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## Explaining the Long Reach of Fathers' Prenatal Involvement on Later Paternal Engagement

*The present study examined the association between unmarried fathers' prenatal involvement and fathers' engagement later in the child's life. The study sample consisted of 1,686 fathers from the Fragile Families and Child Wellbeing Study. Findings using multiple regressions revealed that fathers' prenatal involvement is significantly and positively associated with levels of fathers' engagement at Years 1 and 3. This association was partially explained by fathers' transitions from unemployment to employment and to a greater extent by fathers' transitions from nonresidential to residential relationships with the child's mother.*

Research shows that father involvement at the transition to fatherhood is significantly related to later paternal engagement (Cook, Jones, Dick, & Singh, 2005; Palkovitz, 1985). Because the

transition into fatherhood is a time of increased stress as well as happiness and heightened commitment to the partner and child, it can shape a man's expectations and behaviors about his father roles (Ihinger-Tallman & Cooney, 2005). A man who is committed to the pregnancy and his partner is more likely to be prenatally involved than someone who is not, marking a trajectory of involvement that can have a long reach to later parental behavior (Marsiglio, 2004). But the mechanism by which prenatal involvement is related to later levels of involvement is not well understood. This process is even less clear among low-income, unmarried men.

In this paper we examine the degree to which prenatal involvement of fathers who are unmarried at the time of the birth of their child is associated with later levels of paternal engagement with their child. We also examine a question which to date has not been addressed in the literature: What explains the association between prenatal involvement and later paternal engagement? We use the life course perspective and the Fragile Families and Child Wellbeing Study (FF) data to examine these research questions. FF follows a birth cohort of mostly unwed parents and their children from birth and is designed to address the capabilities of new unwed parents, especially fathers; the nature of relationships between unmarried parents; the development of children born into these families; and the policies and environmental conditions that affect families and children.

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## THEORETICAL FRAMEWORK

We draw from the life course perspective that suggests individuals' lives are constantly changing, and these changes follow *trajectories* that have developmental implications for the individual (Elder, 1998). A man becoming a parent, for example, can experience several life-altering changes (life transitions) in several areas of his life, including employment, relationship with the child's partner, his own social behaviors (e.g., substance abuse), and his own identity as a father (i.e., making a commitment to care for his child). Depending on social and historical circumstances, these life transitions may be stressful or exciting and may lead to positive or negative changes that can set the father on a trajectory of more or less involved parenting (Elder).

Central to the life course perspective is the concept of *timing* of life events (Elder, 1998). An important aspect of timing is the point in time during a particular transition when an individual takes action. Consider the transition to parenthood. Being involved early in the transition (e.g., at birth) affords a man the opportunity to develop a relationship with his unborn child, which may strengthen his commitment and engagement over time. A man who is prenatally involved by supporting his partner (e.g., buying supplies, helping out with chores, taking her to doctor's visits) and directly experiencing the unborn child (e.g., examining an ultrasound, listening to the fetus's heart) is more likely to be involved with his partner and infant (e.g., caregiving, physical play, literacy-related activities) than one who is not (Cabrera, Shannon, West, & Brooks-Gunn, 2006).

Although the research literature on unmarried fathers' involvement before and during the birth is sparse, several recent studies have suggested that fathers' participation during this time may be more important for unmarried than for married, residential fathers because of the heightened risk of becoming disconnected from their child (Fagan & Palkovitz, 2007). For fathers in low commitment relationships such as cohabitation and romantic-visiting relationships, which tend to be less stable over time than marriage, prenatal involvement may increase the odds of staying involved with their children. Therefore, we hypothesize that early timing of involvement, that is, fathers' support for their partner during the pregnancy and presence at childbirth, will

be associated with increased levels of involvement with the child over time.

Another life course perspective principle is *life transitions* or distinctive and meaningful movements between social states within trajectories (Elder, 1998). Life transitions associated with parenthood include acquiring an identity as a father, making a commitment with one's partner, and making decisions about employment and personal behavior that affect one's parenting behavior (Roy, 2005). Because men who are involved prenatally might be more invested in the father trajectory and hence choose to make certain changes in their lives, we hypothesize that these life transitions have a direct effect on paternal engagement and are also possible mediators of the association between fathers' prenatal involvement and later paternal engagement.

