"Couples as Partners and Parents over Children's Early Years"

Marcia J. Carlson
University of Wisconsin-Madison

Natasha V. Pilkauskas
Columbia University

Sara S. McLanahan
Princeton University

Jeanne Brooks-Gunn
Columbia University

September 12, 2009

---

*Marcia Carlson (carlson@ssc.wisc.edu) is Associate Professor of Sociology, and Research Affiliate at the Center for Demography and Ecology, at the University of Wisconsin-Madison. Natasha Pilkauskas (np2247@columbia.edu) is a doctoral student in the School of Social Work at Columbia University. Sara McLanahan (mclanaha@princeton.edu) is the William S. Tod Professor of Sociology and Public Affairs, and Director of the Center for Research on Child Wellbeing, at Princeton University. Jeanne Brooks-Gunn (jb224@columbia.edu) is the Marx Professor of Child Development and Education at Teachers College and the College of Physicians and Surgeons, and Director of the National Center for Children and Families, at Columbia University. The authors thank the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) through grants R01HD36916, R01HD39135, and R01HD40421, as well as a consortium of private foundations, for their support of the Fragile Families and Child Wellbeing Study. The first author also appreciates support for this research from NICHD grants K01HD42776 and R01HD57894.

Abstract

We use data from the Fragile Families and Child Wellbeing Study to examine couple how couple relationship quality and parental engagement are linked over children's early years. Our sample includes 1,630 couples that are co-resident over years 1 to 3 and 1,376 over years 3 to 5 (1,196 over both periods). Overall, we find that better relationship quality predicts greater parental engagement for both mothers and fathers—especially from children's infant to toddler years; we find little evidence that parenting predicts future relationship quality. Married and cohabiting couples are generally similar in how relationship quality and parenting are linked. When couples are having their first birth, relationship quality is more strongly tied to parental engagement for fathers (but not mothers).

Keywords: Couple relationship quality, parenting, fragile families.

Family scholars have long recognized the inter-dependence of family relationships (mothers and fathers, parents and children, siblings). Within a given family 'system,' dyadic relationships affect each other (Cox & Paley, 1997; Minuchin, 1988) and influence individual-level change (Chase-Lansdale, Kiernan, & Friedman, 2004; O'Brien, 2005). Among family ties, the marital relationship has historically been viewed as central to nuclear family dynamics (Cummings & O'Reilly, 1997), and an extensive empirical literature has examined how marital quality is linked to parenting or the parent-child relationship. This research provides strong evidence for a positive correlation—that better marital quality is linked to better parent-child interaction, supporting the notion of affective 'spillover' in family relationships (Aldous, Mulligan, & Bjarnason, 1998; Erel & Burman, 1995; Grych, 2002; Krishnakumar & Buehler, 2000; Orbuch, Thornton, & Cancio, 2000; White, 1999).

Although developmental theory rests on the notion that relationships (and the individuals within them) change over time, few studies of marital quality have addressed the potentially changing and dynamic nature of how parental relationship quality is linked to parenting as children grow and develop (Grych, 2002). Relationship quality may be especially important during children's infant and toddler years, particularly for new parents adapting to their parental roles, but may become less important as children age and parent-child ties become more established. Alternatively, a close affective marital relationship may become even more salient for parenting as children grow, develop unique personalities, and begin to test parental limits—when consistency in how parents approach monitoring and disciplinary issues becomes more important.

Existing longitudinal studies of couple relationship quality and parenting typically cover only two time points (Krishnakumar & Buehler, 2000; Schoppe-Sullivan, Schermerhorn, & Cummings, 2007), and/or only observe families from the time of birth until children's toddler years (Belsky, Youngblade, Rovine, & Volling, 1991; Cox, Owen, Lewis, & Henderson, 1989). Also, while a number of studies have recognized the potential for reciprocal effects, with parent-child relationships also

influencing couple relationship quality (Belsky et al., 1991; Goldberg & Easterbrooks, 1984; Grych, 2002), studies have primarily focused on how relationship quality affects parenting (but see Floyd, Gilliom, & Costigan, 1998 for an exception). Given the salience of both couple relationship quality and parenting for child development and wellbeing (Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; Howes & Markman, 1989), it is important to understand how adults' relationships as partners and parents are linked as children develop from infants to toddlers to preschoolers (and beyond).

As with the marital quality literature more generally, research on marital quality and parenting has typically relied on small and unrepresentative samples that include mostly White, middle-income couples, with limited attention to more disadvantaged or ethnically-diverse samples (Karney & Bradbury, 1995). Further, although the most recent national data indicate that the proportion of children born outside of marriage has risen to fully 40 percent in 2007 (Martin et al., 2009), with about half of these cohabiting at the time of the child's birth (McLanahan, 2004b), there has been limited attention to how relationship quality and parenting are linked for cohabiting couples, including similarities to or differences from patterns observed in married families (Grych, 2002).

In this paper, we extend previous research by using data from a large nationally-representative sample of urban births in the late 1990s to examine how couple relationship quality and parental engagement are linked among both cohabiting and married biological parents. We use fixed effects models and structural equation models with data from three time points in early childhood – when children are infants, toddlers and preschoolers. We examine both mothers' and fathers' parenting, and we test whether the associations between relationship quality and parental engagement differ by parents' marital status, whether the child is a first birth, and child gender. Our results can be generalized to couples that live together (either cohabiting or legally married) during the five years subsequent to their child's birth.

Theoretical Perspectives and Previous Research

Effect of Couple Relationship Quality on Parenting

There are several major hypotheses about how the quality of the marital relationship affects the quality of the parent-child relationship. First, the *spillover hypothesis* (Engfer, 1988) argues that better marital quality leads to more positive parenting, and marital distress predicts more negative parenting (Easterbrooks & Emde, 1988), i.e., there is a positive correlation between affect or stress/overload in the marital relationship and parenting. (Note that some scholars—e.g. Bolger, DeLongis, Kessler, & Wethington, 1989; White, 1999—also identify 'crossover' in dyadic relations, which occurs when a given individual (say *a*) responds to the negative affect that individual (say *b*) brings to their (*a*-*b*) relationship when *b*'s affect is due to a third relationship (say *b*-*c*). Since a similar positive association is identified, we do not differentiate between the two concepts here.) Second, the *compensatory hypothesis* (Engfer, 1988) argues, in contrast, that a lack of satisfaction or emotional fulfillment in the marital relationship may lead parents to invest more heavily in the parent-child relationship in order to compensate for an unfulfilling couple relationship (Goldberg & Easterbrooks, 1984), i.e., there is a negative correlation between marital quality and parenting. Third, both of these hypotheses might be incorrect, since any association between marital quality and parenting could be due to unobserved characteristics of parents that affect both marital quality and parenting. In other words, the association between the two could be spurious and result from omitted variables, such as personality or temperament (Engfer, 1988).

An extensive empirical literature (though using mostly small samples) has examined how marital quality is linked to parenting or the parent-child relationship; as noted above, what has emerged is strong evidence that marital quality is positively linked to parent-child interaction, supporting the notion of spillover in these family relationships (Aldous et al., 1998; Carlson & McLanahan, 2006; Erel & Burman, 1995; Grych, 2002; Krishnakumar & Buehler, 2000; Orbuch et al., 2000; White,

1999). In a meta-analysis of 68 studies on this topic, Erel and Burman (1995) found a robust positive association between marital quality and parent-child relationship quality, noting that their results "clearly indicate that research in this area can move beyond the question of whether a significant positive or negative relationship between the marital and the parent-child relationship exists" (p. 126). Their findings are underscored by two more recent reviews that also confirm an overall positive association between marital quality and parenting, supporting the spillover hypotheses; however, the evidence for the compensatory hypothesis is not zero (Grych, 2002; Krishnakumar & Buehler, 2000). Also, these reviews note that it is difficult to distinguish support for the spillover hypothesis versus spurious correlation, because only a small fraction of studies include potential confounding variables (*ibid*), and few include longitudinal data (Erel & Burman, 1995). Using rich data that include variables commonly thought to affect both relationship quality and parenting is important for properly specifying the association between these dyadic family relationships.

Change in over time. While a number of studies have looked at the association between marital quality and parenting, Grych (2002) notes that most studies are confined to infants or toddlers (but see Krishnakumar & Buehler, 2000, and Brody, Pillegrini, & Sigel, 1986, for exceptions), and the developmental aspects of parenting relationships as children age have been largely ignored. Engfer (1988) suggests that infancy and toddlerhood may not be the time when marital relationships are most important with regard to parenting quality, especially for mothers; hence, our understanding of marriage and parenting may be incomplete because studies don't span a longer timeframe. It is likely that at certain critical points, such as times of individual or family transition, the marital relationship may be more crucial to the parent-child relationship than at other periods (Easterbrooks & Emde, 1988); this may be especially true as young children develop and test parental limits, increasing the need for consistent disciplinary practices and raising parental stress (Schoppe-Sullivan, Mangelsdorf,

Frosch, & McHale, 2004). Longitudinal research that uses multiple time points can shed light on the developmental aspects of relationship quality and parenting as they unfold over time.

Cohabiting couples and diverse samples. The steady rise in nonmarital childbearing over recent decades—and the increasing prevalence of cohabitation as a precursor or alternative to marriage—portend that many children will be born to cohabiting parents or spend time living in a cohabiting union at some point. Recent estimates using 2002 data suggest that two-fifths of all children will spend time in a cohabiting union by age 12 (Kennedy & Bumpass, 2008). Therefore, cohabitation represents an important context for parenting, particularly for disadvantaged groups, since cohabitors are disproportionately of low education and minority race/ethnicity (Raley, Frisco, & Wildsmith, 2005).

Despite the growth in nonmarital childbearing—and the notable differences in the characteristics of parents who have children within versus outside of marriage (McLanahan, 2004a), very few studies have examined couple relationship quality and parenting among unmarried parents, particularly those who are living together (and hence most comparable to married couples); the majority of existing research has utilized small samples that are not very ethnically or socioeconomically diverse (Grych, 2002). In their meta-analysis on marital conflict and parenting, Krishnakumar and Buehler (2000) find that only about one-fifth of the studies reviewed include any mix of racial groups, and very few are nationally-representative. What studies that do exist have focused mostly on noncustodial fathers following divorce, or non-resident fathers generally (including both never-married and divorced fathers). The quality of parents' post-divorce relationship is shown to be a key predictor of noncustodial fathers' visitation with children (Thompson & Laible, 1999) and financial support (Teachman, 1991). Using a small sample of (mostly non-resident) unmarried, African American fathers in Baltimore, Coley and Chase-Lansdale (1999) found that a closer mother-father relationship encourages father's involvement with young children; similar results have been found for a Midwestern sample of 77 fathers who had children with unwed teen mothers (Kalil, Ziol-Guest, &

Coley, 2005). Analyses of early Fragile Families data showed a positive correlation between supportiveness in the mother-father relationship around the time of birth and parenting one year later (Carlson & McLanahan, 2006), but did not explore these processes over time as children grow and develop. Research on minority populations and nonmarital relationships is sparse, and our study helps to extend knowledge into this growing demographic group.

