

2013-04-26

Discrete Trajectories of Coparenting over the Transition to Parenthood

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UNIVERSITY OF MIAMI

DISCRETE TRAJECTORIES OF COPARENTING OVER THE TRANSITION TO
PARENTHOOD

By

Larisa N. Cicila

A THESIS

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
the degree of Master of Science

Coral Gables, Florida

May 2013

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DISCRETE TRAJECTORIES OF COPARENTING OVER THE TRANSITION TO
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CICILA, LARISA N.
Discrete Trajectories of Coparenting
over the Transition to Parenthood

(M.S., Psychology)
(May 2013)

Abstract of a thesis at the University of Miami.
Thesis supervised by Associate Professor Brian Doss.
No. of pages in text. (69)

This study endeavors to examine whether discrete trajectories of self-report coparenting exist over the transition to parenthood; if findings support discrete trajectories, pre-birth predictors of class membership will be investigated, as well as whether class membership predicts outcomes at 2 years postpartum. As part of a larger study, ninety couples pregnant with their first child completed self-report measures of coparenting at 1, 3, 6, 12, 18 and 24 months postpartum. Models utilizing Growth Mixture Modeling (GMM) and Latent Class Growth Analysis (LCGA) were explored. Results indicated significant evidence for the existence of discrete trajectories; a three-class LCGA that divided the sample into High Coparenting, Medium Coparenting and Low Coparenting classes was found to be the superior solution, both in terms of favorable fit statistics and stability. Slopes for all three classes did not significantly differ from 0, indicating no appreciable growth over time. Additionally, six pre-birth variables indicated differential significant predictors for High vs. Low Coparenting class membership. Lastly, class membership significantly predicted a broader range of outcomes, including several aspects of couple and child functioning, than an individual's average score on a continuous measure of coparenting. Implications for intervention and future directions are discussed in-depth.

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Chapter 1: Introduction

The birth of a first child is often a momentous and incredibly joyous time in the lives of first-time parents. However, this transition to parenthood is also a tumultuous time that involves the reorganization of the couple relationship as well as an induction into the complex world of parenthood. New parents may not be prepared for the wide-ranging, often negative, impact on couple functioning that follows the birth of a child. During this transition to parenthood, the shift from a dyad to a triad can prove difficult for even the most stable couple for many reasons: chronic lack of sleep (Medina, Lederhos & Lillis, 2009), increased incidence of postpartum psychopathology (Miller, Pallant, & Negri, 2006), the stress of learning how to care for a newborn, the assumption of a new role as “parent”, lack of social interaction with other adults, the resulting financial strain of caring for a new baby, and often at least a temporary change in work status for one partner (Cowan & Cowan, 2000). With the addition of these stressors, it is unsurprising that the majority of recent literature shows that the transition to parenthood often results in a decline in overall couples functioning.

Unfortunately, this decline in couples functioning has wide-ranging negative effects that extend beyond the health of the couple relationship. Couple functioning following birth has been consistently associated with a child’s early development (De Wolff & Van Ijzendoorn, 1997; Gottman, Driver & Tabares, 2002) as well as later psychological, social and school functioning (Amato, 2001; Davies & Cummings, 1994). Furthermore, these early years of family formation are often the foundation for enduring patterns of family systems and interactions (Klennert, Gavin, Wamboldt & Mrazek,

1992). Thus, understanding declines in couple functioning over the transition to parenthood is of critical importance as such declines have been found to have long-reaching, deleterious effects on the family unit and children, in particular.

Previous research has identified two primary aspects of couple functioning that are especially salient over the transition to parenthood: relationship adjustment and coparenting. While the majority of the literature has focused on declines in relationship adjustment among first-time parents (e.g., Doss, Rhoades, Stanley, & Markman, 2009; Lawrence, Rothman, Cobb & Bradbury, 2010), the relatively new area of coparenting, and the development of the coparenting relationship during this transition, has increasingly become an area of interest in the transition to parenthood literature.

Coparenting

In its broadest sense, coparenting is the “shared activity undertaken by those adults responsible for the care and upbringing of children” (Irace & McHale, 2011, p. 16). As is implied in the definition, coparents include any important adults that are routinely involved in the care and decision-making for a child and are not confined to the two, biological parents from a nuclear family. However, for the purposes of this paper, we will be concentrating on coparenting within a nuclear family (for a more in-depth discussion of non-traditional coparents, please see Jones & Lindahl, 2011).

One widely accepted definition of coparenting, outlined by Feinberg (2003), conceptualizes coparenting as encompassing four distinct components. Feinberg’s first component describes the degree of supportive vs. undermining behavior towards one’s partner, where a supportive partner affirms the competency of their partner’s parenting, acknowledges the contribution of their partner to the parenting and upholds their

partner's parenting decisions. However, empirical factorial analyses suggest that support and undermining coparenting behavior form separate dimensions, rather than falling on opposite ends of one continuum (Schoppe-Sullivan, Weldon, Claire Cook, Davis, & Buckley, 2009; Margolin, Gordis, & John, 2001).

Both supportive and undermining coparenting behavior can occur in the context of overt or covert coparenting behavior (McHale, 1997). In a behavioral distinction outlined by McHale (1997), overt coparenting occurs in the presence of the partner and requires direct coordination between coparents, while covert coparenting occurs when one partner is not involved, such as when there is an interaction between one parent and the child. It is during these parent-child interactions that one partner either "supports and reaffirms or deconstructs and fails to reaffirm the coparenting 'contract' or alliance that the adults have mutually fashioned" (Mangelsdorf, Laxman & Jessee, 2011, p. 40). Undermining covert coparenting includes actions like reversing a disciplinary decision made by one's partner or disparaging a partner's parenting decision while only the child is present. Partners also develop an internal sense of whether their partner is supportive or undermining in their coparenting, and one's private sense of how cohesive their coparenting relationship is with their partner has been linked to child adjustment (Abidin & Konald, 1999).

The second component of Feinberg's coparenting framework addresses the degree of child-rearing disagreements, as well as how coparents navigate these disagreements in areas such as discipline, education, and safety. Perhaps the most oft-studied component of the coparenting relationship is the division of duties, tasks and responsibilities (e.g. child care and household tasks, as well as financial, legal and medical issues), with

perceived inequity in this area being particularly detrimental to women (Belsky, 1985; Grote & Clark, 2001; Hackel & Ruble, 1992; Khazan, McHale & Decourcey, 2008)). Disagreements surrounding division of labor are often an important source of conflict in couples after birth, and a main complaint for women in particular. The literature suggests that, even in couples who expect a more egalitarian division of childcare labor prior to birth, the reality is that women often shoulder more of the childcare responsibilities than men (Duncan, Edwards, Reynolds & Alldred, 2003).

The fourth component of Feinberg's framework of coparenting is parents' management of interactional patterns, such as conflict, coalitions and balance, in the family. Although these coparenting behaviors seems to overlap to a great extent with relationship adjustment, Feinberg (2003) explicitly states that any couple conflict that occurs privately, without the child present, does not fall within the coparenting realm. Rather, it is when a couple exposes their children to couple conflict that the behavior is classified as coparenting, more specifically the (unsuccessful) joint management of interactions. Many studies have shown links between increased couple conflict, especially frequent, unresolved conflict, and poor child functioning outcomes (Frosch, Mangelsdorf & McHale, 2000; Jones, Shaffer, Forehand, Brody & Armistead, 2003).

While relationship satisfaction, parenting and coparenting appear to be overlap considerably, research suggests that coparenting is categorically separate from both relationship adjustment and parenting. Conceptually, the most important distinction between coparenting and both relationship adjustment and parenting is the level of interaction investigated. Dyad-level interaction is the primary focus in research on relationship adjustment and parenting (mother-father, mother-child, father-child),

whereas coparenting research studies are essentially interested in triadic processes (mother-father-child), even if one of the three is not physically present (e.g. covert coparenting) (Irace & McHale, 2011). Previous literature also supports coparenting as a distinct area of interest. For example, coparenting predicts outcomes above and beyond marital adjustment (Feinberg Kan, & Hetherington, 2007; Frosch et al., 2000; McHale & Rasmussen, 1998), with two studies finding that coparenting was a unique predictor of internalizing and externalizing problem behavior in children even after controlling for relationship quality (Johnson, Cowan & Cowan, 1999; Teubert & Pinquart, 2010). Additionally, coparenting explained additional variance beyond parenting behavior in child adjustment outcomes (Caldera & Lindsey, 2006; Karreman van Tuijl, van Aken, & Dekovic, 2008; Teubert & Pinquart, 2010).

Predictors of Coparenting Quality.

The literature indicates that a wide variety of variables have been shown to predict coparenting quality. As coparenting is a measure of dyadic functioning, it should be no surprise that global relationship satisfaction has been linked to coparenting. Studies have found that lower relationship adjustment is associated with lower coparental support and higher coparental conflict (Bronte-Tinkew, Scott, Horowitz & Lilja, 2009), and that prenatal relationship adjustment is predictive of coparenting behavior at 3 months postpartum (McHale, Kazali, Rotman, Talbot, Carleton & Lieberson, 2004). However, individual characteristics, like high self-esteem and greater ego-resiliency, have also been associated with improved coparenting quality (Elliston, McHale, Talbot, Parmley and Kuersten-Hogan, 2008; Lindsey, Caldera & Colwell, 2005). Researchers speculate that these qualities may improve coparenting as they allow one to work more flexibility and

more effectively with one's coparent, rather than feeling threatened or undermined by a coparent's behaviors. In fact, feelings of insecurity about attachment predicted high coparenting conflict and low coparenting cohesion (Talbot, Baker & McHale, 2009). Individual psychopathology, particularly higher depressive symptoms, has also been identified as a risk factor for increased negative coparenting dynamics, including higher coparenting conflict (Bronte-Tinkew et al., 2009) and increased withdrawal during coparenting conversations (Elliston et al., 2008). There is also evidence that certain prenatal factors are predictive of later coparenting. For instance, negative prenatal expectations about coparenting are predictive of low cooperation and family warmth after the birth of the child (Van Egeren, 2003; McHale et al., 2004; McHale & Rotman, 2007), while larger reported discrepancies in parenting beliefs pre-birth are predictive of increased coparenting difficulties and decreased coparenting solidarity postpartum (McHale et al., 2004; McHale & Rotman, 2007; Van Egeren, 2003). Lastly, there is evidence that child temperament may influence coparenting, such that families with more temperamentally difficult children display less positive coparenting (Davis, Schoppe-Sullivan, Mangelsdorf, & Brown, 2009; Lindsey et al., 2005; McHale & Rotman, 2007; Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2007).

