*, 370–392. https://doi.org/10.1002/imhj.20142.

McHale, J. P. (2011). Assessing coparenting. In J. P. McHale & K. Lindahl (Eds.), *Coparenting: A conceptual and clinical examination of family systems*. American Psychological Association. https://doi.org/10.1037/12328-000.

McHale, J. P., & Fivaz-Depeursinge, E. (1999). Understanding triadic and family group interactions during infancy and toddlerhood. *Clinical Child and Family Psychology Review, 2*, 107–127. https://doi.org/10.1023/A:1021847714749.

McHale, J., & Fivaz-Depeursinge, E. (2010). Principles of effective coparenting and its assessment in infancy and early childhood. In S. Tyano, M. Keren, H. Herrman, & J. Cox (Eds.), *Parenting and mental health: A bridge between infant and adult psychiatry* (pp. 383–397). London: Wiley.

McHale, J. P., & Rasmussen, J. L. (1998). Coparental and family group-level dynamics during infancy: Early family precursors of child and family functioning during preschool. *Development and Psychopathology, 10*, 39–59. https://doi.org/10.1017/S0954579498001527.

McHale, J. P., & Rotman, T. (2007). Is seeing believing? Expectant parents' outlooks on coparenting and later coparenting solidarity. *Infant Behavior and Development, 30*, 63–81. https://doi.org/10.1016/j.infbeh.2006.11.007.

McHale, J. P., Kuersten-Hogan, R., Lauretti, A., & Rasmussen, J. L. (2000). Parental reports of coparenting and observed co- parenting behavior during the toddler period. *Journal of Family Psychology, 14*, 220–236. https://doi.org/10.1037/0893-3200.14.2.220.

McHale, J. P., Kazali, C., Rotman, T., Talbot, J., Carleton, M., & Lieberson, R. (2004a). The transition to coparenthood: Parents' prebirth expectations and early coparental adjustment at 3 months postpartum. *Development and Psychopathology, 16*(711–733), 711–733. https://doi.org/10.1017/S0954579404004742.

McHale, J. P., Kuersten-Hogan, R., & Rao, N. (2004b). Growing points for coparenting theory and research. *Journal of Adult Development, 11*, 221–234. https://doi.org/10.1023/B:JADE.0000035629.29960.ed.

Minuchin, S. (1974). *Families and family therapy*. Cambridge, MA: Harvard University Press.

Mullen, E. M. (1995). *Mullen scales of early learning* (pp. 58–64). Circle Pines, MN: AGS.

Pape Cowan, C., Cowan, P., Heming, G., Garrett, E., Coysh, W., Curtis-Boles, H., & Boles, A., III. (1985). Transitions to parenthood: His, hers, and theirs. *Journal of Family Issues, 6*(4), 451–481.

Rowe, D., Jacobson, K., & Van den Oord, E. (1999). Genetic and environmental influences on vocabulary IQ: Parental education level as moderator. *Child Development, 70*(2), 1151–1162. https://doi.org/10.1111/1467-8624.00084.

Sameroff, A. (1975). Transactional models in early social relations. *Human Development, 18*, 65–79. https://doi.org/10.1159/000271476.

Schoppe, S. J., Mangelsdorf, S. C., & Frosch, C. A. (2001). Coparenting, family process, and family structure: Implications for preschoolers' externalizing behavior problems. *Journal of Family Psychology, 15*, 526–545. https://doi.org/10.1037/08933200.15.3.526.

Schoppe-Sullivan, S. J., Mangelsdorf, S. C., Frosch, C. A., & McHale, J. L. (2004). Associations between coparenting and marital behavior from infancy to the preschool years. *Journal of Family Psychology, 18*, 194–207. https://doi.org/10.1037/08933200.18.1.194.

Schoppe-Sullivan, S. J., Mangelsdorf, S. C., Brown, G. L., & Sokolowski, M. S. (2007). Goodness-of-fit in family context: Infant temperament, marital quality, and early coparenting behavior. *Infant Behavior and Development, 30*, 82–96. https://doi.org/10.1016/j.infbeh.2006.11.008.

Schoppe-Sullivan, S. J., Weldon, A. H., Claire Cook, J., Davis, E. F., & Buckley, C. K. (2009). Coparenting behavior moderates longitudinal relations between effortful control and preschool children's externalizing behavior. *Journal of Child Psychology and Psychiatry, 50*, 698–706. https://doi.org/10.1111/j.1469-7610.2008.02009.x.

Scrimgeour, M. B., Blandon, A. Y., Stifter, C. A., & Buss, K. A. (2013). Cooperative coparenting moderates the association between parenting practices and children's prosocial behavior. *Journal of Family Psychology, 27*, 506–511. https://doi.org/10.1037/a0032893.

Shai, D. (2018). The Inconsolable Doll Task: Prenatal coparenting behavioral dynamics under stress predicting child cognitive development at 18 months. *Infant Behavior and Development*. Advance online publication. https://doi.org/10.1016/j.infbeh.2018.04.003.

Talbot, J. A., & McHale, J. P. (2004). Individual parental adjustment moderates the relationship between marital and coparenting quality. *Journal of Adult Development, 11*(3), 191–205. https://doi.org/10.1023/B:JADE.0000035627.26870.f8.

Teubert, D., & Pinquart, M. (2010). The association between coparenting and child adjustment: A meta-analysis. *Parenting, 10*, 286–307. https://doi.org/10.1080/15295192.2010.492040.

Van Bakel, H. J., & Riksen-Walraven, J. M. (2002). Parenting and development of one-year-olds: Links with parental, contextual, and child characteristics. *Child Development, 73*(1), 256–273. https://doi.org/10.1111/14678624.00404.

Van Egeren, L. A., & Hawkins, D. P. (2004). Coming to terms with coparenting: Implications of definition and measurement. *Journal of Adult Development, 11*, 165–178. https://doi.org/10.1023/B:JADE.0000035625.74672.0b.

Witte, A. M., Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., Szepsenwol, O., & Shai, D. (2019). Predicting infant–father attachment: The role of pre-and postnatal triadic family alliance and paternal testosterone levels. *Attachment & Human Development*, 1–15. https://doi.org/10.1080/14616734.2019.1680713.