Effect of Parenting on Couple Relationship Quality

Although it is well-known that family relationships are often mutually influencing, most of the literature in this area has posited that the causal ordering proceeds from relationship quality to parenting. Yet, there are good theoretical reasons to expect that parenting also affects the quality of parental relationships, and the correlation could be either positive or negative. To the positive, if parent-child relationships are strong, with parents feeling part of a 'team' in jointly rearing their child(ren), their parental investment could strengthen their relationship quality. Also, for fathers, evolutionary psychology suggests that their investment in children may enhance mothers' perceptions of the mother-father relationship (Daly & Wilson, 2000). By contrast, parental investment and couple relationship quality could also be negatively related, as spending time with children may reduce the time and energy available to nurture the couple relationship. Further, maternal and paternal roles in the transition to parenthood often diverge, and this may foster conflict and diminish marital quality (Cowan & Cowan, 1992; Cowan et al., 1985; Nomaguchi & Milkie, 2003); these conflicts could be even greater if the father is highly engaged in early childrearing.

While some scholars have suggested that parenting may affect marital quality, little published research has directly examined this possibility (Belsky et al., 1991; Erel & Burman, 1995), and indirectly-related research is inconsistent. One study that has directly tested reciprocal relationships, using a small sample of married parents of children with mental retardation, finds that marital quality affects parenting but not vice versa (Floyd et al., 1998). Empirical research that indirectly sheds light

on this question finds mixed results. For example, one study finds that marriages are less likely to break up when fathers are more engaged in childrearing because the wife is more satisfied with the marriage (Kalmijn, 1999), suggesting a positive association between parent-child relationships and marital quality. On the other hand, couples with more children are shown to experience a steeper decline in marital quality over time, suggesting that greater engagement in parenting may diminish couples' ability to nurture their own relationship (Kurdek, 1999). Little research has directly examined how parents' involvement in childrearing is linked to subsequent couple relationship quality.

Differences by Marital Status, First Birth, and Child Gender

We might expect the association between relationship quality and mothers' or fathers' parenting to differ by marital status, whether the focal child is a first birth, and child gender.

Marital Status. Since positive 'spillover' across family relationships is not unique to marriage, we could expect that couple relationship quality and parenting are positively associated for unmarried parents as well, particularly for cohabiting couples who share a residence though not a legal tie. At the same time, marital status may moderate the association, and there are theoretical reasons to expect the link to be either stronger or weaker among married versus cohabiting couples. On the one hand, the association might be stronger for married couples because they have invested more in their relationship (as evidenced by their legal commitment), and marriage is more 'institutionalized' as a context for childrearing (Cherlin, 2005); within marriage, the roles of partner and parent are more tightly clustered and perceived as a 'package deal,' especially for men (Furstenberg & Cherlin, 1991; Townsend, 2002). On the other hand, the association might be stronger among cohabitors, since their roles are less scripted by social norms, so the parent-child relationship could be more contingent on getting along well (and vice versa). To our knowledge, only one study has directly tested whether marital status moderates the association between relationship quality and parenting: Using early Fragile Families data, Carlson and McLanahan (2006) found no significant difference between married and unmarried

parents in how relationship quality at a baby's birth is linked to parenting one year later. Given the salience of marriage to both family demography and current public policy initiatives, it is important to examine possible differences by marital status for older children as well.

First Birth. The transition to parenthood represents a major life change, bringing with it a new identity and new responsibilities for both mothers and fathers (Cowan & Cowan, 1992). It is well-known that marital quality typically declines subsequent to a first birth (Belsky & Kelly, 1994; Cowan & Cowan, 1992; Cox et al., 1989; MacDermid, Huston, & McHale, 1990; Shapiro, Gottman, & Carrère, 2000), although there is heterogeneity across couples in the nature and extent of this change (Belsky & Rovine, 1990; Gottman & Notarius, 2000). With respect to the empirical evidence, nearly all of the research to date on the role of parenthood in marital relationships has focused on the birth of the first child (O'Brien & Peyton, 2002).

Given the importance of the initial transition to parenthood, we could expect that relationship quality is more tightly linked to parenting for couples experiencing a first birth than for couples with previous children. At the same time, higher-order births also create new demands on parents' time and economic resources which, in turn, affect the couple relationship (O'Brien & Peyton, 2002). Beyond one study using early Fragile Families data with 1-year-old children (Carlson & McLanahan, 2006) that found no differences by parity, no studies (of which we aware) have compared the association between relationship quality and parenting for a first versus later birth; we examine this question here.

Child gender. Given that gender plays a role in parental socialization of children (Rossi & Rossi, 1990), we might expect to find differences in how relationship quality affects parenting for boys versus girls. A number of studies have considered whether the sex of a child moderates the relationship between marital quality and parenting, but the findings have been mixed. Cowan and Cowan (1992) suggest that problems in the marital relationship will affect the relationship between fathers and daughters but not fathers and sons, and Krishnakumar and Buehler (2000) find some evidence that the

association between marital conflict and parenting is stronger for girls than for boys. Kitzmann (2000) finds that marital discord does have a significant negative effect on fathers' parenting (but not mothers') when the child is a boy. In their meta-analysis of marital quality and parenting, Erel and Burman (1995) did not find significant evidence to conclude that there are differences by child gender, and Grych (2002) similarly suggests that no conclusions can be drawn in this regard. We test the moderating role of child gender here.

Control Variables

Previous research points to a number of variables that are important to include when estimating how relationship quality and parenting are associated. These are discussed only briefly, as they are not our major focus and are included to properly specify the models. Parents' older age is associated with a greater post-birth decline in marital satisfaction (Cowan & Cowan, 1992), lower quality marital interactions (Frosch, Mangelsdorf, & McHale, 1998), and more effective parenting (Day, Peterson, & McCracken, 1998). Parenting practices may vary by race/ethnicity (Berlin, Brooks-Gunn, Spiker, & Zaslow, 1995; Brooks-Gunn & Markman, 2005; King, 2003). Growing up with both parents likely affects both relationship quality and parenting, given the intergenerational transmission of parenting practices (Gable, Belsky, & Crnic, 1995). Education is associated with greater parental engagement with children, particularly reading (Raikes et al., 2006; Simons, Whitbeck, Conger, & Melby, 1990).

Parents in better physical and mental health are expected to have greater energy and capacity for positive relationships as partners and parents (Larson & Holman, 1994), while having other children in the household may diminish parental capacity. Religiosity is positively related to father involvement (King, 2003) and expressive mothering (Wilcox, 1998). As noted above, the first birth may be more significant than subsequent births for shifting individual parental identities and responsibilities along with couple interaction (Cowan & Cowan, 1992). Children's poor health is linked to parents' relationship and behavior (Reichman, Corman, & Noonan, 2004). It is well-known

that child temperament affects family processes, with more 'difficult' children increasing negative parenting behaviors (Simons, Whitbeck, Conger, & Melby, 1990). Also, parents' greater impulsivity may be associated with both poorer parenting and poorer relationship quality (Dickman, 1990).

Data and Method

Data

We use data from the Fragile Families and Child Wellbeing Study, a nationally representative birth-cohort study designed to provide longitudinal information about new parents and their biological children in urban areas. The Fragile Families Study follows 4,898 children born between 1998 and 2000 (including 3,712 children born to unmarried parents and 1,186 children born to married parents) in 20 U.S. cities with populations over 200,000 (see Reichman, Teitler, Garfinkel, & McLanahan, 2001). Baseline interviews with mothers and fathers were conducted shortly after their child's birth. Mothers were interviewed in person in the hospital within 48 hours of the birth, and fathers were interviewed either in the hospital or wherever they could be located. Follow-up interviews with both mothers and fathers were conducted when the child was about 1, 3 and 5 years old. Response rates for the baseline survey among eligible parents are 87% for unmarried mothers, 82% for married mothers, 75% for unmarried fathers, and 89% for married fathers. The 1-year, 3-year, and 5-year follow-up interviews were completed with 90%, 88% and 87% of eligible mothers, respectively, and 74%, 72%, and 70% of eligible fathers, respectively, where eligibility is based on having a completed baseline mother interview. In our analyses, we use information from the baseline through 5-year surveys, but we focus our analysis on years 1, 3 and 5 when measures are available on both relationship quality and parenting.

Our sample includes couples (parallel samples of biological mothers and fathers of the focal child) who were co-residing (either cohabiting or married) and both interviewed with non-missing data on the relationship quality and parenting measures. Analyses of the 1 to 3 year data are restricted to

couples who are co-resident in years 1 and 3; analyses of the 3 to 5 year data are restricted to parents who are co-resident in years 3 to 5. (We conducted additional analyses of couples who were co-resident over all of years 1, 3 and 5.) We limit our sample to co-resident (and romantically involved) couples in order to evaluate consistent constructs over time, since relationship quality and parenting (and their association) are conceptually different for couples who have broken up. Parental engagement cannot be measured at the time of the baby's birth (the first wave in the Fragile Families Study), so we begin our study using the variables of interest from the 1-year survey.

Of all co-resident couples at Year 1 (*N*=2,341), 347 cases are dropped from our sample because either the mother or the father was not interviewed at the 3-year survey, 317 cases are dropped because the parents broke up between Years 1 and 3, and 47 cases are dropped because information on the relationship quality or parenting items was missing, yielding a final 1-to-3-year sample of *N*=1,630. Among co-resident couples at Year 3 (*N*=2,032), 324 cases were dropped because either the mother for father was not interviewed at Year 5; another 288 cases were dropped because the couple broke up between Years 3 and 5, and 44 cases were dropped because of missing data on the relationship quality or parenting items. The final 3-to-5-year sample was *N*=1,376. (As a robustness check we also conducted analyses on parents who were consistently co-resident over years 1, 3 and 5 years [*N*=1,196] and found that there were no substantive differences from our main reported results.) The fixed effects models (see analytic strategy) pool cases across survey years, so individual cases have multiple observations—3,260 person-year observations (for 1,630 cases) for 1 to 3 years, 2,752 person-year observations (for 1,376 cases) for 3 to 5 years, and 3,588 person-year observations (for 1,196 cases) for 1 to 5 years. In analyses of attrition, we find that the excluded cases are slightly younger, have lower educational attainment, and are more likely to be Black or Hispanic than the parents who remain in the sample. We comment on the possible implications of attrition in the Discussion section.