The literature also suggests that gender may affect coparenting behavior as well as one's coparenting experience. One theory that is widespread, but still polarizing, is that women are the main organizing force of the coparenting relationship and act as "gatekeepers" to their children, choosing whether to involve or exclude the father in parenting acts. There is conflicting evidence for this theory; while Van Egeren (2003) found that maternal pre-birth characteristics were more predictive of coparenting than

paternal characteristics, Talbot and colleagues (2009) found that including both parents' individual characteristics provided a more nuanced view of adjustments in coparenting behavior over the transition to parenthood. There is also some data that suggests that fathers show more positive coparenting than mothers (Gordon & Feldman, 2008; Lindsey et al., 2005) and are more satisfied with coparenting (Van Egeren, 2004).

Change in Coparenting.

While the predictors of level of coparenting have been explored in some detail, there is little research on the trajectory of coparenting over the transition to parenthood. The few studies available suggest that coparenting demonstrates relative consistency over time, particularly in terms of rank-order stability. McHale and Rotman (2007) used correlational analyses to demonstrate rank-order stability from 3-12 and 12-30 months in scores on a coparenting solidarity measure that included observational and self-report indicators of cohesion and conflict. Additionally, Schoppe-Sullivan, Mangelsdorf, Frosch and McHale (2004) found moderate rank-order stability in observed supportive and undermining coparenting behavior at 6 months to 3 years postpartum. While these studies demonstrate that those couples high (or low) in coparenting relative to other couples at a certain time point are likely to remain high (or low) relative to other couples at subsequent time points, they did not directly assess whether mean levels of coparenting change over the transition to parenthood. Furthermore, these studies tended to have widely-spaced time points, which may conceal more subtle fluctuations in coparenting experiences.

One of the few studies to explore linear change over time in smaller time increments was Van Egeren's 2004 study, which looked at self-reported coparenting of

101 married couples at 1, 3 and 6 months postpartum. Results indicated that, on average, the quality of the coparenting experience was high and stable with no significant linear change over the first six months of the coparenting relationship. However, it is important to note that, while the average trajectory for individuals demonstrated no change, significant residual differences existed for level, linear change and fluctuation, suggesting significant individual differences in these parameters.

Variability in Coparenting Trajectories over the Transition to Parenthood.

It is important to consider that previous findings indicating the stability of coparenting could be primarily due to a focus on rank-order stability and average trajectories over the transition to parenthood. While it is possible that, on average, coparenting does not tend to change over the transition to parenthood, there could be subgroups of people who indeed do change over time. However, if researchers examine only average trajectories, these subgroups will be obscured. Distinct subgroups have been previously explored in the realm of relationship satisfaction over the transition to parenthood, with Belsky and Rovine (1990) finding four types of trajectories (accelerating decline, linear decline, no change and modest increase in relationship satisfaction) across four variables of interest: feelings of love, feelings of ambivalence, amount of conflict and the extent to which they engage in behaviors meant to “enrich, improve, and thereby maintain the relationship (*maintenance*)” (p. 7). Interestingly, across all of the variables, except for husbands’ conflict scores, the modal pattern was either no change or linear decline. Van Egeren’s (2004) results hint at a similar

possibility of distinct subgroups within coparenting, with significant residual difference in level, linear change and fluctuation in self-report coparenting, which indicate significant individual differences around the mean trajectory.

Identifying different trajectories, particularly groups where individuals show decline in coparenting over the transition to parenthood, could have additional implications for clinical interventions. In particular, identifying parents at-risk for coparenting difficulties could aide in funneling the most resource-intensive interventions to those couples, rather than providing services to other couples who may exhibit high, stable coparenting without intervention.

In fact, one study examining the possibility of different trajectories showed that a three-class model was more appropriate than a single average trajectory at all three time points (McHale & Rotman, 2007). Results also indicated that prenatal expectations about the transition to parenthood, including maternal pessimism, paternal negative outlook and differences in parenting beliefs, served as differential predictors for the distinct classes. While these results seem to lend empirical evidence to the existence of discrete subgroups of individuals for coparenting over the transition to parenthood, there are several important unanswered questions. First, there was no in-depth discussion of the characteristics of the different classes; therefore, it's unclear whether these classes differed in terms of level, change over time or a combination of these two parameters. Additionally, as investigators were more interested in within-class and within-time point research questions, they did not strive for finding stable classes that held longitudinally. Lastly, a small sample size in the aforementioned analyses may limit the generalizability of the results.

The Present Study.

While the quality of the coparenting relationship has been identified as an important variable of interest over the transition to parenthood, there has been little investigation of its trajectory. In particular, the examination of possible discrete trajectories of coparenting over the transition to parenthood is an underexplored area in the coparenting literature. Therefore, the first aim of the present study will endeavor to identify discrete trajectories in self-report coparenting, measured by the Parenting Alliance Measure (Abidin & Konald, 1999), over the first two years postpartum using Growth Mixture Modeling. With additional time points, and more closely spaced assessments (6 total: 1, 3, 6, 12, 18 and 24 months postpartum), this study seeks to capture a more nuanced picture of coparenting,

Hypothesis 1: We will replicate earlier findings and demonstrate that self-reported coparenting is fairly high and stable over the first two years after birth for the majority of individuals. However, we expect to find evidence of several subgroups of individuals that differ from each other in terms of level, slope, or a combination of the two.

If discrete trajectories for coparenting were found, one potential clinical implication would be the ability to identify parents at-risk for coparenting difficulties and who may benefit from intervention. Therefore, the second aim of the present study will investigate whether characteristics of the individual (e.g., demographics, attachment style) or couple(e.g., relationship satisfaction) predict which trajectory an individual is likely to follow. In particular, variables commonly associated with relationship satisfaction, but previously unexplored in terms of predicting coparenting, will be a major focus of this

aim. As relationship satisfaction and coparenting have been consistently related to each other in previous studies (Bronte et al., 2009; McHale et al., 2004), we are expecting several variables that have been previously linked to relationship satisfaction will also predict coparenting.

Hypothesis 2: Several variables commonly predictive of later coparenting and relationship satisfaction will also predict class membership for individuals.

The predictive utility of these discrete trajectory classes will be assessed in relation to several outcomes at 24 months postpartum. Analyses will be performed to see whether class membership significantly predicts couple functioning and child functioning, both in terms of social-emotional outcomes as well as early language development.

Hypothesis 3: Membership in the High Coparenting class will predict higher levels of relationship satisfaction and child functioning two years after birth as well as smaller decreases in relationship functioning between birth and two years after birth. In contrast, membership in the Low Coparenting class will predict lower levels of relationship satisfaction and child functioning two years after birth as well as steeper declines in relationship satisfaction during the two years after birth.

Lastly, the comparable predictive utility of discrete trajectory classes versus a continuous measure of coparenting will be assessed. Analyses will be performed to see whether a continuous measure of coparenting predicts the same couple and child functioning outcomes as class membership.

Hypothesis 4: The continuous measure of coparenting will not predict as many outcomes as class membership.

Chapter 2: Method

Participants.

Couples in the present study were part of a longitudinal treatment outcome study aimed at further elucidating the links between relationship adjustment, the quality of the coparenting relationship and infant functioning over the transition to parenthood. In this study, 90 heterosexual couples, either married or living together, who were 6-8 months pregnant with their first child were recruited and screened to ensure they met the study's inclusion and exclusion criteria. Only couples that qualified as moderate-risk couples were eligible to participate, as some previous research suggested that low-risk couples may be harmed by prevention programs (Halford, Saunders & Behrens, 2001). For the purposes of this study, moderate-risk was defined as having one or more of the following characteristics: 1) history of divorce in the woman's family of origin 2) history of father-to-mother violence in the man's family of origin 3) one parent reporting that he/she did not want to have the child 4) one partner reporting clinical levels of depression 5) one partner being divorced or 6) one partner reporting clinically significant relationship distress. Couples were excluded if they were at low-risk of relationship problems, as defined above, if one partner was younger than 18, if moderate or severe domestic violence in the relationship was reported, if one partner was diagnosed with a current psychiatric disorder or if one partner was unable to speak English fluently.

After couples were screened, they were then randomly assigned to one of three conditions: a couple relationship intervention, a coparenting relationship intervention, or an information control condition. Thirty couples were assigned to each of the three treatment groups, leading to a total number of 90 couples.

On average, the mean age for individuals in the study was 27.76 (SD=5.00, Range 18-47 years old) and couples had been married for 2.52 years on average at the start of the study (SD=2.47, Range 0-10 years). The sample was 88.3% Caucasian, 1.1% African American, 2.2% Asian or Pacific Islander, 7.8% Hispanic, and 3.3% Native American or Alaskan Native. A large portion of this sample was highly educated, with 60.6% possessing at least a Bachelor's Degree, and 29% obtaining a graduate-level degree (22.8% MA/MS, 0.6% MBA, 5.0% Ph.D., and 0.6% JD). The average individual yearly income before taxes was \$25,966.56 (SD=\$1,652.243/month). During the course of the larger study, six couples separated (two from the control group, one from the coparenting group and three from the couples group). All available coparenting data from these couples were used in the analyses, but further relationship adjustment data was not collected after separation.