*Mediators*

According to identity theory, a person's identity is made up of a set of roles and expectations (e.g., provider, caregiver) that accompany a particular status (e.g., father) (Rane & McBride, 2000; Stryker & Serpe, 1994). Individuals act to validate the expectations associated with their internalized identity. Men who identify strongly with being a father and its associated roles are more likely to be involved with their children than men who view fatherhood as less salient (Stets & Burke, 2000). Men who support their partner's pregnancy may form an early commitment to the fatherhood roles, thus acquiring a salient fatherhood identity (Berlin, Cassidy, & Belsky, 1995; Brown & Eisenberg, 1995). Conversely, men who do not support or are not involved during the pregnancy would not be motivated to take on the father roles (Berlin et al.). Integrating the concept of identity formation with the life course perspective, we examine whether the linkage between fathers' prenatal involvement and later paternal engagement is explained by men's early commitment to the father status.

A man's prenatal experiences also include strengthening his commitment to his romantic partner (Marsiglio, 2004). A man may offer support to his partner prenatally because he feels a strong connection to her or, as prospective co-parent, feels a renewed interest in the partner relationship. Although direction of causality is difficult to discern, results using the FF data indicate that the majority of unmarried parents were

romantically involved with each other at the time of their child's birth and have high hopes, especially fathers, of getting married and raising their child together (McLanahan, Garfinkel, Reichman, & Teitler, 1999; Waller, 1999). Although low-income unmarried mothers also desire marriage with their partners, they delay or forgo making such relationship commitments until their partner is financially stable or until "they can be sure that their partner is someone they can trust" (Edin, Kefalas, & Reed, 2004, p. 1012). Recent empirical evidence suggests that young unmarried parents plan to marry when the man is supportive of the pregnancy and forms a parenting alliance with the mother (Fagan, Schmitz, & Lloyd, 2007). On the basis of these findings, we examine whether the association between fathers' early prenatal involvement and levels of later paternal engagement is explained by couples who maintain or transition into residential relationships such as marriage or cohabitation. We also examine whether the timing of these relationship transitions is related to paternal engagement.

If men's support of the pregnancy is related to more stable forms of partnering, then we would also expect it to be linked to higher quality of partner relationship (Cummings, Goeke-Morey, & Raymond, 2004). Noting that the direction of association is unclear, an early study found that birth attendance was related to fathers' report of increased closeness with their spouse (Cronenwett & Newmark, 1974). Although most of the literature suggests that father engagement is contingent on partner relationship, these studies have not carefully sorted out direction of causality. From transactional models of development, we expect that father engagement is also related to children's characteristics not just to mothers', so that men who enjoy their children and feel that bringing them up in a stable relationship is best may work harder at their relationship with their partners. Consequently, we examine whether the association between prenatal involvement and paternal engagement is mediated by relationship quality. We expect that maintaining or transitioning into higher quality relationships would explain the association between high prenatal involvement and greater paternal engagement and that transitioning into lower quality relationships would explain the association between low prenatal involvement and decreased paternal engagement.

Many men who become fathers commit to "being there" for their children and vow to make

significant changes such as finding employment and engaging in less risky behavior (Nelson, Clampet-Lundquist, & Edin, 2002; Summers, Boller, & Raikes, 2004). Fathers with stable employment are able to provide for their children and consequently may be more involved with them than fathers who cannot fulfill this role (McLanahan, 2004). Conversely, low-income minority fathers who are unemployed see their children less often than their counterparts do (Huang, Mincy, & Garfinkel, 2005). Researchers have suggested that fathers transition in and out of children's lives (Eggebeen, 2002) at junctures associated with transitions in other aspects of fathers' lives, such as employment (Roy, 2005). The literature leads us to examine whether the association between fathers' prenatal involvement and later paternal engagement is mediated by transition variables associated with employment.