We differentiate couples by their marital status at the time of their baby's birth. Since the characteristics of couples who marry after a child's birth are much more similar to those of other unmarried couples than to those of couples married at the time of birth (McLanahan, 2004b), and since the greater policy concern is about marital status at birth, we include couples who married post-birth in the unmarried category and refer to marital status at birth. Our substantive conclusions are not altered if we include couples who married post-birth with the married group instead of the unmarried group.

In order to retain a comparable sample across the different analyses and to maximize our sample size, we conducted multiple imputation to impute values for missing data on our covariates (but not our independent variables of interest or dependent variables). Multiple imputation (MI) is a useful strategy for dealing with missing data that eliminates the biases inherent in more conventional approaches (Allison, 2002; Rubin, 1976, 1987). MI uses observed data to impute missing values over multiple data sets; analyses are then conducted across each data set and the estimates averaged to reflect the intrinsic uncertainty in the missing-data imputation (and yield appropriate standard errors). We also ran the analyses using listwise deletion of incomplete cases and found that our results were substantively similar, so we report only the MI results.

Measures

Our primary variables of interest are couple relationship quality and parental engagement reported by mothers and fathers at 1, 3 and 5 years after the birth of their common biological child. For parental engagement, parents reported at each survey the number of days in the previous week they engaged in the following five activities with their child, ranging from 0 to 7 days: read stories, told stories, played games such as "peek-a-boo" or "gotcha" (replaced by played imaginary games at 3 years and telling child they are appreciated at 5 years), sang songs or nursery rhymes, and played inside with toys. These items are similar to those used on other large surveys about parental

involvement, including the Panel Study of Income Dynamics Child Development Study, the Early Child Longitudinal Study-Birth Cohort, and the Early Head Start Father Study[1].

Principal components factor analysis (with varimax rotation) confirmed that the parental engagement items could be appropriately represented by a single factor for each parent (Cronbach's alphas for mothers are .69, .75 and .69—and for fathers are .74, .80, and .76—in years 1, 3 and 5, respectively). The fixed effects models use an average of mothers (or fathers) parental engagement, and in the structural equation models, engagement for mothers and fathers is estimated (separately) as a latent factor based on the five individual items at each survey wave.

We measure relationship quality from six items reported by mothers and fathers in all three surveys. While most studies have focused only on negative martial functioning (conflict, hostility or aggression), we consider a broader measure that includes mostly positive items (and one reverse-coded negative item); positive relationship quality has been little explored but is shown to be related to parenting (White, 1999). Mothers and fathers report how frequently their partner: 1) "is fair and willing to compromise when you have a disagreement," 2) "expresses affection or love for you," 3) "insults or criticizes you or your ideas" (coding reversed), 4) "encourages or helps you to do things that are important to you," 5) "listens to you when you need someone to talk to," and 6) "really understands your hurts and joys." Response choices are *never* (1), *sometimes* (2), and *often* (3), with higher scores indicating a better-quality relationship (range=1-3).

To reflect the intrinsically dyadic nature of couple relationships, we use the average of mother and father reports on these six items. In fixed effects, we use the overall average across the six (averaged) items, and in the structural equation models we include the dyadic averages of each of the

[1] At the 1-year survey, about 25% of respondents were given an initial version of the questionnaire that had five categorical response choices, ranging from 1 (*never*) to 5 (*every day*). When repeating the response choices proved cumbersome, the survey was modified, and the remaining 75% of respondents (and all respondents at the 3- and 5-year surveys) were asked the actual number of days in the past week that they engaged in each activity, ranging from 0 to 7. Cases given the first set of responses were re-assigned as follows: *never* = 0, *once or twice/month* = 1, *several times/month* = 2, *several times/week* = 4, *every day* = 7.

six items separately, allowing couple relationship quality to be estimated as a latent factor. Principal components factor analysis (with varimax rotation) confirmed that the items could be appropriately represented by a single factor with high reliability (alpha=.76 at Year 1, .85 at Year 3, and .88 at Year 5). The average couple relationship scores, as well as individual item scores, for the 1, 3, and 5-year surveys are shown in Table 2.

All of our models include a set of demographic, psychosocial and socioeconomic variables that we expect are related to both relationship quality and parenting (means or frequencies on these variables are shown in Table 1). Unless otherwise indicated, we use identical measures for both mothers and fathers. Mothers' and fathers' ages are each specified as continuous variables. Mothers' race/ethnicity is specified as a series of dummy variables: non-Hispanic Black (reference category); non-Hispanic White; Hispanic; and other non-Hispanic race. We include a separate dummy variable to indicate when the parents differ on race/ethnicity. Family background is represented by a dichotomy for whether each parent lived with both of their parents at age 15. Education is specified as four dummy variables: less than high school (reference category), high school degree, some college, and bachelor's degree or higher.

Parents' self-reported physical health status is included as a continuous variable, ranging from 1 (*poor*) to 5 (*excellent*). Children's physical health status is reported by the mother (also 1 to 5). Fathers' self-reported problems with substance abuse are indicated by a dummy variable, coded 1 if they respond affirmatively that "drinking or drug use interfered with [their] work or personal relationships." We do not include mothers' self-reported problems with substance abuse because very few mothers indicated such. A measure of depression is included for both fathers and mothers using the Composite International Diagnostic Interview-Short Form (CIDI), a standardized tool that assesses respondents' feelings of dysphoria or anhedonia (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998). Respondents are asked if they have lost interest, felt tired, had a change in weight, trouble

sleeping, trouble concentrating, felt worthless or thought about death in the last year and whether it lasted for two weeks or more; a dummy variable indicates having met the criteria for depression.

We include the frequency of each parent's religious attendance as a continuous variable, ranging from 1 (*not at all*) to 5 (*once a week or more*). Number of children in the household is a continuous variable from the 1-year survey, reported by mothers. We include a series of dummy variables to indicate multi-partner fertility: both parents' first birth (reference category), couples' higher order birth, mother has a child with another partner, father has a child with another partner, and both parents have a child with another partner.

We include a dummy variable indicating the child is a boy. Child's 'difficult' temperament is represented by the average of three items from the Emotionality, Activity, and Sociability (EAS) Temperament Survey: Mothers report at the 1-year survey how often their child fusses and cries, gets upset easily, and reacts very strongly when upset (Buss & Plomin, 1984; Mathieson & Tambs, 1999). Response choices range from 1 (*not at all like my child*) to 5 (*very much like my child*); scores are averaged, with higher scores indicating more difficult child temperaments.

We also include a continuous measure of parents' dysfunctional impulsivity based on an abbreviated form of Dickman's (1990) impulsivity scale, which averages six measures of respondents' ability to exert self control (e.g., whether do or say things without considering the consequences, or don't think before they act). Response choices range from 1 *(Strongly Disagree)* to 4 *(Strongly Agree)*, so higher scores indicate higher impulsivity. We also include a measure of the household's income-to-needs ratio, based on official poverty thresholds established by the U.S. Census Bureau, adjusted by family composition and year; a ratio of one or less indicates that the family lives in poverty. Lastly we include a dummy variable indicating whether the couple was married at the baseline survey.

[Table 1 about here]

Table 1 provides descriptive information on the demographic, psychosocial and socioeconomic characteristics of the co-resident mothers and fathers in our sample by marital status at birth. We apply city sampling weights in order to adjust for the oversampling of nonmarital births in the Fragile Families Study. Married parents are, on average, about five years older than cohabiting parents, more likely to be non-Hispanic White, more likely to have lived with both parents at age 15, and have much higher educational attainment. Only 14% of married mothers and fathers have less than a high school degree, compared to almost one-third of cohabiting parents; married parents are much more likely to have graduated from college (about 44%, compared to only 1% of unmarried parents).

Parents are generally in good (self-reported) health, with mean scores around 4.0 on a five-point scale. Self-reported problems with substance abuse are rare, ranging from 0% to 4% of all parents. Depression is less common among married parents (4-8%) than among cohabiting parents (7-12%). Married parents are more religious than cohabitors. The mean number of children across households is around two. For 35% of married parents (and 25% of cohabiting parents), the focal child is their first birth. Married parents are less likely to have children with other partners (about 17% of married parents versus 58% of cohabiting parents). More than half of all children are boys. Children of cohabiting parents score somewhat higher on the 'difficult' temperament measure than children of married parents. Parents' impulsive tendencies are slightly higher in the cohabiting group, and cohabiting families have much lower average income-to-needs ratios (1.55 versus 4.55).

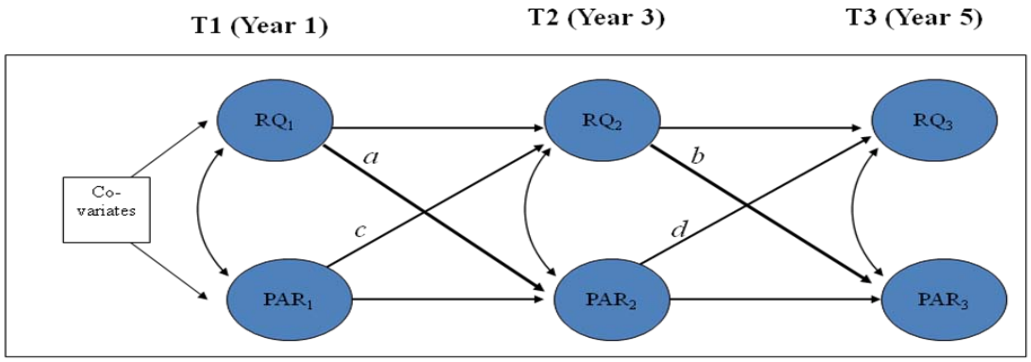
Analytic Approach

We employ two analytic strategies to examine how relationship quality and parenting are linked for co-resident biological parents. First, we estimate fixed effects regression models in order to evaluate whether there is an association between couple relationship quality and parenting between Years 1 and 3, then Years 3 and 5, after a child's birth. Fixed effects models use repeated observations pooled over time to estimate the association between relationship quality and parenting at times 1 and

2. By using only within-subject variation, these models control for unobserved time-invariant individual characteristics that may be associated with the variables of interest (Greene, 2003; Snijders, 2005). The estimates thus indicate how a change in relationship quality is associated with a change in parental engagement across the same individuals, providing stronger evidence for causal inference than standard regression models. However, these models provide no information about the direction of the association.