Across all time points, an average of 14.6% of self-report coparenting data was missing; however, this overall percentage may be misleading. At the onset of the study, enrolled couples were asked to participate in the study for 12 months postpartum; however, during the course of the study, additional funds became available and the study was extended through 24 months postpartum. This unexpected extension of the study may partially account for the higher missing percentage at 18 and 24 months (self-report coparenting: 19.85%) versus 1, 3, 6 and 12 months (self-report coparenting: 11.98%).

Procedure.

Couples were recruited primarily through ongoing childbirth classes at six local health organizations. Additionally, materials advertising the research study were placed on community message boards, in area businesses, in the local paper and in the Texas

A&M University newsletter for current employees. After inclusion and exclusion criteria were assessed, and met, via a phone screen, couples were randomized to one of the three groups described below.

Couples randomized to the information control group attended a single 90-minute pre-birth meeting with a graduate student, where participants were provided with information focusing on infant development. At this meeting, participants were provided with a list of 12 wide-ranging topics related to the transition to parenthood (e.g. budgeting for a child, the benefits of breastfeeding, coping with common infant health concerns etc.), from which the couple picked a few topics they wanted to discuss more in-depth with the graduate assistant. The couples were also provided with time at the end of the meeting when they could have their individual questions answered. A variety of handouts and pamphlets addressing the aforementioned topics were also available to couples to take home and review.

Those couples randomized to the couple intervention group participated in four 90-minute intervention sessions with a graduate student therapist, with 2 sessions conducted before birth and another 2 sessions conducted approximately 3.5 months after birth. This intervention was modeled after Integrative Behavioral Couples Therapy (IBCT; Jacobson & Christensen, 1996). In the two pre-birth sessions, the therapist aided couples in developing a “theme” of relationship strengths, discussed how positive qualities may erode over the transition to parenthood, and engaged in problem-solving exercises for current and future relationship problems. The two post-birth sessions focused on how their “theme” had changed since they became parents; therapists introduced strategies to accept these changes and assisted in more problem-solving

exercises. Lastly, couples were asked to share how positive aspects of their relationship had changed since the birth of the child, and were encouraged to brainstorm ways to keep positive aspects of the relationship strong.

Couples in the coparenting relationship intervention also participated in four 90-minute sessions, 2 sessions before birth and 2 sessions roughly 3-3.5 months after the birth of the child. The two pre-birth sessions encourage the couple to discuss their expectations about the transition to parenthood, particularly pertaining to common coparenting tasks, such as expectations about the division of labor, anticipated changes to schedules or how child-rearing disagreements will be handled. The couple also worked together to create a “coparenting plan” that operationalized their expectations into a detailed behavior plan and anticipated obstacles were discussed. The two post-birth sessions focused on revising their coparenting plan by using targeted problem-solving techniques. Couples were also encouraged to explore how larger patterns (e.g. different work schedules, disagreements about division of labor etc.), as well as individual problems (e.g. depression, stress etc.) negatively affected the coparenting relationship.

Participants filled out assessment packets upon entering the study, as well as at 1, 3, 6, 12, 18 and 24 months postpartum. Initial assessments, as well as the assessment at 12 months postpartum, were completed in-person, whereas the rest of the assessments were completed by mail.

Assessment of Coparenting.

The Parenting Alliance Measure (PA; Abidin & Konald, 1999) is a 20-item scale that assesses the quality of the coparenting relationship based on the extent to which both partners have a cooperative, supportive relationship regarding parenting issues (see

Appendix A). The construct assessed with this measurement tool maps onto the first component of Feinberg's (2003) conceptualization of coparenting, supportive vs. undermining coparenting, and treats supportive coparenting as a continuum. This measure includes items evaluating whether a couple emotionally supports each other as parents, respects each other's parenting decisions, effectively communicates about the child and shares a commitment to parenting the child. Higher total scores on this measure reflect a stronger parenting alliance and higher quality coparenting relationship. In the current sample, Cronbach's alpha (α) was 0.86 and mean quality of coparenting relationship across all time points was 83.29 (Range: 34-95).

Predictors of Class Membership.

Couple Functioning.

Relationship Adjustment. The Dyadic Adjustment Scale (DAS; Spanier, 1976; 1989) is one of the most widely used measures of relationship adjustment in the literature. It is composed of 32-items that captures multiple dimensions of relationship adjustment, including Dyadic Satisfaction, Dyadic Cohesion, Dyadic Consensus and Affectional Expression. The total score on the DAS, calculated by summing all four subscales, was used for the purposes of this study. Scores range from 0-151, with higher Total scores reflecting higher relationship adjustment. Scores below 97 on this measure are considered to reflect significant relationship distress (Eddy, Heyman & Weiss, 1992). In the current sample, Cronbach's alpha (α) was 0.91 and mean relationship adjustment across all time points was 115.75 (Range: 36-145), approximately equal to community norms in the United States. It is important to note that correlations between self-report coparenting and relationship satisfaction ranged from .57 (24 months postpartum) to .60

(directly postpartum); relationships of this magnitude indicate that approximately 35% of their variance is shared. Therefore, these measures are tapping into similar but distinct constructs.

Cohabitation prior to Engagement. A one-item question on the initial phone screen (see Appendix B) was used to determine whether an individual cohabitated with their significant other prior to engagement. This variable was assessed for each individual dichotomously, with each individual either getting a 1 (cohabitation prior to engagement) or a 0 (no cohabitation prior to engagement). 71 of the 190 (39.4%) individuals in the study reported cohabitating prior to engagement.

Individual Functioning.

Depression. The Beck Depression Inventory- 2nd Edition (BDI-II; Beck, Steer & Brown, 1996) is a 21-item measure that assesses the severity of depressive symptoms. Items assess the existence and severity of a wide range of symptoms, including behavioral and cognitive changes associated with depression. The items correspond to the symptoms associated with the definition of clinical depression outlined in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV; 1994). Total scores range from 0-63, with scores 14-19 indicating mild depression, 20-28 indicating moderate depression and scores 29 and above indicating severe depression. In this sample, Cronbach's alpha (α) was 0.86 and the mean score across all time points was 8.03 (minimal symptoms of depression; Range: 0-38).

Anxiety. The Brief Symptom Inventory (BSI; Derogatis, 2001) is an 18-item self-report measure that assesses the presence of symptoms of several different disorders, including subscales for somatization, depression and anxiety. The 6-item anxiety subscale

of the BSI was used in this study to assess for anxiety, with higher scores reflecting higher levels of anxiety. Scores on the anxiety subscale range from 0-24, with this sample's mean across all time points 2.67 (Range: 0-16). Cronbach's alpha (α) was 0.71.

Perceived Stress. The Perceived Stress Scale (PSS; Cohen, Kamarck & Mermelstein, 1983) is a 10-item self-report questionnaire that assesses the degree to which situations in an individual's life are appraised as stressful in the past month of their lives. Higher scores indicate higher levels of stress, with scores ranging from 0-40. In this sample, Cronbach's alpha (α) was 0.85 with a mean of 14.15 over all time points (Range: 0-32).

Anxious and Avoidance Attachment. The Experiences in Close Relationships-Revised (ECR-R; Fraley, Waller & Brennan, 2000) questionnaire is a 36-item scale assessing individual differences in attachment-related anxiety and attachment-related avoidance. The questionnaire's items form two continuous subscales: 1) Anxiety, which measures an individual's fears about rejection and abandonment and 2) Avoidance, which measures an individual's discomfort with closeness. Higher scores on these subscales indicate higher levels of either anxiety or avoidance related to attachment, whereas lower scores on both scales indicate a more secure attachment style. In this sample, Cronbach's alpha (α) was 0.89 for anxiety and 0.91 for avoidance, with a standardized mean of -0.3 and 0.3 for anxiety and avoidance respectively at baseline.

Family of Origin

Divorce in Family of Origin. Individuals were assessed dichotomously on this variable by answering a one-item question on the initial phone screen. Similar to cohabitation before engagement, each individual was either assigned a 1 (divorce in

family of origin) or a 0 (no divorce in family of origin) on this variable. 41.1% of participants in the study (n=74) reported divorce in the family of origin.

Violence in Family of Origin. Individuals were asked during an initial phone screen whether there was “any physical violence between your parents when [he/she was] growing up.” Each individual was either assigned a 1 or 0 depending on the presence or absence of reported violence in the family of origin. Only 18 of the 190 individuals (10%) in the study reported violence in the family of origin.

Violence in the Current Relationship. Five items from the Conflict and Tactics Scale (CTS2; Straus & Douglas, 2004) were used to assess the presence of violence in the current relationship. Each item outlines a behavior (e.g. “my partner insulted or swore or yelled at me”) and asks the individual to indicate whether the behavior happened in the past year and, if so, how often over the past year. Items from the psychological, physical and injury subscales were used, with moderate items used as evidence of risk (criteria for inclusion in study) and endorsement of severe items used as exclusion criteria. Individuals were assigned a 1 (presence of violence in the current relationship) if they endorsed at least one of the moderate items. 30 of the 190 individuals (16.7%) in the study met the study’s criteria for violence in the current relationship.

Demographic Information.

Education. Level of education was assessed by a one-item measure of “total years of education.” If an individual reported 16 years or less of education, s/he would be assigned a 1 (presence of education risk). 53 participants (9.9%) in the study reported 16 years or less of education.

Previous Marriage. Participants were asked “have you ever been married (to someone other than your current partner?” during an initial phone screen. If participants responded “yes,” s/he was assigned a 1 (presence of previous marriage) on this dichotomous variable. 23 participants (12.8%) reported a previous marriage.

Pregnancy Factors.

Planned Pregnancy. Planned vs. unplanned pregnancy was assessed via a one-item question (“Was this a planned pregnancy?”). Respondents who answered “no” were assigned a 1 (presence of unplanned pregnancy). Of the 180 study participants, 96 individuals (53.3%) reported that the pregnancy was unplanned.