#### *Control Variables*

Variations in father involvement has been related to father's age, education, race, having children from other unions, maternal age and employment, paternity establishment, and child characteristics (gender, health, and temperament). The father's age at the birth of his first child is related to his ability to provide for his child and stay involved in his child's and partner's life (Pleck, 1997). Research has shown that fathers who have higher levels of education are more likely to live with their children or to exhibit positive parenting behaviors than less educated fathers, although the evidence on this is mixed (Cook et al., 2005). Fathers who have children from other unions may be at risk for decreased engagement with their children (Stewart, Manning, & Smock, 2003). Lack of establishment of paternity is significantly associated with reduced contact with the child (Mincy, Garfinkel, & Nepomnyaschy, 2005). Moreover, women's age and employment may encourage union formation, cohabitation, or marriage (Carlson, McLanahan, & England, 2004). Also, although evidence is mixed, some studies find that fathers are more involved with their sons than daughters (Easterbrooks & Goldberg, 1984; Kelley, Smith, Green, Berndt, & Rogers, 1998). McBride, Schoppe, and Rane (2002) found significant associations between difficult child temperament and father involvement. In this study, to isolate the independent effects of prenatal involvement on father involvement, we control for these variables.

## METHOD

The FF study follows a cohort of 5,000 children born in the United States between 1998 and 2000 and oversamples births to unmarried couples (McLanahan & Garfinkel, 2000). Parents were interviewed at birth and when children were ages 1, 3, and 5; in-home assessments of children and their home environments were done at ages 3 and 5. The sample consists of 3,712 unmarried and 1,186 married couples.

We conducted a panel analysis of unmarried fathers participating at baseline and Years 1 and 3. Of 3,712 couples, 2,754 fathers (74%) participated at baseline. Twenty (0.7%) were missing substantial data that could not be imputed, yielding a baseline sample of 2,734. Of these, at Year 1, we excluded 121 (4.4%) who had sole custody of the child, 560 (21%) who were not interviewed, and 20 (0.8%) who had missing data that could not be imputed, yielding a sample of 2,033. Of these, at Year 3, we excluded 336 (16%) who were not interviewed and 11 with missing data that could not be imputed. The final sample in this analysis consists of 1,686 fathers.

To determine sample selection bias, we conducted attrition analyses. There were two sources of attrition: fathers who did not participate at all in the study and fathers who participated at all time points but had significant missing data. Unmarried fathers who were interviewed and had complete data at baseline ( $n = 2,734$ ) were selective of men who were in close relationships (e.g., cohabitation) to the mother of their child,  $\chi^2(df = 5) = 832.10, p < .001$ . We ran logistic regressions to determine attrition bias, comparing the final panel of 1,686 (74%) unmarried fathers who participated at all three times and had no missing data with those who did not participate at Years 1 and 3 or had missing data ( $n = 1,048$ ). Results indicated that fathers were significantly less likely to participate or were more likely to have missing data if they were Hispanic, older, friends with the mother, and interviewed in Spanish (data available upon request). Fathers were more likely to participate or less likely to have missing data if they had some college education and if they were more involved prenatally.

*Sample*

The average age of fathers and mothers in the analytic sample was 26.35 years ( $SD = 6.87$ ) and 23.78 ( $SD = 5.53$ ), respectively. More than half

of the fathers were African American (56.8%), about a quarter was Hispanic (27.3%), and the rest were White (14.6%) and other (1.3%). More than a third had less than high school (36.3%) or were high school graduates or had a GED (35.3%); a quarter had some college or had technical training (24.7%) and a few graduated from college (3.7%). At baseline, 63.4% of couples were cohabiting, 29.2% were romantic but noncohabiting, and 7.4% were nonromantic. At Year 3, 19.5% were married, 36.6% were cohabiting, 8.2% were romantic but noncohabiting, 4.6% were separated, and 30.8% were nonromantic.

*Measures*

*Dependent variable.* We used fathers' but not mothers' reports of paternal engagement with children because using mothers' report would have limited the sample to only those fathers who saw their child more than once during the last 30 days. Fathers were asked if they saw the child at least once during the last 30 days. If fathers reported no contact with the child during the last 30 days, their paternal engagement responses were coded "0." The FF father questionnaire included 7 items at 1-year follow-up and 12 items at 3-year follow-up asking about paternal child care and participation in play and oral language activities. Responses ranged from 0 = *no days* to 7 = *seven days per week*. Year 1 items included how often the father plays games such as peek-a-boo or gotcha, sings songs or nursery rhymes, reads stories, tells stories, plays inside with toys, takes child to visit relatives, and hugs or shows physical affection. A composite Year 1 father engagement score was created by summing fathers' responses across the seven items per week (range = 0 – 49). The Cronbach's alpha ( $\alpha$ ) for the index was .92. All Year 1 items, with one exception (plays games such as peek-a-boo or gotcha) were included in the Year 3 engagement index. The Year 3 index included six additional items: tell child you love him or her, let child help you with household chores, play imaginary games with child, tell child you appreciate what he or she did, go to restaurant or out to eat with child, and assist child with eating (range = 0 – 84;  $\alpha = .96$ ).