To evaluate the direction of the association between couple relationship quality and parental engagement with children, we estimate cross-lagged structural equation models (SEM) using Mplus statistical software. Cross-lagged modeling allows evaluation of the primary direction of causal influence in a system where there may be reciprocal effects (Finkel, 1995). The model estimates the effect of relationship quality at time 1 on parenting at time 2, net of any effect that parenting at time 1 may have on relationship quality at time 2 (and controlling for covariates). Similarly, the model simultaneously estimates the extent to which parenting at time 1 affects relationship quality at time 2, controlling for any feedback effects from relationship quality to parenting and for extensive background variables. As shown in Figure 1 below, we consider the associations between relationship quality and parental engagement across years 1, 3 and 5, where *a*, *b*, *c* and *d* represent the cross-lagged paths. For both the SEM and fixed effects, we primarily use standardized variables (measured in standard deviation units), so the estimates can be interpreted as, for each one-standard-deviation change in the independent variable, the proportion of a standard deviation change observed in the dependent variable. For our main results (Table 3), we also report unstandardized coefficients, so the reader can evaluate the actual magnitude of change in the dependent variable that results from a one-unit change in the independent variable.

Figure 1. Conceptual Model for Relationship Quality and Parental Engagement among Co-Resident Couples



Note: RQ = Relationship quality. PAR = Parental engagement.

Results

Means on couple relationship quality and parental engagement are shown in Table 2 (weighted by city sampling weights) with significant differences by marital status, first birth status and child gender evaluated using (unweighted) *t*-tests. Overall, parents in co-resident relationships report high levels of positive interaction in their relationship about one year after a baby's birth (score of 2.68 on a 1-to-3 scale), with scores on individual items ranging from 2.49 to 2.81. Mean relationship quality remains similar at year 3 (2.67) and then declines slightly over the next two years to 2.62 in year 5.

[Table 2 about here]

Parents who were married at the time of their child's birth report significantly higher quality relationships at the 1-, 3-, and 5-year surveys than their cohabiting counterparts. For both married and cohabiting couples, the reported level of relationship quality declines slightly over the years; however, the decline among cohabiting parents between years 3 and years 5 is larger (0.10 compared to 0.04). (The mean differences are somewhat larger [results not shown] if cohabitors who marry are classified based on their later marital status; this is not surprising, since presumably the couples with the highest quality relationships are the ones who marry.) Comparing couples by first birth status, we find that couples having their first birth report significantly higher-quality relationships at both Year 1 and Year 3 (though differences are substantively small), and marginally significantly higher-quality relationships

at Year 5. Parents of boys report slightly higher levels of relationship quality than parents of girls at Years 3 and 5.

The lower half of Table 2 shows means on the average parental engagement scores for mothers and fathers at the 1-, 3- and 5-year surveys, overall and by marital status, first birth status and child gender. Again, significant differences are evaluated using *t*-tests. The average mother engages in activities with her child 5.29 days per week at the 1-year survey, 5.13 days at the 3-year survey, and 4.92 days at the 5-year survey. The average level of engagement is somewhat lower for fathers—4.65 days at the 1-year survey, 4.16 days at the 3-year survey and 4.02 days at the 5-year survey.

Co-resident mothers who were married at birth are significantly more engaged with their children at all three time points than those who were cohabiting; whereas the pattern is reversed for married fathers, who exhibit slightly lower levels of engagement at all three time periods compared to cohabiting fathers. Engagement decreases over time for both married and unmarried parents. Couples having their first birth are significantly more engaged with their children than couples having a later birth at all three time points. Considering the gender of the child, mothers appear to be significantly more engaged with girls at the 3-year and 5-year surveys but not the 1-year survey. Fathers' parental engagement does not differ significantly between girls and boys.

Multivariate Results

First, we summarize results from our fixed effects model (Table 3). With respect to maternal engagement, we see that over years 1 to 3, a one-standard-deviation increase in relationship quality is significantly associated with a .07 standard deviation (.46 unstandardized unit) increase in maternal engagement with the child. We note a similar association over years 3 to 5: a one-standard-deviation increase in relationship quality is associated with a .06 standard deviation (.34 unstandardized unit) increase in maternal engagement. With respect to paternal engagement, we find a similar pattern, but the magnitude of the estimates is slightly larger. Over years 1 to 3, a one-standard deviation change in

relationship quality is associated with a .13 standard deviation (.49 unstandardized unit) increase in paternal engagement, and over years 3 to 5, the comparable figure is .10 (.55 unstandardized unit).

[Table 3 about here]

Taken together, consistent with previous research on parents of young children (Erel & Burman, 1995; Krishnakumar & Buehler, 2000), these results provide evidence that for both mothers and fathers, there is a positive correlation between change in couple relationship quality and change in parenting over years 1, 3 and 5 after a child's birth. As noted above, since fixed effects models utilize only within-couple differences, they do not suffer from bias due to unobserved time-invariant characteristics (but they could still be biased by unobserved time-varying characteristics). Thus, they provide greater confidence in detecting a true effect than OLS regression; yet, they do not provide information on the direction of the association between the two measures.

To evaluate directionality, we turn to our SEM results. The cross-lagged model examines whether and how relationship quality and parenting are linked when both constructs are simultaneously measured over years 1 to 3, then years 3 to 5. For maternal engagement, we find an identical standardized estimate to the fixed effects model for how couple relationship quality at Year 1 is linked to parenting at Year 3 (.07), although the unstandardized estimate is slightly larger (.46). Thus, over and above the fact that relationship quality at Year 1 predicts relationship quality at Year 3, and parental engagement at Year 1 predicts parental engagement at Year 3, the significant 'cross-lagged' path indicates that relationship quality is also predictive of parental engagement. By contrast, the cross-lagged path in the other direction—from engagement to relationship quality—is .01 (.00 unstandardized) and not statistically significant, suggesting that parenting is not a significant factor for future relationship quality. In the second time period, we find a different pattern: the estimate for relationship quality to mothers' parenting and the estimate for parenting to relationship quality are each -.01 (standardized), and neither is statistically significant.

The models for fathers' engagement show a mostly similar pattern to that for mothers: There is a statistically significant association between relationship quality and paternal engagement over years 1 to 3 (.08 standardized, .49 unstandardized), while the reciprocal path from engagement to relationship quality is small and not statistically significant (-.02 standardized, -.01 unstandardized). For years 3 to 5, there is no significant association between relationship quality and parenting (estimate of .03 standardized, .20 unstandardized). For the reverse direction, there is a marginally significant negative association between parenting and relationship quality, suggesting that as fathers become more engaged as parents, the quality of relationship with their spouse or partner may be slightly diminished.[2]

Taken together, our results provide consistent evidence that over years 1 to 3 of a child's life, there is a modest positive association between relationship quality and parenting—as couple relationship quality improves, parental engagement with children increases slightly for both mothers and fathers. The fixed effects estimates give us confidence that this result is not simply due to variation between cases (i.e., comparing the parenting of those with high versus low levels of relationship quality) but is robust to examination within the *same* couples over time. The SEM results suggest that the direction of the association goes from relationship quality to parental engagement with little evidence of any effect in the opposite direction.

Over years 3 to 5 of a child's life, the fixed effect results again provide strong evidence of a modest positive association between relationship quality and parenting. However, the SEM results suggest there is little 'cross-lagged' association between these constructs. It's important to recall that the SEM results are not limited to within-person change, so they also reflect differences between cases. Therefore, these results indicate that over and above how relationship quality at year 3 predicts relationship quality at year 5, and parenting at year 3 predicts parenting at year 5, there is no additional

[2] In order to test the sensitivity of our results to the use of an average of mothers' and fathers' reported relationship quality and to look at inter-rater reliability, we tested our SEM models using each reporter's *own* measures of relationship quality on their own parenting engagement. Overall, the results were very similar except that for years 1-3, mothers' reported RQ is less strongly linked to her own reported PAR (than fathers' report of RQ to her PAR).

association between relationship quality at year 3 and parenting at year 5 (or parenting at year 3 and parenting at year 5) for all cases in the sample. The significant coefficients found using fixed effects (but not SEM) suggests that it is important to account for selection, as unobserved variables are obscuring the true association between relationship quality and parenting. Also, the difference in SEM results between 1-to-3 and 3-to-5 years may reflect differential selection out of the sample; by years 3 to 5, only those with the 'best' partner and parent relationships remain, and some omitted variables (e.g., commitment to family life) may be causing both couple relationship quality and parenting. Once we account for such time-constant individual characteristics in the fixed effects models, we observe the expected positive correlation between relationship quality and parenting. Since the SEM results here do not shed light on directionality, we must assume that the directionality operates the same as we observed for years 1 to 3—from relationship quality to parenting (but not vice versa).

In order to consider how relationship quality and parenting are linked over the entire 1- to 5-year time frame, we also ran fixed effects and SEM models on parents who were co-resident over all of years 1, 3 and 5 (results not shown). In other words, in fixed effects, we used data from the 1-, 3- and 5-year surveys; in SEM, we simultaneously estimated cross-lagged paths from both 1 to 3 and 3 to 5 years. Our findings were very similar to those in the separate 1-to-3 and 3-to-5 models (which allowed us to keep the total number of co-resident couples in each time period). Also, this combined model in SEM allowed us to test for significant differences between estimates in the 1-to-3-year period versus 3-to-5-year period. We found that the difference between the two periods was marginally statistically significant for mothers (p=.076), with a weaker association in years 3 to 5, suggesting that the importance of relationship quality on parenting may diminish over time. This did not appear to be the case for fathers, since we could not reject the null hypothesis that the estimates for 1-to-3 and 3-to-5 years are the same (p=.18).

Differences by Marital Status, First Birth and Child Gender

To evaluate differences in our main analyses by sub-group, we re-estimated cross-lagged models using two groups each. In these analyses we only focus on the association between relationship quality at Year 1 (Year 3) on Year 3 (Year 5) parenting engagement and not the reverse, since our main models showed little effect of parenting on future relationship quality. We test the difference between groups by comparing the fit of the unconstrained model where the paths for each group are allowed to vary (A) to the model fit where the path from relationship quality to parenting is constrained to be equal across groups (B) (and a degree of freedom conserved). Calculating the difference in chi-square between the models allows one to test whether the groups are in fact significantly different. We show only standardized coefficients here.

[Table 4 about here]

With respect to differences by marital status, at first glance, it looks like married mothers and married fathers experience a stronger association between relationship quality and parenting engagement over Years 1 and 3 than their cohabiting counterparts. However, when the paths are constrained to be equal, we see that the model fit changes only slightly, and the difference is not statistically significant. Thus, we cannot reject the null hypotheses that the link between relationship quality and parental engagement is the same for married and cohabiting couples (for both mothers and fathers).