Desired Pregnancy. Participant’s willingness to repeat the circumstances of the current pregnancy was assessed via a one-item question where participants were asked “if you had it to do over again, would you want to be having a baby right now?” Individuals who answered “no” or “don’t know” were assigned a 1 (presence of not desired pregnancy). 27 individuals (15%) reported that the pregnancy was not desired.

Class Membership Predicting Outcomes at 24-months Postpartum.

Child Functioning

Infant-Toddler Social and Emotional Assessment (ITSEA; Carter & Briggs-Gowan, 2006). The ITSEA is a 166-item measure designed to assess a wide variety of possible social-emotional and behavioral difficulties and competencies in children aged 1-3 years, as reported by each parent. Four broad domains are calculated from 9 smaller subscales. The Externalizing domain includes impulsive, aggressive and defiant behaviors, while the Internalizing domain encompasses depressed, anxious and extremely inhibited behaviors. The Dysregulation domain includes problems with eating, sleeping,

and difficulties with regulating negative emotional states. Lastly, the Competence domain assesses compliance, attention regulation, empathy, emotional awareness and prosocial peer behavior. The respondent is asked to rate, on a 3-point scale, whether each item is *Not true/rarely* (0), *Somewhat true/sometimes* (1) or *Very true/often* (2). A child's score for each domain was calculated by averaging the scores of all items contained in a specific domain; these average scores were used in all analyses. Cronbach's alphas (α) for the four subscales in this sample were within normal limits and ranged from .71-.85.

Early Language Development. A short form of the MacArthur-Bates Communicative Development Inventory (CDI; Fenson, Dale, Reznick, Thal, Bates, Hartung, Pethick, and Reilly, 1993) was used to determine early language development at 24 months. Parents are asked to report which words their child can produce from a list of 100 common words. The total number of words produced was used as the outcome variable in analyses, with higher numbers of words interpreted as more highly developed language skills and lower total words indicating difficulties with language development. Measures of skewness (-0.14, SE=.206) and kurtosis (-.47, SE=.410) in this sample were within normal limits for this measure.

Chapter 3: Data Analytic Plan

Growth Mixture Modeling

Traditional growth models assume that all individuals come from the same population and, thus, that a single growth trajectory, including a mean slope and intercept estimate, can adequately represent an entire population's growth. However, the mean growth parameters estimated in traditional growth models could conceal the existence of groups of individuals with distinct combinations of intercepts and slopes categorically separate from the sample's mean growth trajectory. Growth Mixture Modeling (GMM) is an approach to modeling longitudinal growth that assumes significant heterogeneity of growth trajectories within a larger population. GMM also assumes that this heterogeneity in trajectories can be explained by the existence of multiple unobserved homogenous subpopulations, where individuals within a homogenous subpopulation follow the same distinct growth trajectory over time. In GMM, these subpopulations are conceptualized as latent trajectory classes, with each class having its own unique estimates of average intercept, slope, variance and effects of covariates. Latent Class Growth Analysis (LCGA) is a special type of Growth Mixture Modeling, where all growth trajectories within a class are constrained to homogeneity by fixing all variance and covariance estimates for the intercept and slope within each class to zero (Jung & Wickram, 2007). Growth Mixture Modeling and Latent Class Growth Analysis both include two latent continuous variables, π_0 (intercept) and π_1 (slope), as well as a categorical latent variable c , which represents the latent trajectory class (see Figure 3.1). The intercept and slope are estimated for each class individually (Muthén, 2004).

Missing Data

Analyses were performed using MPlus Version 6, which utilized full information maximum likelihood estimation for missing data, which was assumed to be missing at random. While seven couples separated during the course of the study, self-report coparenting measures continued to be collected post-separation. Of the 14 total individuals who separated, four had missing data for one time point and four had one or more time points missing. However, even with this missing data, the posterior probabilities for latent class membership of all but one of the individuals exceeded .95, indicating that there was a 95% chance of proper classification into the a specific latent class.

Model Selection

All analyses performed to determine the number of classes in the final base model included dummy-coded covariates for intervention condition and gender. Two dummy-codes for the three intervention conditions (control, couple and coparenting) were included as covariates to explore whether condition influenced an individual's latent class categorization. Additionally, a priori hypotheses about significant gender differences led to the inclusion of gender as a covariate to further explore whether gender significantly impacted latent class categorization of an individual. As individuals were nested within couples, standard errors and a chi-square test of model fit were computed in such a way to account for the non-independence of observations that comes with cluster sampling by choosing the TYPE=COMPLEX in the ANALYSIS command in MPlus syntax.

Several tests of model fit were used simultaneously to determine the number of latent classes in the final base model. The Bayesian Information Criterion (BIC) is

calculated from the maximized likelihood with a correction for number of parameters estimated in the model; a smaller BIC indicates better model-fit with differences of 10 or more commonly used as evidence to choose one model over another (Raftery, 1995). The Lo-Mendell-Rubin likelihood ratio test (LMRLRT) of model fit is used to compute the likelihood that a model with one less class would fit the data as well. For this model fit test, a p-value of 0.05 or less indicates that the model with more classes significantly improves fit when compared to the model with fewer classes (Lo, Mendell & Rubin, 2001). The entropy value is a calculation of the uncertainty of classification of subjects into latent classes. Entropy values range from 0 to 1, with 0 indicating randomness and 1 indicating perfect classification (Celeux & Sormoneho, 1996).

Another measure of classification certainty and latent class separation are the posterior probabilities for the latent classes, which range from 0 to 1. The posterior probabilities measure the likelihood that an individual belongs to a certain class; probabilities closer to 1 are more desirable, as they indicate that an individual belongs to one and only one class, rather than having similar probabilities of belonging to multiple classes. Along with these formal tests of model fit, we also chose a final model based on interpretability and the qualification that the smallest class had to contain at least 5% or more of the sample ($N = 9$), so as to provide a stable and meaningful solution.

Predicting Latent Class Membership using Covariates

In order to predict whether certain prenatal variables significantly predict which latent class an individual falls into, covariates were introduced to the base GMM model and analyzed using multinomial logistic regression (see Figure 3.2). To aid in interpretation of odds ratios, continuous variables were standardized so that a one-unit

increase in the covariate would correspond to a one standard deviation increase in that variable. As explained above, the baseline model included condition and gender covariates; all other prenatal predictors were analyzed simultaneously with the condition and gender covariates, to see if they explained latent class membership above and beyond condition and gender. However, each of the prenatal predictors (other than condition and gender) were entered in separate models. In order to assess whether a covariate has a significant effect on latent class membership, we examine the odds ratios of a covariate.

The odds ratio reflects the change in the odds of membership in latent class c in relation to the reference class C associated with a one-unit change in the covariate. Odds ratios can range from 0 to infinity, with an odds ratio of 1.0 indicating that latent class membership odds are equivalent; in other words, an odds ratio of 1.0 suggests that latent class membership functions independently of the covariate. Odds ratio either above or below one indicate that odds of class membership differs depending on the level of the covariate. Values above one suggest that individuals are more likely to be in the latent class c when compared to the referent latent class C , whereas odds ratios below one suggest the opposite: that individuals are less likely to be in latent class c .

For example, for a continuous covariate such as relationship satisfaction, an odds ratio of 2.0 would indicate that individuals' scores increased by one unit (covariate=1), they are two times as likely to be in latent class c as compared to the referent latent class C . On the other hand, if the odds ratio for relationship satisfaction was 0.50, we would conclude that as individuals' scores on a measure increased by one unit (covariate=1), they are half as likely to be in latent class c as compared to the referent latent class C .

Class Membership Predicting Outcomes at 24-months Postpartum

To further establish whether examining coparenting categorically creates meaningful latent classes, analyses were performed to see whether class membership was predictive of important couple and child functioning outcomes at 24-months postpartum. Latent class membership was determined for each individual using MPlus's "most likely latent class membership" designation. Class membership was then dummy-coded into two separate variables (i.e. High Coparenting Class, Low Coparenting Class) with the Medium Coparenting Class serving as the referent group, in accordance with all previous analyses.

After class membership was determined for each individual, regression analyses were conducted where the two dummy-coded class membership variables, along with the standard dummy codes for gender and intervention condition, were regressed on outcomes from 24-month postpartum. To facilitate interpretation, all of the child functioning outcome variables were standardized.

Lastly, in order to compare the predictive utility of looking at coparenting as a categorical variable (e.g. latent classes) versus the more widely used continuous variable, individual's average scores were calculated across all time points on the continuous Parenting Alliance measure. Then, the above-outlined analyses were repeated with an individual's average Parenting Alliance score as the independent variable rather than class membership.

Chapter 4: Results

Latent Trajectories of Self-Report Coparenting—Growth Mixture Modeling

First, a conditional one-class latent growth model, controlling for condition and gender, was fit to assess whether analysis with growth mixture models were warranted. As there was significant variance around both the intercept (Mean variance= 41.37, SE=8.92, $p < .001$) and the slope (Mean variance= 0.121, SE=0.04, $p \leq .001$), further analysis with Growth Mixture Modeling, was justified. As the primary goal of these analyses was to identify groups that differed based on rates of growth, a Growth Mixture Model (GMM) where intercepts were free to vary within a group, but slopes were constrained to be equal, was fit to the data. Four different conditional models (1 class, 2 class, 3 class and 4 class models) were analyzed and assessed using the model fit criteria above (Table 4.1). The 3-class GMM was chosen as the superior model, with the lowest BIC value and highest entropy value overall.

Two of the GMM classes had slopes significantly different than 0; one class had an intercept in the medium range and a negative slope (Class 1, Medium Coparenting-Decline), while the other class had a low intercept with a positive slope (Class 2, Low Coparenting-Improvement). Unfortunately, each of these two classes only encompassed a small amount of the sample, with Class 1 including 9 participants (5% of sample) and Class 2 including 7 participants (3.8% of sample). The majority of the sample ($N=164$, 91%) fell into a class with a medium intercept and a slope not significantly different than 0 (Class 3, Medium Coparenting—No Change). Along with one class including less than the recommended amount of participants ($<5\%$), another weakness of the GMM was below average posterior probabilities, indicating poor classification certainty and latent

class separation. Both small classes had posterior probabilities closer to 90%, with a 10% chance that individuals classified in either of those small groups might truly belong in Class 3 (No Change).