*Independent variable.* We used mothers' and fathers' perceptions of fathers' prenatal involvement. The three father items were: "Were you

present at the birth?" "During the baby's mother's pregnancy, did you give her money or buy things for the baby?" and "Did you help in other ways, like providing transportation/doing chores?" All items were coded 0 = *no*, 1 = *yes*. The fathers' responses to these items were summed to create an index of fathers' prenatal involvement (range = 0 – 3;  $\alpha = .60$ ). Mothers were asked two of the three questions at baseline; they were not asked if the father was present at the birth. Mothers' responses to these items were summed to construct a mother report of fathers' prenatal involvement (range = 0 – 2;  $\alpha = .67$ ).

### Mediators

*Status salience.* Fathers' status salience items were available only at baseline. Three items were used to construct this variable, two self-oriented ("Not being a part of child's life would be one of the worst things that could happen to me" and "I want people to know I have a new child")

and one general ("Being a father is one of the most fulfilling experiences for a man"). Answers were based on a scale from 1 = *strongly disagree* to 4 = *strongly agree*. These items were combined to construct the status salience index (range = 3 – 12;  $\alpha = .73$ ).

*Transitions in relationship quality and status.* Couple relationship status data (married, cohabiting, separated, divorced, romantic, friends, or acquaintance) were available at all three times. Cohabiting fathers indicated living most or all of the time with and being romantically involved with the child's mother. Relationship status transition variables were constructed from these data to reflect stability and change (see Table 1 for a list and *ns* for these variables). One set of transition variables was created for baseline to Year 1 and one set for baseline to Year 3—with four categories each: residential at both times (R → R), transitioning from nonresidential to residential (N → R) and vice versa (R → N), and nonresidential at both times (N → N) (reference).

Table 1. Descriptive Characteristics of Independent and Dependent Variables

Variables	Baseline	Baseline → Y1	Baseline → Y3
Fathers' engagement, <i>M, SD</i>		27.78 (13.19)	44.38 (22.03)
M/F perception of prenatal involve., <i>M, SD</i>	0.00 (1.00)		
Father has children from other unions, <i>n, %</i>		642 (38.1)	
Father has new child, not with target child's mother, <i>n, %</i>			105 (6.2)
Mother employed, <i>n, %</i>		921 (54.6)	986 (58.5)
Child is a boy, <i>n, %</i>	642 (38.1)		
M perception of child's poor health, <i>M, SD</i>		1.50 (0.81)	1.52 (0.76)
F perception of child's poor health, <i>M, SD</i>		1.47 (0.78)	1.49 (0.75)
M perception of child temperament, <i>M, SD</i>		5.63 (3.18)	
Paternity established, <i>n, %</i>		1,339 (79.4)	
Status salience, <i>M, SD</i>	11.12 (1.37)		
Relationship quality transitions, <i>n, %</i>			
Improved		144 (8.5)	134 (7.9)
Declined		547 (32.4)	593 (35.2)
High at both times		676 (40.1)	630 (37.4)
Low at both times (reference)		319 (19.0)	329 (19.5)
Relationship status transitions, <i>n, %</i>			
R → R		865 (51.3)	739 (43.8)
N → R		233 (13.8)	211 (12.5)
R → N		206 (12.2)	331 (19.6)
N → N (reference)		382 (22.7)	405 (24.1)
Employment transitions, <i>n, %</i>			
Unemployed → employed		168 (10)	209 (12.4)
Employed → unemployed		1,076 (63.8)	1,077 (63.9)
Unemployed at Y1 (or Y3) (reference)		442 (26.2)	400 (23.7)

Note: *N* = 1,686. All categorical variables are coded 0 = *no*, 1 = *yes*. R = residential, N = nonresidential.