The year 3-to-5 results show very small effects for mothers that do not differ by marital status at the child's birth. By contrast, for fathers, the 3- to 5-year model suggests that there is a significant difference between cohabiting and married fathers. Among cohabiting men, an improvement in relationship quality of one standard deviation at Year 3 is associated with a .09 standard deviation increase in parenting engagement; there is no such association for married fathers. Thus, relationship quality appears to be more important for the parenting of cohabitors than married fathers as their

children age from toddlers to preschoolers. Since only co-resident couples remain in our sample, this could partially reflect that couples where fathers are less involved are breaking up and leaving the sample (and those that remain have more tightly linked relationship quality and parenting).

Next, we examined whether relationship quality was more salient for parenting among couples having their first birth compared to couples having a higher-order birth. For mothers, we find that there is little difference in model fit when we constrain the path from relationship quality to parenting to be equal in both Years 1 to 3 and Years 3 to 5; thus, there appears to be no significant difference between mothers having their first birth and a later birth, both at younger and older child ages.

In contrast, for fathers, whether the focal child is a first or higher-order birth does appear to be important for how relationship quality and parenting engagement are linked. In the early years (1 to 3), we see that for fathers having a first birth, the standardized coefficient on the association between relationship quality at Year 1 and paternal engagement at Year 3 is .23 (p <.01), whereas for couples having a higher-order birth, the estimate is .03 and not statistically significant association. The model fit becomes notably worse (df=1, $\Delta\chi^2 = 10.48$, $p = .001$) when the path from relationship quality to parenting is constrained to be equal across groups.[3] Looking at the link between relationship quality at Year 3 on paternal engagement at Year 5 as a function of first birth status, we see a similar pattern—a large and significant coefficient if the child is a first birth (.11) but close to zero (-.02) for a later birth. When the models are constrained to be equal, the difference is just outside the level of marginal significance (p=.119), suggesting that we can (almost) reject the null hypothesis of similarity across groups.

Taken together, these results suggest that fathers' engagement among couples having their first birth appears to be more contingent on the quality of the couple relationship than for fathers who are

[3] We ran additional analyses (not shown) to see if among couples having a first birth, there was a difference in the association of relationship quality with fathers' parenting by child gender. We found that the estimate was larger if the child was a boy (.30) than if the child was a girl (.16), although the difference was just outside of marginal statistical significance (p=.13).

having a higher-order birth. This is especially true over years 1 to 3, although as noted, some difference by first birth status persists over years 3 to 5. The importance of the couple relationship may diminish in importance as the father-child relationship develops and children become more independent and interactive, whereas in the child's early years, men's involvement may depend on his ability to get along with the mother (who typically has greater responsibility for the child's care).

Lastly, we looked at whether the importance of relationship quality on parental engagement differed by the gender of the child. We found that there were no statistically significant differences between having a girl or a boy for mothers in Years 1 to 3, or Years 3 to 5. For fathers, based on the point estimates, it appears that there is a stronger association between relationship quality and paternal engagement for girls in the early years (.11 and significant for girls and .04 and not significant for boys); however, when we constrained the paths to be equal, the difference in model fit was not statistically significant. By contrast, for years 3 to 5, the difference by the gender of the child *was* statistically significant (p=.025), although neither of the individual coefficients (.06 for girls and .01 for boys) was statistically significant. This suggests that relationship quality may be more important for fathers' parenting of girls than of boys over years 3 to 5, although we cannot place great confidence in the point estimates.

Control Variables

Since the control variables are not our main interest, we show the covariates for the Year 1 to 3 models for mothers and fathers in the Appendix Table (the substantive results are similar for the Year 3 to 5 models). We find that African American couples report lower quality relationships, compared to White and Hispanic couples. Also, maternal engagement is higher among White non-Hispanic couples (compared to Black non-Hispanic couples), while in Hispanic couples, fathers report lower engagement. When mothers and fathers are of different racial and ethnic backgrounds, relationship quality is reported to be lower.

Educational attainment has a positive effect on parental engagement for mothers. Mothers' good health and the child's good health are linked to both couple relationship quality and higher maternal engagement. Depression for mothers and fathers is associated with lower relationship quality. Fathers' greater religiosity is associated with better relationship quality, and each parent's religiosity is linked to their own greater engagement with children. The number of children in the household is associated with fathers'—but not mothers'—lower engagement with the focal child, while both mothers and fathers are more engaged with the child when it is their first birth. Having a son is associated with higher relationship quality. When the child's temperament is reported to be more 'difficult,' couple relationship quality is lower, and mothers report less frequent engagement. Increased parental impulsive behavior is associated with decreased relationship quality for both mothers and fathers.

Discussion

In this paper, we have examined how couple relationship quality is linked to parental engagement with children by both mothers and fathers living with their biological child after a baby's birth as the child ages form infancy to toddlerhood and then preschool-age. We extend past research by using a large multi-ethnic sample, as well as by evaluating differences between couples by marital status, first birth status, and child gender. Overall, we find that relationship quality is positively linked to subsequent maternal and paternal engagement as children age from infants to toddlers to preschoolers. This finding corroborates previous research using mostly small samples of white and/or middle-income married couples that shows positive 'spillover' between marital quality and parent-child relationships in early childhood (e.g., Erel & Burman, 1995). We find that the association appears to proceed in one direction – from couple relationship quality to parenting: There is little indication that higher parent-child engagement by mothers or fathers enhances (or diminishes) the couple relationship.

Indeed, we find that partnering and parenting roles are linked, and this appears to hold true over the entire span of years 1 through 5 of a child's life. The cross-lagged estimates suggest that the association may become weaker as children leave the toddler years at least for mothers, but this is not the case for fathers. Further, the fixed effects models, which are more robust to threats to causal inference, yield significant positive correlations between relationship quality and parenting for both mothers and fathers over years 1 to 3 and years 3 to 5. Thus, our overall conclusion is that couple relationship quality and parenting are positively linked for co-resident couples across the first five years after a new child's birth.

We find the overall results to be similar for both mothers and fathers, but we do note several differences by sub-group. With respect to marital status differences, we find that (with one exception) the link between relationship quality and parenting is similar for couples who were married versus cohabiting at their baby's birth, a striking finding given the notable socio-demographic differences between the two groups. Married couples are much older and more highly educated compared to unmarried parents, and they have higher mean levels of both relationship quality and parental engagement. Yet, the link between relationship quality and parental engagement is not significantly different between the two groups for either mothers' or fathers' parenting over years 1 to 3, nor for mothers' parenting over years 3 to 5. The marital status difference emerges over years 3 to 5 for fathers: Relationship quality predicts paternal engagement for cohabiting fathers but not for married fathers. This suggests that the "package deal" of partner and parenting relationships identified in prior research (Furstenberg & Cherlin, 1991; Townsend, 2002) for married fathers may be less 'automatic' for fathers in cohabiting relationships, for whom a high-quality couple relationship remains important for connecting them to their children.

With respect to first birth status, the key difference is again for fathers: Relationship quality is a stronger predictor of fathers' engagement with children after a first birth compared to later births. This

is not surprising, since mothers' more intensive connection to the child during the transition to parenthood (Cowan & Cowan, 1992) would suggest that fathers' access to their infant child may be highly contingent on the mother's encouragement. Yet, our results show that this difference may persist (though becomes smaller) even as children leave the toddler years and get ready to enter school. For mothers, the association between relationship quality and parenting does not vary by whether the child is a first or later birth.

Although we had reason to expect that the link between relationship quality and parenting might vary by the child's gender, the evidence for such is modest. Our results suggest that relationship quality may be more important for fathers' parenting of girls—especially over ages 3 to 5, but we cannot place great confidence in these results, since the individual point estimates for relationship quality on parenting by gender are not statistically significant. This is a useful area for future research.

There are several limitations to this analysis. First, while the fixed effects analytic approach enables causal inference to a greater extent than simple regression analysis (by controlling for time-constant characteristics), a key limitation is that it does not account for unobserved changes *over time* that may affect both the dependent variable and the independent variable of interest. The same is true, and even more so, of our SEM analyses. Thus, to the extent that other factors in couples' lives are changing between surveys, our estimates of the effects of relationship quality and parental engagement could be biased. This problem is reduced by limiting our analyses to couples who remain in a co-resident relationship, yet other factors about couples' lives could also be changing over time.

In addition, since each parent reports on the perceptions of relationship quality as well as on their own parenting, it is possible that the same respondent could be over- or under-reporting positive feelings of all kinds, sometimes referred to as "correlated response bias" (Glenn, 1990). Using a composite measure of mothers' and fathers' reports of relationship quality—that reflects the dyadic nature of the couple relationship—helps address this potential concern.

A third limitation concerns our parenting measures. We recognize that self-reports of parenting behavior are inferior to direct observations. At the same time, use of a large-scale survey provides information about a much broader and more representative group of (both married and cohabiting) parents than would be possible using observational methods that are typically confined to very small samples. Thus, to some extent, we trade breadth for depth. At the same time, our maternal and paternal engagement measures include five items that load on the same factor, respectively, with acceptable reliability scores, so we believe that our measure appropriately captures this construct. Also, the Fragile Families Study includes self-reported parenting information about *both* mothers and fathers, whereas previous studies typically rely on maternal reports about fathering.

A final issue worth noting is that we limit our sample to couples that are romantically involved and co-resident over the years after their baby's birth, so our results are only generalizable to couples who stay together. Our findings, thus, are not salient to couples who do not fit this criterion, either because they broke up and/or because one or both parents was not interviewed. Since we know that the couples who break up in the Fragile Families Study or who are lost to attrition, typically have lower-quality relationships, excluding these couples may downwardly bias the association between relationship quality and parenting (while upwardly biasing the mean levels of relationship quality) as compared to what would be observed across a sample of *all* parents after a birth. This does not pose a problem as long as we are clear about the population to which our findings are applicable. Since the vast majority of married couples stay together over the first five years after a child's birth, this issue is most salient to the unmarried couples, and our results are only generalizable to the subset of unwed couples who remain in a co-resident union after a nonmarital birth. Therefore, our sample of cohabiting couples represents a select group of unmarried couples with the 'best' family relationships.

Our results may have useful implications for public policy, given the current emphasis on enhancing relationship skills among low-income unwed parents (Dion, 2005; Stanley, 2006).

Specifically, our findings suggest that the current initiatives to promote relationship quality by increasing parents' relationship skills could potentially yield benefits for parenting behaviors and hence for children. Further, our results suggest that parenting programs might be most effective if they target *both* parents' behaviors in (and perceptions of) the mother-father relationship. Until recently, most programs designed to improve parenting and child wellbeing have focused primarily on the mother-child dyad. Our results suggest that the father-child dyad is also important.