Latent Trajectories of Self-Report Coparenting —Latent Class Analysis

The instability of the three-class model outlined above suggests it is not a suitable solution for further investigation. However, one reason it may have been unstable was that the groups that arose using this methodology were too small. In an effort to find more robust results, Latent Class Growth Analysis, a more stringent type of Growth Mixture Modeling where intercepts and slopes are constrained to be equal within a group, was explored. The same model building procedure was followed as detailed above in the GMM section, with four different conditional models (1 class, 2 class, 3 class and 4 class models) analyzed and compared to each other using several different measures of model fit (Table 4.2).

Parallel to the GMM results, the 3-class LCGA model was determined to be the model that best fit the data. When compared to a 2-class model, adding a third class improved fit by lowering the BIC by 98 points and by improving entropy from 0.80 to 0.881. The Lo-Mendell-Rubin likelihood ratio test (LMRLRT) also showed a significant advantage for the 3-class model over the 2-class model ($p=0.05$). When a fourth class was modeled, although the BIC values decreased from the 3-class model, only 1 subject (0.01% of the sample) was classified in the fourth class and the LMRLRT was non-significant ($p >.10$); there were also several warnings in the output about instability of the 4-class solution and problems with convergence. Both linear and quadratic growth factors

were tested on the 3-class model described above. However, adding the quadratic growth factor did not significantly improve the fit of the model, as evidenced by a lower entropy value in the quadratic model and non-significant LMRLRT ($p > .10$).

The 3-class LCGA model demonstrated high classification certainty and latent class separation with posterior probabilities close to 1 (See Table 4.3). Slopes for all three classes were positive but did not significantly differ from 0, indicating no significant growth in any of the three groups over time. The 3-class model divided the larger sample into a group with higher than average scores on self-report coparenting (Class 1, High Coparenting, 41% of participants), scores slightly lower than the average married couple (Class 2, Medium Coparenting, 51% of participants), and low scores similar to those found in separated couples (Class 3, Low Coparenting, 8% of participants). Individuals were classified based on their most likely latent class membership.

Predicting Latent Class Membership from Prenatal Variables

Analyses were conducted to determine whether fourteen of the most common prenatal variables associated with risk over the transition to parenthood significantly influenced latent class membership. For all reported results, the Medium Coparenting class was the referent class. Dummy-codes for condition were not found to significantly influence latent class membership ($p > .10$). There were several significant predictors of classification in the High Coparenting rather than the Medium Coparenting class (see Table 4.4). As individuals' scores on relationship satisfaction increased by one unit, they were twice as likely to be in the High Coparenting class versus the Medium Coparenting Class (OR = 2.02). Conversely, those participants with scores that indicated a one-unit increase in depressive symptoms were roughly half as likely to be in the High

Coparenting class (OR =0.58). Similarly, as individuals' scores on measures of avoidant and anxious attachment increased by one unit, they were about half as likely to be in the High Coparenting class when compared to the Medium Coparenting class (avoidant: OR =0.527; anxious: OR =0.591).

The major predictor of classification in the Low Coparenting class, rather than the Medium Coparenting class, was gender, with women five times more likely than men to be classified in the Low Coparenting class (OR= 5.36). The only other covariate that significantly influenced which individuals were more likely to be classified in the Low Coparenting class was whether individuals cohabitated prior to engagement (see Table 4.5); those who cohabited before engagement were five times more likely to be in the Low Coparenting class (OR = 4.93) than in the Medium Coparenting class. It should be noted that, although not statistically significant, relationship satisfaction had similar magnitude and direction as in the High Coparenting vs. Medium Coparenting comparisons. The relatively small size of the Low Coparenting class (N=15) may have contributed to decreased power to adequately detect what appears to be a real effect. Altogether fourteen prenatal variables associated with risk were analyzed as to whether they influenced latent class membership, but only the four mentioned above were significant.

Class Membership Predicting Outcomes at 24-months Postpartum

Analyses were conducted to determine whether class membership was significantly predictive of couple and child functioning outcomes at 24-months postpartum. In accordance with previous analyses, the Medium Coparenting class was the referent class. Membership in the High Coparenting Class not only predicted higher

levels of relationship satisfaction, with individuals in the High class scoring approximately 10 points higher than those in the Medium class (see Table 4.6), but also significantly predicted residualized change in relationship satisfaction ($\beta=9.232$, $SE=2.201$, $p < .01$). Individuals in the High Coparenting Class also reported more adaptive child functioning at 24 months after birth, with lower scores on the Dysregulation domain of the ITSEA ($\beta = -0.534$, $SE=0.171$, $p < .01$) There was also a trend towards higher scores on the Competence domain ($\beta = 0.346$, $SE=0.180$, $p=0.054$) and lower reported scores on the Internalizing domain of the ITSEA ($\beta = -0.352$, $SE=.194$, $p = 0.069$).

Membership in the Low Coparenting Class not only yielded fewer statistically significant predictions, but also several counterintuitive results (see Table 4.6). As hypothesized, membership in the Low Coparenting class predicted results similar in magnitude as the High Coparenting class analyses for relationship satisfaction and residualized change in relationship satisfaction ($\beta = -8.479$, $SE=5.440$, *ns* and $\beta = -5.366$, $SE=4.726$, *ns* respectively). However, given the small sample size of the Low Coparenting class, these predictions were not statistically significant. Contrary to original hypotheses, membership in the Low Coparenting Class predicted more favorable child outcomes at 24- months postpartum in two domains. Individuals in the Low Coparenting class reported both lower internalizing behavior ($\beta = -0.764$, $SE=0.309$, $p < .05$) and more highly developed language production ($\beta = 0.982$, $SE=0.099$, $p < .05$) than individuals in the Medium Coparenting class.

In order to compare the relative predictive utility of class membership versus a more standard continuous measure of coparenting, the above analyses were repeated

using an individual's average score across all time points on Parenting Alliance as the independent variable (see Table 4.7). Average scores on the continuous measure significantly predicted level of relationship satisfaction at 24-months ($\beta = 1.185$, $SE = 0.171$, $p < .01$) and residualized change in relationship satisfaction over time ($\beta = 0.998$, $SE = 0.200$, $p < .01$). Unlike class membership, average coparenting did not significantly predict any of the six child functioning outcomes investigated; however, there were two trends where higher average scores on the continuous measure were linked to lower scores on the Dysregulation domain of the ITSEA ($\beta = -0.019$, $SE = 0.011$, $p = 0.078$) and less externalizing behavior ($\beta = -0.024$, $SE = 0.014$, $p = 0.095$).

Chapter 5: Discussion

Existence of Multiple Latent Classes.

The primary aim of this study was to explore whether discrete trajectories for self-reported coparenting over the first two years of the transition to parenthood could be identified. This study sought to extend the existing literature by looking beyond rank-order stability in a sample large enough to detect individuals who differed on initial levels of post-birth coparenting as well as change from birth to two years after birth.

Results of the present study indicated that a three-class Latent Class Growth Analysis (LCGA) model was the most suitable model for the data. Although a less constrained, three-class Growth Mixture Model (GMM) seemed promising at first, particularly because two of the three classes demonstrated significant change over time, the results ultimately proved to be unstable. Two of three classes with small proportions of the sample (<5%), coupled with below average posterior probabilities, indicated an unsuitable solution.

As the instability of the GMM results may have been due to the fact that the classes that arose using this type of methodology were too small, the more constrained LCGA approach was attempted. Results equivalent to the GMM analyses arose, with the three-class LCGA model proving superior. These results replicate McHale and Rottman's (2007) findings demonstrating empirical support for three distinct classes of coparenting across the transition to parenthood. Unfortunately, as McHale and Rotman did not provide detailed descriptions of the characteristics of the three classes, we cannot comment on whether the present study's classes are the same as those found in the previous study.

It is important to note that the three-class solution did not include any classes whose slopes significantly differed from zero, which suggests that the LCGA classes are distinguished mainly by initial post-birth levels of coparenting. The fact that the LCGA model did not find appreciable growth over time seems to support previous findings that self-report coparenting is a fairly stable construct over the transition to parenthood (McHale & Rottman, 2007; Schoppe-Sullivan, Mangelsdorf, Frosch and McHale, 2004; Van Egeren, 2004). Along with being a fairly stable construct, these results provide further evidence that self-report coparenting tends to be a *high* stable construct, with 92% of the sample falling into the Medium or High Coparenting classes and only 8% of the sample falling into the Low Coparenting class. Additionally, while previous studies used widely spaced time points in investigations of coparenting trajectories (e.g. 3-12 months, 12-30 months, 6-36 months), the present study builds upon these findings by using more closely spaced time points over an extended time frame of two years postpartum. As there is no appreciable growth or deterioration for any of the three classes, individuals' self-report coparenting scores at one-month postpartum seem to set the blueprint for coparenting over the first two years postpartum.

Predictors of Latent Class Membership.

Given that results of the present study suggested important variability in the level (but not change) in coparenting during the first two years after birth, we explored factors that could explain that variability. Fourteen different prenatal variables that are commonly predictive of coparenting and relationship satisfaction were explored to see whether they were significantly predictive of an individual's group classification. The

variables of interest spanned several different areas of functioning, including couple and individual functioning, as well as variables linked to functioning in the family of origin and several demographic predictors (e.g. education, previous marriage etc.).

Perhaps the most important finding regarding predictors was the differential nature of the predictors for the High Coparenting Class and the Low Coparenting class. One might assume that if higher scores on a variable predicted higher self-report coparenting, then lower scores on that same variable would predict coparenting difficulties. However, our findings suggest that those variables that predict higher coparenting may be fundamentally different than those predictors that are associated with coparenting difficulties. These results seem to suggest that conceptualizing coparenting as a two-factor construct, with strong coparenting and coparenting difficulties defined as distinct factors, may be more appropriate than prevailing conceptualizations of coparenting as a simple continuum. In fact, the present study seems to build on previous work that found empirical evidence, using factor analysis, for two distinct factors of supportive and undermining coparenting (Schoppe-Sullivan et al., 2009; Margolin et al., 2001).