Conclusion

This paper uses a large sample of parents who had a child in the late 1990s to examine how couple relationship quality is linked to parental engagement with children over ages one through five. Using a longitudinal design with multiple methods, we discover new associations between two dyadic relationships that are central to family life over time and across key sub-groups. In sum, we find evidence that positive partner and parental roles go together, as a strong and supportive couple relationship quality promotes greater parental engagement with children for both married and cohabiting co-resident couples. Yet, this association may diminish as children grow from toddlers to preschoolers at least for mothers. Future research can shed light on the extent to which this association persists or changes as couple relationships and parental roles unfold over time and as children enter middle childhood and adolescence.

References

Aldous, J., Mulligan, G. M., & Bjarnason, T. (1998). Fathering over Time: What Makes the Difference? *Journal of Marriage and the Family, 60*(4), 809-820.

Allison, P. D. (2002). *Missing Data* (Vol. 136). Thousand Oaks, CA: Sage Publications.

Belsky, J., & Kelly, J. (1994). *The Transition to Parenthood: How a First Child Changes a Marriage*. New York: Dell.

Belsky, J., & Rovine, M. (1990). Patterns of Marital Change across the Transition to Parenthood: Pregnancy to Three Years Postpartum. *Journal of Marriage and Family, 52*, 5-19.

Belsky, J., Youngblade, L., Rovine, M., & Volling, B. (1991). Patterns of Marital Change and Parent-Child Interaction. *Journal of Marriage and the Family, 53*(2), 487-498.

Berlin, L., J., Brooks-Gunn, J., Spiker, D., & Zaslow, M. J. (1995). Examining observational measures of emotional support and cognitive stimulation in black and white mothers of preschoolers. *Journal of Family Issues, 16*, 664-686.

Bolger, N., DeLongis, A., Kessler, R. C., & Wethington, E. (1989). The Contagion of Stress across Multiple Roles. *Journal of Marriage and Family, 51*(1), 175-183.

Brody, G. H., Pillegrini, A. D., & Sigel, I. E. (1986). Marital Quality and Mother-Child and Father Child Interactions with School-Aged Children. *Developmental Psychology, 22*(3), 291-296.

Brooks-Gunn, J., & Markman, L. B. (2005). The contribution of parenting to ethnic and racial gaps in school readiness. *The Future of Children, 15*, 139-168.

Buss, A. H., & Plomin, R. (1984). *Temperament: Early Developing Personality Traits*. Hillsdale, NJ: Erlbaum.

Carlson, M. J., & McLanahan, S. S. (2006). Strengthening Unmarried Families: Could Enhancing Couple Relationships Also Improve Parenting? *Social Service Review, 80*(2), 297-321.

Chase-Lansdale, P. L., Kiernan, K., & Friedman, R. J. (Eds.). (2004). *Human Development across Lives and Generations: The Potential for Change*. Cambridge, UK: Cambridge University Press.

Cherlin, A. J. (2005). American Marriage in the Early Twenty-First Century. *The Future of Children, 15*(2), 33-55.

Collins, W. A., Maccoby, E., Steinberg, L., Hetherington, E. M., & Bornstein, M. H. (2000). Contemporary Research on Parenting: The Case for Nature and Nurture. *American Psychologist, 55*(2), 218-232.

Cowan, C. P., & Cowan, P. A. (1992). *When Partners Become Parents: The Big Life Change for Couples*. Mahwah, NJ: Erlbaum.

Cowan, C. P., Cowan, P. A., Heming, G., Garrett, E., Coysh, W. S., Curtis-Boles, H., et al. (1985). Transitions to Parenthood: His, Hers, and Theirs. *Journal of Family Issues, 6*(4), 451-481.

Cox, M. J., Owen, M. T., Lewis, J. M., & Henderson, V. K. (1989). Marriage, Adult Adjustment, and Early Parenting *Child Development, 60*(5), 1015-1024.

Cox, M. J., & Paley, B. (1997). Families as Systems. *Annual Review of Psychology, 48*, 243-267.

Cummings, E. M., & O'Reilly, A. W. (1997). Fathers in Family Contexts: Effects of Marital Quality on Child Adjustment. In M. E. Lamb (Ed.), *The Role of the Father in Child Development*. New York: Wiley.

Daly, M., & Wilson, M. I. (2000). The Evolutionary Psychology of Marriage and Divorce. In L. J. Waite (Ed.), *The Ties that Bind: Perspectives on Marriage and Cohabitation* (pp. 91-110). New York: Aldine de Gruyter.

Day, R. D., Peterson, G. W., & McCracken, C. (1998). Predicting spanking of younger and older children by mothers and fathers. *Journal of Marriage and the Family, 60*, 79-94.

Dickman, S. J. (1990). Functional and Dysfunctional Impulsivity: Personality and Cognitive Correlates. *Journal of Personality and Social Psychology, 58*, 95-102.

Dion, M. R. (2005). Healthy Marriage Programs: Learning What Works. *The Future of Children, 15*, 137-256.

Easterbrooks, M. A., & Emde, R. N. (1988). Marital and parent-child relationships: The role of affect in the family system. In R. A. Hinde & J. Stevenson-Hinde (Eds.), *Relationships within families: mutual influences* (pp. 83-103). Oxford, England: Oxford University Press.

Engfer, A. (1988). The interrelatedness of marriage and the mother-child relationship. In R. A. Hinde & J. Stevenson-Hinde (Eds.), *Relationships within families: mutual influences* (pp. 104-118). Oxford, England: Oxford University Press.

Erel, O., & Burman, B. (1995). Interrelatedness of Marital Relations and Parent-Child Relations: A Meta-Analytic Review. *Psychological Bulletin, 118*(1), 108-132.

Finkel, S. E. (1995). Causal Analysis with Panel Data, *Series: Quantitative Applications in the Social Sciences*. Thousand Oaks, CA: Sage Publications.

Floyd, F. J., Gilliom, L. A., & Costigan, C. L. (1998). Marriage and the parenting alliance: Longitudinal prediction of change in parenting perceptions and behaviors. *Child Development, 69*(5), 1461-1479.

Frosch, C. A., Mangelsdorf, S. C., & McHale, J. L. (1998). Correlates of Marital Behavior at 6 Months Postpartum. *Developmental Psychology, 34*(6), 1438-1449.

Furstenberg, F. F., & Cherlin, A. (1991). *Divided Families: What Happens to Children When Parents Part*. Cambridge: Harvard University Press.

Gable, S., Belsky, J., & Crnic, K. (1995). Coparenting during the child's 2nd year: A descriptive account. *Journal of Marriage & Family, 57*(609-616).

Goldberg, W. A., & Easterbrooks, M. A. (1984). Role of Marital Quality in Toddler Development. *Developmental Psychology, 20*(3), 504-514.

Gottman, J. M., & Notarius, C. I. (2000). Decade Review: Observing Marital Interaction. *Journal of Marriage and Family, 62*(4), 927-947.

Greene, W. H. (2003). *Econometric Analysis* (5th edition ed.). Upper Saddle River, NJ: Prentice Hall.

Grych, J. H. (2002). Marital Relationships and Parenting. In M. H. Bornstein (Ed.), *Handbook of Parenting* (2 ed., Vol. 4, pp. 203-225). Mahwah, NJ: Lawrence Erlbaum

Howes, P., & Markman, H. J. (1989). Marital Quality and Child Functioning - a Longitudinal Investigation. *Child Development, 60*(5), 1044-1051.

Kalil, A., Ziol-Guest, K. M., & Coley, R. L. (2005). Perceptions of Father Involvement Patterns in Teenage-Mother Families: Predictors and Links to Mothers' Psychological Adjustment. *Family Relations, 54*, 197-211.

Kalmijn, M. (1999). Father Involvement in Childrearing and the Perceived Stability of Marriage. *Journal of Marriage and the Family, 61*(2), 409-421.

Karney, B. R., & Bradbury, T. N. (1995). The longitudinal course of marital quality and stability: A review of theory, method, and research. *Psychological Bulletin, 118*, 3-34.

Kennedy, S., & Bumpass, L. (2008). Cohabitation and Children's Living Arrangements: New Estimates from the United States. *Demographic Research, 19*, 1663-1692.

Kessler, R. C., Andrews, G., Mroczek, D., Ustun, T. B., & Wittchen, H. U. (1998). The World Health Organization Composite International Diagnostic Interview Short-Form (CIDI-SF). *International Journal of Methods in Psychiatric Research, 7*, 171-185.

King, V. (2003). The Influence of Religion on Fathers' Relationships with Their Children. *Journal of Marriage and Family, 65*(2), 382-395.

Krishnakumar, A., & Buehler, C. (2000). Interparental conflict and parenting behaviors: A meta-analytic review. *Family Relations, 49*(1), 25-44.

Kurdek, L. A. (1999). The Nature and Predictors of the Trajectory of Change in Marital Quality for Husbands and Wives over the First 10 Years of Marriage. *Developmental Psychology, 35*(5), 1283-1296.

Larson, J. H., & Holman, T. B. (1994). Premarital Predictors of Marital Quality and Stability. *Family Relations, 43*, 228-237.

MacDermid, S. M., Huston, T. L., & McHale, S. L. (1990). Changes in Marriage Associated with the Transition to Parenthood: Individual Differences as a Function of Sex-Role Attitudes and Changes in Division of Household Labor. *Journal of Marriage and the Family, 52*, 475-486.

Martin, J. A., Hamilton, B. E., Sutton, P. D., Ventura, S. J., Menacker, F., Kirmeyer, S., et al. (2009). *Births: Final Data for 2006* (Vol. 57, No. 7). Hyattsville, MD: National Center for Health Statistics.

Mathieson, K. S., & Tambs, K. (1999). The EAS Temperament Questionnaire—Factor Structure, Age Trends, Reliability, and Stability in a Norwegian Sample. *Journal of Child Psychology and Psychiatry, 40*, 431-439.

McLanahan, S. (2004a). Diverging Destinies: How Children Are Faring under the Second Demographic Transition. *Demography, 41*(4), 607-627.

McLanahan, S. (2004b). Fragile Families and the Marriage Agenda. In L. Kowaleski-Jones & N. Wolfinger (Eds.), *Fragile Families and the Marriage Agenda* (pp. 1-22). New York: Springer.

Minuchin, P. (1988). Relationships within the Family: A Systems Perspective on Development. In R. A. Hinde & J. Stevenson-Hinde (Eds.), *Relationships within Families: Mutual Influences* (pp. 7-26). New York: Oxford University Press.

Nomaguchi, K. M., & Milkie, M. A. (2003). Costs and rewards of children: The effects of becoming a parent on adults' lives. *Journal of Marriage and the Family, 65*(2), 356-374.

O'Brien, M. (2005). Studying Individual and Family Development: Linking Theory and Research. *Journal of Marriage and Family, 67*, 880-890.

O'Brien, M., & Peyton, V. (2002). Parenting Attitudes and Marital Intimacy: A Longitudinal Analysis. *Journal of Family Psychology, 16*, 118-127.

Orbuch, T. L., Thornton, A., & Cancio, J. (2000). The Impact of Marital Quality, Divorce, and Remarriage on the Relationships between Parents and Their Children. *Marriage and Family Review, 29*(4), 221-246.

Raikes, H., Luze, G., Brooks-Gunn, J., Raikes, H. A., Pan, B. A., Tamis-LeMonda, C. S., Constantine, J., et al. (2006). Mother-child bookreading in low-income families: Correlates and outcomes during the first three years of life. *Child Development, 77*, 924-953.

Raley, R. K., Frisco, M. L., & Wildsmith, E. (2005). Maternal cohabitation and educational success. *Sociology of Education, 78*(2), 144-164.

Reichman, N. E., Corman, H., & Noonan, K. (2004). Effects of Child Health on Parents' Relationship Status. *Demography, 41*(3), 569-584.

Rossi, A. S., & Rossi, P. H. (1990). *Of Human Bonding: Parent-Child Relations across the Life Course*. New York: Aldine de Gruyter.

Rubin, D. (1976). Inference and Missing Data. *Biometrika, 63*, 581-592.

Rubin, D. (1987). *Multiple Imputation for Nonresponse in Surveys*. New York: John Wiley.

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*(1), 194-207.

Schoppe-Sullivan, S. J., Schermerhorn, A. C., & Cummings, E. M. (2007). Marital Conflict and Children's Adjustment: Evaluation of the Parenting Process Model. *Journal of Marriage and Family, 69*(5), 1118-1134(1117).

Shapiro, A. F., Gottman, J. M., & Carrère, S. (2000). The Baby and the Marriage: Identifying Factors that Buffer against Decline in Marital Satisfaction after the First Baby Arrives. *Journal of Family Psychology, 14*(1), 59-70.

Simons, R. L., Whitbeck, L. B., Conger, R. D., & Melby, J. N. (1990). Husband and Wife Differences in Determinants of Parenting: A Social Learning and Exchange Model of Parental Behavior. *Journal of Marriage and the Family, 52*, 375-392.

Simons, R. L., Whitbeck, L. B., Conger, R. D., & Melby, J. N. (1990). Husband and wife differences in determinants of parenting: A social learning and exchange model of parental behavior. *Journal of Marriage & Family, 52*, 375-392.

Snijders, T. A. B. (2005). Fixed and Random Effects. In B. S. Everitt & D. C. Howell (Eds.), *Encyclopedia of Statistics in Behavioral Science* (Vol. 2, pp. 664-665): Wiley.

Stanley, S. M. (2006). Assessing Couple and Marital Relationships: Beyond Form and toward a Deeper Knowledge of Function. In S. Hofferth & L. Casper (Eds.), *Handbook of Measurement Issues in Family Research*. Mahwah, NJ: Erlbaum.

Teachman, J. D. (1991). Contributions to Children by Divorced Fathers. *Social Problems, 38*(3), 358-371.

Thompson, R. A., & Laible, D. J. (1999). Noncustodial parents. In L. M. (Ed.), *Parenting and child development in "nontraditional" families* (pp. 103-123). Mahwah, NJ: Lawrence Erlbaum Associates.

Townsend, N. W. (2002). *The Package Deal: Marriage, Work and Fatherhood in Men's Lives*. Philadelphia: Temple University Press.

White, L. (1999). Contagion in Family Affection: Mothers, Fathers, and Young Adult Children. *Journal of Marriage and Family, 61*, 284-294.

Wilcox, W. B. (1998). Conservative protestant childrearing: Authoritarian or authoritative? *American Sociological Review, 63*, 796-809.

Table 1. Sample Descriptives (Means and Frequencies) among Co-resident Couples, by Marital Status at Time of Baby's Birth

	Overall		Married		Cohabiting	
	M or %	(SD)	*M* or %	(SD)	*M* or %	(SD)
Relationship status at baby's birth						
Married	73.4		-		-	
Cohabiting	26.6		-		-	
Age at baby's birth (in years)						
Mother	28.45	(5.86)	29.72	(5.38)	24.95	(5.70)
Father	30.88	(6.57)	32.09	(6.14)	27.48	(6.56)
Mothers' race/ethnicity						
White non-Hispanic	42.3		52.7		13.3	
Black non-Hispanic	21.1		13.2		42.9	
Hispanic	28.7		24.3		40.8	
Other non-Hispanic	8.0		9.9		3.0	
Parents are of different race/ethnicity	10.7		10.1		12.3	
Parent lived with both parents at age 15						
Mother	61.9		68.7		43.4	
Father	64.0		71.6		42.9	
Mother's education						
Less than high school	18.8		14.4		31.1	
High school degree	29.4		22.1		49.5	
Some college	19.4		19.8		18.2	
Bachelor's degree or higher	32.4		43.7		1.2	
Father's education						
Less than high school	18.9		12.8		36.1	
High school degree	24.7		20.8		35.7	
Some college	23.6		23.5		23.9	
Bachelor's degree or higher	32.8		42.9		4.4	
Health status (mean, range=1-5)						
Mother	3.94	(1.00)	4.02	(.98)	3.70	(1.04)
Father	4.00	(.93)	4.07	(.91)	3.83	(.97)
Child	4.55	(.73)	4.57	(.72)	4.51	(.76)
Substance abuse problem						
Mother[1]	.00		.00		.00	
Father	1.4		.57		3.6	
Depression[2]						
Mother	9.0		7.8		12.3	
Father	4.5		3.7		6.7	

Table 1 (cont). Sample Descriptives (Means and Frequencies) among Co-resident Couples, by Marital Status at Time of Baby's Birth

	Overall		Married		Cohabiting	
	M or %	(SD)	*M* or %	(SD)	*M* or %	(SD)
Religious attendance (mean, range=1-5)[3]						
Mother	3.53	(1.43)	3.71	(1.36)	3.02	(1.49)
Father	3.50	(1.41)	3.69	(1.35)	2.99	(1.45)
Number of children in household (mean)	2.09	(1.19)	2.00	(1.11)	2.34	(1.35)
Multi-partner fertility						
Child is both parents' first birth	32.6		35.5		24.7	
Couple has 2 or more children together	39.3		47.1		17.5	
Father has children with other partners	9.8		6.7		18.4	
Mother has children with other partners	9.8		5.5		21.8	
Both have children with other partners	8.5		5.2		17.6	
Child is a boy	59.3		60.6		55.7	
Child 'difficult' temperament (mean, range=1-5)	2.60	(.93)	2.51	(.87)	2.84	(1.06)
Impulsivity (mean, range=1-4)[4]						
Mother (3-year survey)	1.91	(.58)	1.78	(.57)	2.00	(.60)
Father	1.82	(.60)	1.88	(.56)	1.93	(.65)
Income-to-needs ratio (mean)	3.75	(4.30)	4.55	(4.71)	1.55	(1.35)
N	1,630		767		863	

Note: Variables are from the baseline (just after the baby's birth) or 1-year survey unless noted. All means are weighted by city sampling weights. Numbers of cases (*N*) are unweighted.

[1]Mothers' substance abuse is not included in the analyses due to small the proportion reporting yes.

[2] From the Composite International Diagnostic Interview-Short Form. Indicates whether respondent meets the conservative criteria for depressive symptoms.

[3]From the Emotionality, Activity, and Sociability Temperament Survey, reported by mothers.

[4]From Dickman's Impulsivity Scale.

Table 2. Means on Couple Relationship Quality and Parental Engagement Measures among Co-resident Couples

Panel A. Couple relationship Quality	1-Year *M*	1-Year (SD)	3-Year *M*	3-Year (SD)	5-Year *M*	5-Year (SD)
All couples (n=1,630)	2.68	(.26)	2.67	(.27)	2.62	(.36)
Fair and willing to compromise	2.49	(.46)	2.47	(.43)	2.47	(.51)
Shows affection or love	2.81	(.32)	2.82	(.30)	2.72	(.41)
Insults or criticizes (inverse)	2.54	(.44)	2.54	(.43)	2.52	(.49)
Encourages or helps	2.78	(.33)	2.75	(.35)	2.69	(.45)
Listens when needs someone to talk to	2.80	(.32)	2.76	(.36)	2.69	(.47)
Really understands hurts and joys	2.71	(.39)	2.67	(.39)	2.62	(.47)
By marital status at birth						
Married (n=767)	2.69	(.26)	2.68	(.26)	2.64	(.36)
Unmarried (n=863)	2.65	(.27)	2.64	(.27)	2.54	(.37)
Significant differences	**		**		**	
By first birth status[1]						
First birth (n=479)	2.70	(.24)	2.69	(.25)	2.68	(.30)
Not first birth (n=1,143)	2.68	(.27)	2.66	(.27)	2.59	(.39)
Significant differences	**		*		+	
By child gender						
Boys (n=845)	2.69	(.27)	2.69	(.26)	2.64	(.37)
Girls (n=785)	2.68	(.25)	2.64	(.27)	2.59	(.36)
Significant differences	ns		**		*	

Panel B. Parental Engagement	Maternal Engagement: 1-Year *M*	1-Year (SD)	3-Year *M*	3-Year (SD)	5-year *M*	5-year (SD)	Paternal Engagement: 1-Year *M*	1-Year (SD)	3-Year *M*	3-Year (SD)	5-Year *M*	5-Year (SD)
All couples (n=1,630)	5.29	(1.39)	5.13	(1.56)	4.92	(1.34)	4.65	(1.71)	4.16	(1.75)	4.02	(1.46)
Sang songs	5.86	(1.86)	5.46	(2.04)	4.56	(2.16)	4.67	(2.44)	3.70	(2.32)	3.02	(2.23)
Read stories	4.55	(2.32)	5.36	(2.00)	4.94	(2.08)	3.57	(2.67)	4.08	(2.33)	3.49	(2.19)
Told stories	3.90	(2.54)	4.52	(2.43)	4.21	(2.39)	3.32	(2.70)	3.80	(2.45)	3.56	(2.27)
Played inside with toys	5.82	(1.87)	5.45	(1.98)	4.42	(2.29)	5.72	(2.04)	4.88	(2.25)	4.14	(2.24)
Played peek/imagine/ appreciated2	6.25	(1.44)	4.84	(2.27)	6.48	(1.16)	5.91	(1.79)	4.33	(2.43)	5.90	(1.60)
By marital status at birth												
Married (n=767)	5.30	(1.40)	5.20	(1.54)	4.95	(1.33)	4.64	(1.75)	4.13	(1.75)	4.01	(1.43)
Unmarried (n=863)	5.23	(1.36)	4.92	(1.58)	4.86	(1.38)	4.67	(1.58)	4.22	(1.73)	4.04	(1.53)
Significant differences	**		**		**		**		**		**	
By first birth status[1]												
First birth (n=479)	5.68	(1.29)	5.43	(1.58)	5.25	(1.30)	5.18	(1.54)	4.58	(1.69)	4.41	(1.44)
Not first birth (n=1,143)	5.10	(1.39)	4.98	(1.52)	4.75	(1.33)	4.39	(1.73)	3.95	(1.74)	3.84	(1.42)
Significant differences	**		**		**		**		**		**	
By child gender												
Boys (n=845)	5.16	(1.46)	5.03	(1.60)	4.88	(1.35)	4.64	(1.69)	4.16	(1.73)	4.05	(1.38)
Girls (n=785)	5.47	(1.25)	5.26	(1.47)	4.98	(1.32)	4.66	(1.74)	4.14	(1.78)	3.98	(1.56)
Significant differences	ns		*		**		ns		ns		ns	

$+p < .10$ $*p < .05$ $**p < .01$; ns = not significant.