Another unexpected finding was that only six of fourteen well-established predictive variables of both coparenting and relationship satisfaction aided in classification of individuals in the present study. The majority of significant predictors of class membership in the present study had been found in the past to be predictive of coparenting. In fact, all predictors that distinguished between those individuals classified in the High Coparenting class (vs. the Medium Coparenting class) were replicated findings (e.g. Bronte-Tinkew et al, 2009; McHale et al, 2004; Talbot et al, 2009; Van

Egeren, 2003). As individuals' prenatal relationship satisfaction increased, they were twice as likely to fall into the High Coparenting class. Depressive symptoms were also predictive of class membership, with individuals whose scores increased by a standard deviation only half as likely to be in the High Coparenting class. Similarly, as individual's scores on measures of avoidant and anxious attachment increased by a standard deviation, indicating less secure attachment, they were about half as likely to fall into the High Coparenting class.

Although fewer variables were found to be significantly predictive of membership in the Low Coparenting class (vs. the Medium Coparenting class), the major predictor of class membership was also a replicated finding. Gender was the biggest predictor of an individual's likelihood of falling into the Low Coparenting class, with women five times more likely than men to be in the Low Coparenting class. The only other significant predictor of membership in these two groups was whether individuals cohabited prior to engagement, a variable that had not been explored in terms of predicting coparenting. Cohabitation before engagement led to a fivefold increase in the likelihood of an individual's classification in the Low Coparenting class. Lastly, although relationship satisfaction was not statistically significant in predicting Low Coparenting class membership, the results were in a similar magnitude and direction as the finding for High Coparenting vs. Medium Coparenting. This non-significance may be due to the small number of individuals in the Low Coparenting class (N=15) and the decreased power that resulted.

Class Membership Predicting Outcomes at 24-months Postpartum

In order to assess the predictive utility of class membership, regression analyses were performed using dummy-coded class membership to predict couple and child functioning outcomes at 24-months postpartum. As expected, membership in the High Coparenting class (vs. the Medium Coparenting class) significantly predicted more favorable outcomes, including higher levels of relationship satisfaction at 24 months and increases in relationship satisfaction over time. Individuals in the High Coparenting class also reported better child functioning, including less dysregulation, higher competence and a trend towards less internalizing behavior.

The Low Coparenting class did not significantly predict as many outcomes as the High Coparenting class; moreover, all child functioning results were in the opposite direction as hypothesized. Membership in the Low Coparenting class significantly predicted lower reported internalizing behavior and higher levels of productive language. Although post-hoc, one possibility is that individuals in the Low Coparenting class may be so overwhelmed with managing their childcare responsibilities, often without the help of their partner, that they might not note, and thus inaccurately report, their child's internalizing behavior.

Additionally, results for relationship satisfaction level and change over time were in the expected direction and in similar magnitudes as the results for the High Coparenting class. Although not statistically significant, membership in the Low Coparenting class predicted lower relationship satisfaction and larger decreases in relationship satisfaction over time. One possible explanation for these results could be that while membership in the Low Coparenting class shows deleterious effects on the

couple relationship at 2 years postpartum, it does not negatively affect child functioning at this point. However, since there is extensive literature suggesting coparenting difficulties negatively affect child functioning (e.g., Belsky, Putna, & Crnic, 1996; Johnson et al., 1999), it may be that these decreases in child functioning are not evident until later on in the child's life.

To examine differences in the predictive utility of defining coparenting as a categorical (latent classes) versus continuous variable, analyses were repeated using an individual's average score on a commonly used continuous measure of coparenting as the independent variable. While the continuous measure of coparenting significantly predicted level of relationship satisfaction at 2 years postpartum, as well as change in relationship satisfaction over time, it did not significantly predict any child functioning outcomes. Therefore, these results suggest that examining coparenting as a categorical measure is predictive of more variables of interest than those same analyses performed with a continuous measure of coparenting.

When all of these results are examined simultaneously, the differential predictive utility outlined above suggests that the three latent classes identified in this study explain important variability in coparenting that is not captured in a continuous score. This also seems to demonstrate that the three latent classes found in this study are not an arbitrary partitioning of the continuous measure, but instead delineate groups with differential predictors of membership as well as differential prediction of outcomes at 24-months. Lastly, the findings of this study illustrate the importance of investigating whether looking at a variable categorically may explain important variability above and beyond a continuous perspective.

Implications for Intervention.

One of the key implications of these results is the potential impact it may have on interventions targeting the transition to parenthood. The solidification of the coparenting relationship at such an early point in the transition to parenthood seems particularly important to highlight. In our sample, individual's level of coparenting was fairly established by one month postpartum and did not change appreciably over the first two years of the transition to parenthood. Therefore, the importance of early intervention seems especially paramount, as early coparenting interactions seem to set the pattern for at least the first two years postpartum.

Future intervention studies could also use the prenatal predictors outlined in this study (e.g., cohabitation before engagement, gender) to identify at-risk individuals that may need more intensive intervention over the transition to parenthood. While cohabitation prior to engagement has been linked to increased negative relationship interactions, lower relationship satisfaction and lower relationship commitment (Kline, Stanley, Markman, Olmos-Gallo, St. Peters, Whitton, & Prado, 2004), it has not been previously identified as a risk-factor for coparenting difficulties. It may be that those couples that cohabit before engagement may have come to that decision with little deliberation ("slide," as per Stanley, Rhoades & Markman, 2006) and are less committed in general. This lowered commitment to the relationship (and new family) could manifest itself in less engagement in childcare, most likely on the part of the father, and lower coparenting quality overall. In order to target this increased vulnerability, future interventions could focus on increasing commitment in these couples and hopefully enact positive change in not only relationship satisfaction, but perhaps coparenting as well.

The only other significant predictor of coparenting difficulties was gender, with women far more likely to fall into the Low Coparenting class. In light of this finding, it may be particularly important to develop interventions that target women's feelings about the coparenting relationship and aim to improve women's experience of coparenting interactions. It may be that women's prenatal expectations about postpartum coparenting, particularly division of childcare, may be overly optimistic and lead to later dissatisfaction (McHale & Rotman, 2007; Van Egeren, 2003). Therefore, interventions could aid in the development of more realistic expectations for coparenting, as well as encourage couples to talk more explicitly prior to birth about their expectations about coparenting. However, future interventions should not only focus on encouraging more realistic expectations for women, but should also aim to increase men's participation in coparenting activities. Increased aid from fathers in common childcare activities, starting directly postpartum, would hopefully prevent women from falling into the Low Coparenting class.

While the model has strong implications for early intervention, it also suggests that the majority of people will likely not require intervention over the transition to parenthood. In this study, 165 of 180 individuals (92% of the sample) fell into either the Medium or High Coparenting classes, with only 8% of the sample falling into the Low Coparenting class (i.e. those individuals most likely to require intervention).

The finding of discrete classes of self-report coparenting also has major implications for flexible and stepped-care interventions. Since most couples will probably not require intensive coparenting interventions, identifying strong predictors of coparenting difficulties could aid in directing the most resource-intensive interventions

to those couples that are most at-risk. Perhaps most importantly, as coparenting seems to be set as early as one-month postpartum, individuals at-risk for coparenting difficulties should be able to be identified very early; in other words, if one is experiencing difficulties at one month postpartum, they are likely to continue experiencing difficulties for at least the first two years postpartum.

Limitations.

Although the findings outlined above are encouraging, there are several limitations that should be considered while interpreting the results of the present study.

One major limitation was the relatively small sample size, with only 180 individuals (90 couples) included in the analyses. This small sample size may account for the very small number of individuals that fell into the Low Coparenting class (N=15), which may have led to decreased power to detect prenatal variables that predict class membership.

Another limitation is the fact that the sample, which was part of a larger longitudinal intervention study with three conditions (control condition, couple intervention and coparenting intervention), was not ideal for answering a basic science question about discrete trajectories. While treatment effects were controlled for in the conditional models and analyses show that condition did not significantly affect class membership, there is still the possibility that treatment effects may exist beyond what was measured and may have impacted findings.

Along with the intervention aspect, other characteristics of the sample itself may limit the study's findings. Although the sample was selected to be "at-risk," the majority of couples in the sample showed fairly high levels of adjustment over the transition to parenthood. It may be that smaller deteriorations in relationship satisfaction (compared to

previous studies over the transition to parenthood) could lead to inflated results for both the level and stability of self-report coparenting. This inflation may account for the relatively small Low Coparenting class and the lack of significant change over time. The sample was also largely homogenous in terms of demographics, with a majority of participants being highly educated and Caucasian. Lastly, the use of a self-report measure of coparenting to determine trajectories may be a limitation, as there is a possibility that it may be poorly differentiated from other measures of global relationship satisfaction.

Future Directions.

While the present study was largely exploratory, there seems to be significant evidence that further exploration of the possibility of discrete trajectories for coparenting across the transition to parenthood is warranted. Replication with different samples, particularly with high-risk populations (e.g. unmarried parents), would be of particular importance. It is possible that using a high-risk population would lead to increased variability in the sample and allow a larger Low Coparenting class to emerge. Another possible effect of a larger Low Coparenting class would be increased power to detect more significant predictors of class membership.

Future studies should also investigate whether the significant predictors outlined in the present study are replicated in other samples. Additionally, future research could expand the scope of variables included in analyses of prediction of class membership. Self-report or observational variables linked to marital processes, like communication, rather than measures of global relationship satisfaction, could be potential areas of interest to explore in later studies. Additionally, as prenatal expectations about coparenting have been linked to later experience of the coparenting relationship, it could

be useful to explore whether these expectations also influence an individual's class membership. Lastly, it may be valuable to explore whether certain characteristics of the child, such as a difficult temperament, influence an individual's coparenting trajectory as some previous research suggests that child variables can influence an individual's coparenting experience (Davis et al, 2009). It may be that future studies with larger samples, and thus more power, may uncover more significant predictors of those individuals at-risk for coparenting difficulties than the present study was able to find.