Note: Significant differences by marital status or first birth status are tested using one-tailed *t* -tests (unweighted).

[1]Focal birth is both parents' first birth

[2]In year 1 the question is peek-a-boo, in year 3 it is played imaginary games, and in year 5 it is replaced with telling the child he/she is appreciated.

Table 3: Fixed Effects Estimates and Path Coefficients for Structural Equation Models on Relationship Quality and Parenting Engagement

		1 Year to 3 Year (N=1,630)		3 Year to 5 Year (N=1,376)	
Fixed Effects					
		Avg RQ1 --> PAR3		Avg RQ3 --> PAR5	
Mothers	Standardized	.07 *		.06 *	
	Unstandardized	.35 *		.34 *	
Fathers	Standardized	.13 **		.10 **	
	Unstandardized	.49 **		.55 **	
SEM[1]					
		Avg RQ1 --> PAR3	PAR1 --> Avg RQ3	Avg RQ3 --> PAR5	PAR3 --> Avg RQ5
Mothers[2]	Standardized	.07 *	.01	-.01	-.01
	Unstandardized	.46 *	.00	-.03	.00
Fathers[3]	Standardized	.08 **	-.02	.03	-.05 +
	Unstandardized	.49 **	-.01	.20	-.01 +

+p<.10 *p<.05 **p<.01

[1] We tested whether the estimates for RQ to PAR differed for years 1-3 versus years 3-5 using the sample of respondents who were coresident over years 1-5; we found that the difference between the two periods was marginally statistically significant for mothers (p =.076) but not for fathers (p =.18).

[2] Goodness-of-fit statistics for mothers SEM model Years 1-3: $\chi 2$ = 1334.19, df = 834, CFI= 0.95, RMSEA=0.019; Mothers Years 3-5: $\chi 2$=1129.83, df = 830, CFI=0.97, RMSEA = 0.016

[3] Goodness-of-fit statistics for fathers SEM model Years 1-3: $\chi 2$ = 1275.16, df = 832, CFI= 0.96, RMSEA=0.018; Fathers Years 3-5: $\chi 2$=1138.31, df = 828, CFI=0.97, RMSEA = 0.017

Note: RQ = relationship quality; PAR = parental engagement; 1 = 1-year survey; 3 = 3-year survey; 5=5-year survey; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation. All models include variables for parents' ages at baby's birth, race/ethnicity, lived with both parents at age 15, education, health status, substance problem, religious attendance, the number of children in the household, income-to-needs ratio, depression, parents impulsivity, whether married at the time of birth, whether the child is both parents' first birth, child sex, and child temperament rating.

Table 4. Standardized Path Coefficients and Goodness-of-Fit Statistics for Structural Equation Models on Relationship Quality and Parental Engagement, by Marital Status, First Birth Status & Child Gender

		Year 1 to Year 3					Year 3 to Year 5				
		RQ1 to PAR3	χ^2	df	CFI	RMSEA	RQ3 to PAR5	χ^2	df	CFI	RMSEA
1) Marital status at birth											
Moms											
A. Both paths free	Marr	.13 **	2120.07	1640	.95	.019	.01	1783.19	1644	.98	.011
	Unmarr	.05					-.03				
B. Constrain RQ → PAR	Marr	.10 **	2121.47	1641	.95	.019	-.01	1783.68	1645	.98	.011
	Unmarr	.09 **					-.01				
Dads											
A. Both paths free	Marr	.11 **	2138.89	1660	.95	.019	**-.03** [1]	1788.90	1632	.98	.012
	Unmarr	.07					**.09 ***				
B. Constrain RQ → PAR	Marr	.09 **	2139.35	1661	.95	.019	.04	1791.96	1633	.98	.012
	Unmarr	.09 **					.04				
2) First birth status											
Moms											
A. Both paths free	First Bir	.04	1939.79	1532	.96	.018	.04	1605.09	1518	.99	.009
	Later Bir	.08 *					-.03				
B. Constrain RQ → PAR	First Bir	.06 *	1940.10	1533	.96	.018	-.01	1606.16	1519	.99	.009
	Later Bir	.07 *					-.01				
Dads											
A. Both paths free	First Bir	**.23 **** [2]	1907.62	1540	.96	.017	.11 *	1611.68	1532	.99	.009
	Later Bir	**.03**					-.02				
B. Constrain RQ → PAR	First Bir	.07 **	1918.10	1541	.96	.017	.03	1614.10	1533	.99	.009
	Later Bir	.08 **					.03				
3) Child gender											
Moms											
A. Both paths free	Girl	.08 +	2118.31	1650	.95	.019	-.04	1845.15	1638	.98	.014
	Boy	.05 +					.01				
B. Constrain RQ → PAR	Girl	.07 *	2118.60	1651	.95	.019	-.01	1845.74	1639	.98	.014
	Boy	.07 *					-.01				
Dads											
A. Both paths free	Girl	.11 **	2134.20	1640	.95	.019	**.06** [3]	1901.43	1632	.97	.015
	Boy	.04					**.01**				
B. Constrain RQ → PAR	Girl	.08 **	2135.41	1641	.95	.019	.03	1906.45	1633	.97	.034
	Boy	.08 **					.04				

+p< .10 *p< .05 **p< .01

Bolded coefficients indicate statistically significant group differences.

[1] Statistically significant difference p =.08.

[2] Statistically significant difference p =.001. Fathers' 3-5 difference by first birth status is nearly significant at p =.119.

[3] Statistically significant difference p =.03

Note: RQ = relationship quality; PAR = parental engagement; 1 = 1-year survey; 3 = 3-year survey; 5=5-year survey; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation. All models include variables for parents' ages at baby's birth, race/ethnicity, lived with both parents at age 15, education, health status, substance problem, religious attendance, the number of children in the household, income-to-needs ratio, depression, parents impulsivity, whether married at the time of birth, whether the child is both parents' first birth, child sex, and child temperament rating.

Appendix Table. Standardized Path Coefficients for Covariates from SEM Models on Relationship Quality and Parental Engagement Year 1 to 3

	Mothers		Fathers	
	Relationship Quality	Parental Engagement	Relationship Quality	Parental Engagement
Married at baby's birth	-.03	.01	-.03	-.05
Age at baby's birth (in years)				
Mother	-.09 *	-.09 +	-.09 *	.04
Father	-.01	-.05	-.01	.00
Race and ethnicity (ref=Black non-Hispanic)				
White non-Hispanic	.13 **	.14 **	.13 **	.03
Hispanic	.13 **	-.07 +	.13 **	-.13 **
Other non-Hispanic	.01	-.02	.02	-.05
Parents are of different race/ethnicity	-.09 **	.04	-.09 **	.00
Parent lived with both parents at age 15				
Mother	.03	-.03	.02	-.06 +
Father	.00	-.01	.00	-.04
Mother's education (ref=Less than high school)				
High school degree	.04	.00	.04	-.02
Some college	.04	.08 *	.04	.00
Bachelor's degree or higher	-.04	.15 **	-.04	.00
Father's education (ref=Less than high school)				
High school degree	.03	.08 *	.03	.07 +
Some college	.00	.10 *	.00	.03
Bachelor's degree or higher	.04	.12 **	.04	.09 +
Health status (range=1-5)				
Mother	.11 **	.09 **	.11 **	.03
Father	.04	-.06 *	.04	.05 +
Child	.08 **	.12 **	.08 **	.03
Father Substance abuse problem[1]	-.03	.00	-.03	-.05
Depression[2]				
Mother	-.09 **	.02	-.09 **	-.03
Father	-.08 **	.02	-.08 **	-.03
Religious attendance (mean)				
Mother	.03	.07 *	.03	-.13 **
Father	.09 **	-.02	.09 **	.22 **
Number of children in household	.08	-.03	-.01	-.09 **
Multi-partner fertility (ref=Both first birth)				
Couple has 2 or more children together	-.01	-.07 +	-.01	-.11 **
Father has children with other partners	-.07 *	-.05	-.07 *	-.02
Mother has children with other partners	-.01	-.02	-.01	.00
Both have children with other partners	-.01	-.03	-.01	-.06

Appendix Table (cont). Standardized Path Coefficients for Covariates from SEM Models on Relationship Quality and Parental Engagement Year 1 to 3

	Mothers		Fathers	
	Relationship Quality	Parental Engagement	Relationship Quality	Parental Engagement
Child is a boy	.05 *	-.05 +	.05 *	.00
Child has 'difficult' temperament (mean)[3]	-.07 **	-.11 **	-.08 **	-.04
Impulsivity (mean)[4]				
Mother	-.16 **	-.07 **	-.13 **	-.03
Father	-.13 **	.00	-.15 **	.00
Income-to-needs ratio (mean)	.03	.01	.03	.06 +

$+p < .10$ $*p < .05$ $**p < .01$

Note: Variables are from the baseline (just after the baby's birth) or 1-year survey unless noted.

[1]Mothers' substance abuse is not included in the analyses due to small the proportion reporting yes.

[2] From the Composite International Diagnostic Interview-Short Form. Indicates whether respondent meets the conservative criteria for depressive symptoms.

[3]From the Emotionality, Activity, and Sociability Temperament Survey, reported by mothers.

[4]From Dickman's Impulsivity Scale.