Lastly, replication of evidence for discrete trajectories in observational coparenting, or the lack thereof, could prove valuable for future coparenting research. As much research on coparenting operates under the assumption that self-report and observational measures of coparenting are comparable, replication, or lack thereof, could aide in establishing whether these two methods of assessment are measuring the same or distinct constructs.

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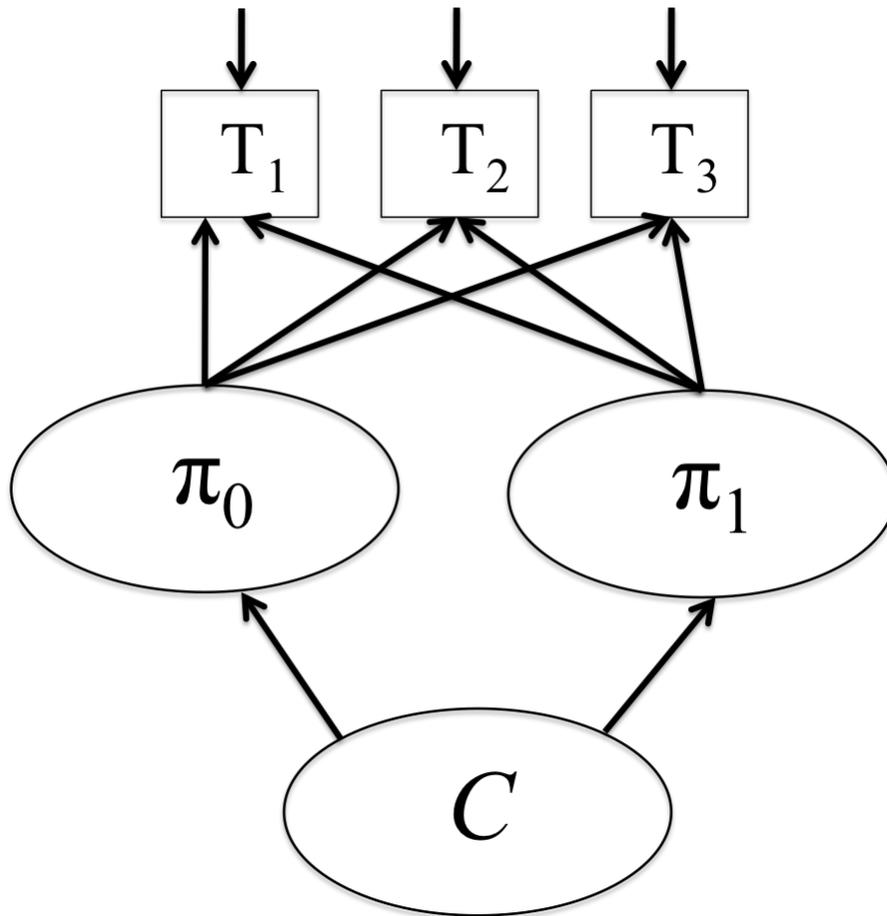


Figure 3.1 Impact of latent class C on intercept and slope in Growth Mixture Modeling

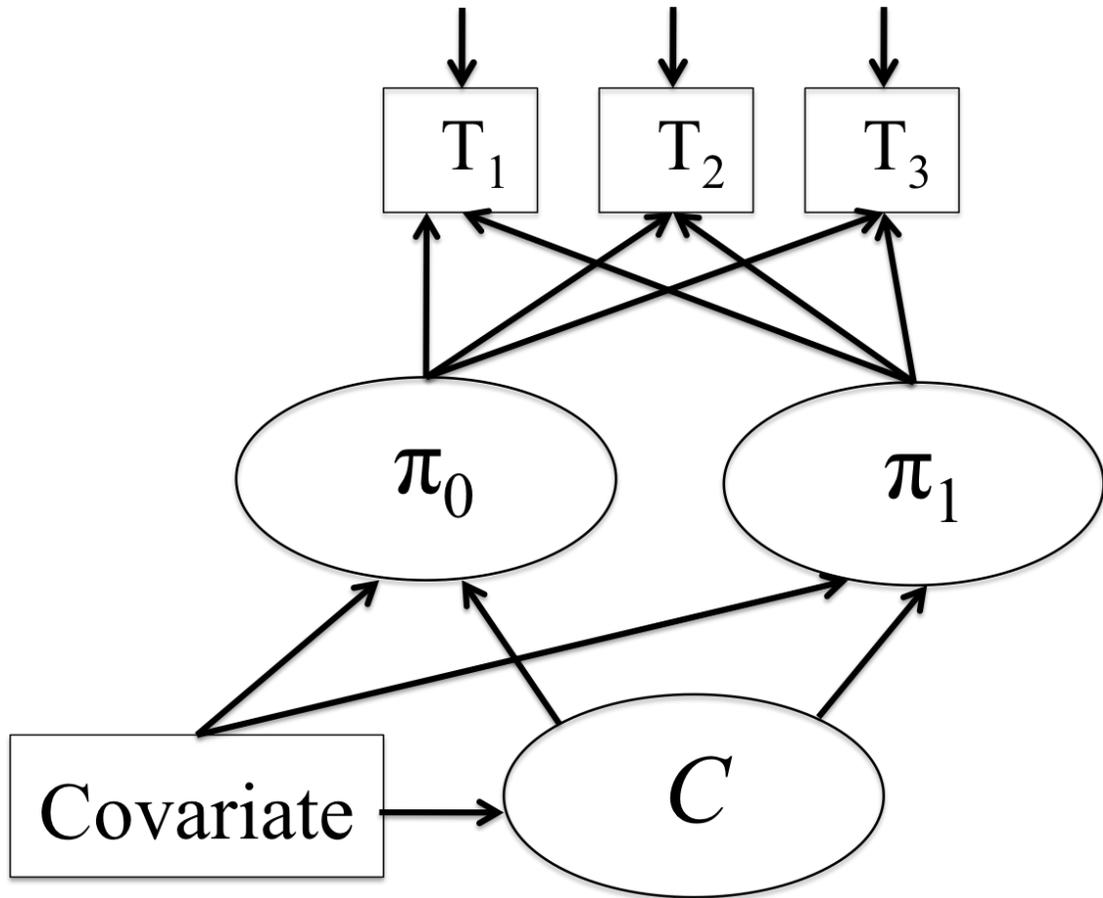


Figure 3.2 Impact of covariate on latent class, intercept and slope in GMM

Table 4.1

Model Selection: Growth Mixture Model (GMM)

Model	Likelihood	AIC	BIC	LMRLRT	Entropy	Posterior Probability	Proportion of Sample per Class
Conditional Latent Growth Model	-4385.399	8804.798	8859.078	—	—	—	—
1-Class GMM	-3808.137	7644.274	7688.975	—	—	—	1 2 3 4 1.00
2-Class GMM	-3462.025	6962.050	7022.716	p=0.1913	0.882	1 2 1 0.967 0.033 2 0.030 0.970	1 2 3 4 0.38 0.62
3-Class GMM	-3439.888	6929.776	7009.600	P=0.0966	0.972	1 2 3 1 0.895 0.000 0.105 2 0.001 0.905 0.094 3 0.001 0.002 0.997	1 2 3 4 0.04 0.05 0.91
4-Class GMM	-3427.382	6919.763	7015.745	p=0.2398	0.922	1 2 3 4 1 0.890 0.109 0.000 0.001 2 0.028 0.970 0.002 0.000 3 0.000 0.028 0.972 0.000 4 0.045 0.001 0.000 0.954	1 2 3 4 0.08 0.85 0.04 0.02

Table 4.2

Model Selection: Latent Class Growth Analysis (LCGA)

Model	Likelihood	AIC	BIC	LMRLRT	Entropy	Posterior Probability	Proportion of Sample per Class
Conditional							
LGM	-4385.399	8804.798	8859.078	—	—	—	—
1-Class LCGA	-3808.137	7644.274	7688.975	—	—	—	1 2 3 4 1.00
2-Class LCGA	-3550.639	7137.278	7194.751	p=0.4660	0.795	1 2 1 0.914 0.086 2 0.047 0.953	1 2 3 4 0.41 0.59
3-Class LCGA	-3486.264	7020.528	7097.159	P=0.0507	0.881	1 2 3 1 0.937 0.063 0.000 2 0.000 0.011 0.989 3 0.044 0.951 0.005	1 2 3 4 0.41 0.51 0.07
3-Class Quadratic LCGA	-3456.494	6968.987	7058.390	p=0.1107	0.841	1 2 3 1 0.918 0.000 0.081 2 0.000 0.955 0.045 3 0.063 0.003 0.934	1 2 3 4 0.41 0.51 0.07
4-Class LCGA	-3457.349	6974.698	7070.487	p=0.1105	0.904	1 2 3 4 1 0.968 0.000 0.032 0.000 2 0.000 0.939 0.061 0.000 3 0.012 0.038 0.950 0.000 4 0.000 0.000 0.000 1.000	1 2 3 4 0.07 0.41 0.51 0.01

Table 4.3

Detail of 3 Class Latent Class Growth Analysis (LCGA) Model

Class	Mean Intercept	Mean Slope ^a	N	Percent of Sample	Posterior Probability		
					1	2	3
Class 1 (High Coparenting)	88.07	0.057	74	41%	0.937	0.000	0.063
Class 2 (Medium Coparenting)	79.24	0.039	92	51%	0.044	0.005	0.951
Class 3 (Low Coparenting)	66.84	0.039	14	7%	0.000	0.989	0.011

^a No mean slopes were significantly different from 0

Table 4.4

Predictors of Latent Class Membership: High Coparenting vs. Medium Coparenting

Covariate	Regression Coefficient (β_1)	(SE)	Odds Ratio	P-Value
Base Model Covariates				
Condition (Couple/Control)	0.176	0.538	1.193	0.743
Condition (Coparenting/Control)	0.219	0.564	1.245	0.698
Gender	-0.472	0.311	0.624	0.130
Couple Functioning				
Relationship Satisfaction	0.703	0.267	2.020	0.009**
Cohabitation before Engagement	0.434	0.426	1.543	0.308
Individual Functioning				
Depressive Symptoms	-0.550	0.259	0.577	0.034*
Perceived Stress	-0.146	0.185	0.864	0.430
Avoidant Attachment	-0.640	0.230	0.527	0.005**
Anxious Attachment	-0.526	0.199	0.591	0.008**
Family of Origin				
Divorce in Family of Origin	0.199	0.446	1.220	0.656
Violence in Family of Origin	-0.725	0.679	0.484	0.286
Violence in Current Relationship	-0.329	0.499	0.720	0.510
Demographic Factors				
Education	-0.518	0.412	0.854	0.701
Previous Marriage	-0.496	0.538	0.609	0.396
Pregnancy Factors				
Planned Pregnancy	0.470	0.409	1.600	0.250
Desired Pregnancy	0.329	0.499	1.389	0.510

** $p < .01$; * $p < .05$.

Table 4.5

Predictors of Latent Class Membership: Low Coparenting vs. Medium Coparenting

Covariate	Regression Coefficient (β_1)	(SE)	Odds Ratio	P-Value
Base Model Covariates				
Condition (Couple/Control)	0.271	0.815	1.311	0.740
Condition (Coparenting/Control)	0.314	0.737	1.369	0.669
Gender	1.680	0.812	5.364	0.038*
Couple Functioning				
Relationship Satisfaction	-0.515	0.498	0.598	0.301
Cohabitation before Engagement	1.596	0.807	4.933	0.048*
Individual Functioning				
Depressive Symptoms	-0.195	0.485	0.823	0.688
Perceived Stress	-0.219	0.317	0.803	0.489
Avoidant Attachment	0.090	.260	1.094	0.730
Anxious Attachment	-0.397	0.411	0.672	0.334
Family of Origin				
Divorce in Family of Origin	0.128	0.567	1.137	0.821
Violence in Family of Origin	0.187	0.789	1.206	0.812
Violence in Current Relationship	-1.193	1.130	0.303	0.291
Demographic Factors				
Education	0.142	0.753	1.153	0.850
Previous Marriage	-0.074	0.899	0.929	0.935
Pregnancy Factors				
Planned Pregnancy	-0.278	0.667	0.757	0.667
Desired Pregnancy	1.193	1.130	3.297	0.291

** $p < .01$; * $p < .05$.

Table 4.6

Class Membership Predicting Outcomes at 24-months Postpartum:

Outcome	Regression Coefficient (β_1)	(SE)	P-Value
<i>High Coparenting vs. Medium Coparenting</i>			
Couple Functioning			
Relationship Satisfaction	10.961	2.041	0.000**
Residualized change in Relationship Satisfaction	9.232	2.201	0.000**
Child Functioning			
Externalizing	-0.196	0.202	0.331
Internalizing	-0.352	0.194	0.069 [§]
Dysregulation	-0.534	0.171	0.002**
Competence	0.346	0.180	0.054 [§]
Productive Language	0.0001	0.196	0.997
<i>Low Coparenting vs. Medium Coparenting</i>			
Couple Functioning			
Relationship Satisfaction	-8.479	5.440	0.119
Residualized change in Relationship Satisfaction	-5.366	4.726	0.257
Child Functioning			
Externalizing	-0.055	0.332	0.869
Internalizing	-0.764	0.309	0.013**
Dysregulation	-0.581	0.407	0.154
Competence	0.165	0.359	0.646
Productive Language	0.982	0.099	0.016*

[§] $p < .10$; * $p < .05$; ** $p < .01$

Table 4.7

Average Parenting Alliance Predicting Outcomes at 24-months Postpartum

Outcome	Regression Coefficient (β_1)	(SE)	P-Value
Couple Functioning			
Relationship Satisfaction	1.185	0.171	0.000**
Residualized change in Relationship Satisfaction	0.998	0.200	0.000**
Child Functioning			
Externalizing	-0.019	0.011	0.095 [§]
Internalizing	-0.006	0.015	0.699
Dysregulation	-0.024	0.014	0.078 [§]
Competence	0.013	0.013	0.299
Productive Language	-0.014	0.016	0.393

** $p < .01$; * $p < .05$; [§] $p < .10$

Appendix A

PARENTING ALLIANCE INVENTORY

The questions listed below concern what happens between you and your partner. While you may not find an answer which exactly describes what you think, please fill in the circle that comes closest to what you think.

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
1. My partner enjoys being alone with our child.	<input type="radio"/>				
2. During pregnancy, my partner expressed confidence in my ability to be a good parent.	<input type="radio"/>				
3. When there is a problem with our child, we work out a good solution together.	<input type="radio"/>				
4. My partner and I communicate well about our child.	<input type="radio"/>				
5. My partner is willing to make personal sacrifices to help take care of our child.	<input type="radio"/>				
6. Talking to my partner about our child is something I look forward to.	<input type="radio"/>				
7. My partner pays a great deal of attention to our child.	<input type="radio"/>				
8. My partner and I agree on what our child should and should not be permitted to do.	<input type="radio"/>				
9. I feel close to my partner when I see him/her play with our child.	<input type="radio"/>				
10. My partner knows how to handle children well.	<input type="radio"/>				
11. My partner and I are a good team.	<input type="radio"/>				
12. My partner believes I am a good parent.	<input type="radio"/>				
13. I believe my partner is a good parent.	<input type="radio"/>				
14. My partner makes my job of being a parent easier.	<input type="radio"/>				

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
15. My partner sees our child in the same way I do.	<input type="radio"/>				
16. My partner and I would basically describe our child in the same way.	<input type="radio"/>				
17. If our child needs to be punished, my partner and I usually agree on the type of punishment.	<input type="radio"/>				
18. I feel good about my partner's judgment about what is right for our child.	<input type="radio"/>				
19. My partner tells me I am a good parent.	<input type="radio"/>				
20. My partner and I have the same goals for our child.	<input type="radio"/>				

Appendix B

“OUR FIRST BABY” Phone Screen

Demographics:

	Woman	Man
Name		
Home Address		
Home Phone		
Work/Cell # (optional)		
E-mail address (optional)		
How did you hear about this study? (Ask for specifics)		

	Woman	Man
Are you and your partner legally married? (RISK if not married)		
Are the two of you currently living together? (RULE OUT if physically separated)		
Are either or both of you planning on moving in the next year? (RULE OUT if moving out of Bryan / CS)		

Information about the baby:

	Woman	Man
What is the approximate due date?		
Is this your first child, including biological, step or adopted? (<u>RULE OUT IF NO</u>)		
Is this your partner's first child (biological, step, or adopted)? (<u>RULE OUT IF NO</u>)		
Any problems in the pregnancy so far?		
Was this a planned pregnancy?		
If you had it to do over again, would you want to be having a baby right now? (Yes, No, Don't Know) RISK if say "No" or "Don't Know" or "Maybe"		

Information about the individual:

	Woman	Man
How old are you? (RULE OUT IF NOT 18-65)		
Have you ever been married (to someone other than your current partner?) (RISK if yes)		
Did your parents divorce? (RISK for Women only)		
Was there any physical violence		

<p>Has that bothered you: Not at all (0), A little bit (1), Moderately (2), Quite a bit (3), or Extremely (4)?</p> <p>NOTE: IF THEY SAY “MODERATELY” OR MORE, CONTACT DR. DOSS IMMEDIATELY. IF YOU CANNOT REACH HIM, CONTACT KRISTEN WHO WILL GET INTOUCH WITH ANOTHER CLINICAL FACULTY MEMBER.</p>		
<p>RISK = A SCORE OF <u>3 or more FOR MEN</u> OR A SCORE OF <u>4 or more FOR WOMEN</u></p>		

Information about the couple relationship:

Now I'm going to ask you some questions about your relationship.

	Woman	Man
How often do you discuss or have you considered divorce, separation, or termination of your relationship? Would you say that happens all the time (0), most of the time (1), more often than not (2), occasionally (3), rarely (4), or never (5)?		
In general, how often do you think that things between you and your partner are going well? Would you say that happens all the time (5), most of the time (4), more often than not (3), occasionally (2), rarely (1), or never (0)?		
How often do you confide in your partner? Would you say that happens all the time (5), most of the time (4), more often than not (3), occasionally (2), rarely (1), or never (0)?		
Now, on a 0 to 6 scale with 0 being extremely <u>UN</u> happy, 3 being Happy, and 6 being Perfect, <u>how happy would you say you are in your relationship, all things considered?</u> Again, 0 is extremely <u>UN</u> happy, 3 is Happy, and 6 is Perfect.		
TOTAL SCORE (RISK = either partner < 13)		

No matter how well a couple gets along, there are times when they disagree, get annoyed with the other person, want different things from each other, or just have spats or fights because they are in a bad mood, are tired, or for some other reason. I'm going to read you a list of things that might happen when you have disagreements. Please tell me if they've happened in the past year and, if so, how many times they've happened in the past year.

	Woman	Man
My partner insulted or swore or yelled at me.	Happened? Freq. in past year?	Happened? Freq. in past year?
I had a sprain, bruise, or small cut because of a fight with my partner. (RISK)	Happened? Freq. in past year?	Happened? Freq. in past year?
My partner pushed or shoved me. (RISK)	Happened? Freq. in past year?	Happened? Freq. in past year?
My partner slapped, punched, or kicked me. (RULE OUT)	Happened? Freq. in past year?	Happened? Freq. in past year?
I felt physical pain that still hurt the next day because of a fight with my partner. (RULE OUT)	Happened? Freq. in past year?	Happened? Freq. in past year?