Father perception of relationship quality was measured using three items at baseline and Years 1 and 3: "How often was the birth mother fair and willing to compromise?" "How often did the birth mother express affection or love for you?" and "How often did the birth mother encourage or help you do things?" Responses were 1 = *often*, 2 = *sometimes*, 3 = *never*. Scores were recoded so that a high score indicated a higher level of quality. The three items were then combined into a quality index and changed to a scale ranging from 0 to 6 ( $\alpha = .61$  at baseline and  $.88$  and  $.92$  at Years 1 and 3, respectively). The indexes were used to construct the following categories from baseline to Year 1 and from baseline to Year 3: improved relationship quality, declined relationship quality, consistently high quality, and consistently low quality (reference). The mean (5 on the summed index) was used to construct these variables. For example, fathers who scored 5 or above on the summed index at baseline and Year 1 were coded as having consistently high quality relationship.

*Employment transitions.* Four variables were constructed to measure transitions in fathers' employment from baseline to Year 1 (or baseline to Year 3). Given the small number of fathers who were unemployed at both times, however, we combined them with those who transitioned into unemployment as the reference category. The final analytic categories were unemployed to employed and employed at both times.

*Controls.* Child gender was coded as 0 = *girl* and 1 = *boy*. Constructed dummy variables for race and ethnicity included non-Hispanic White (reference), non-Hispanic Black, Hispanic, and non-Hispanic other (Asian, American Indian, and other). Fathers' baseline education was used in the Year 1 analysis, and fathers' Year 1 education was used in the Year 3 analysis. The education variables included less than high school, high school graduate or has GED (reference), some college or technical school, and college graduate or graduate school. Fathers' and mothers' ages at baseline, establishment of legal paternity at Year 1, and mothers' employment (0 = *unemployed*, 1 = *employed*) at Years 1 and 3 were also controls. At Year 1, we controlled for the number of children fathers have from unions other than the target child's birth mother. At Year 3, fathers were asked whether they had or are expecting a new biological child

with someone other than the mother of the child in the study since that child's first birthday. At Year 3, we also controlled for father's engagement with the child at Year 1.

We also controlled for children's temperament. These data, which were only available at Year 1, were obtained from the mothers' survey because fathers' responses on the same items produced low reliability. Three mother items were used: child often fusses and cries, child gets easily upset, and child reacts strongly when upset. Responses ranged from 1 = *not at all* to 5 = *very much*. The items were added together to form a difficult temperament index ( $\alpha = .60$ ). Finally, we controlled for mother and father perception of the child's health using one item that asked, "How is your child's health?" Responses ranged from 1 = *excellent* to 5 = *poor*.

### Data Analysis

The study hypotheses were tested using hierarchical multiple regression. A series of five models with fathers' engagement as the dependent variable were constructed for children each at ages 1 and 3 years. The first model in each analysis included the control variables and independent variable, prenatal involvement. The second through fourth models tested the association between the mediator variables, status salience, relationship transitions, and employment transitions, and the dependent variable. The fifth model tested the association between all mediators and the dependent variable. We used Heckman's (1976, 1979) approach for correcting for attrition bias in the multivariate analyses because he showed that the bias due to sample attrition is analogous to the bias resulting from omitting an important explanatory variable. We estimated a first-stage regression predicting the probability of remaining in the sample. Heckman's lambda was calculated from the residuals of this first-stage model and entered into subsequent analytic models. Lambda reflects the effects of all unknown characteristics associated with sample attrition producing unbiased parameters of all other predictors.

Baron and Kenny (1986) suggest the following criteria for testing mediation effects: The independent variable (prenatal involvement) must be significantly associated with the dependent variable, the independent variable must be significantly associated with the mediating variables, these must be significantly associated with the

dependent variable, and the mediating variables must significantly reduce the association between the independent and dependent variables. When compared with Model 1 of each multivariate analysis, Models 2 through 4 show the extent to which the block of mediating variables reduces the association between prenatal involvement and fathers' engagement. To determine which specific variables within a block of variables accounted for the mediation effect, we ran additional models to determine the reduction in the coefficient for each variable in the block separately. To test whether the independent variable was associated with the mediating variables, we conducted multivariate models with the mediating variable as the outcome variable and all study controls and prenatal involvement as predictors. When the mediators were dichotomous, we ran logistic regression and calculated odds ratios. To test the significance of the mediated effect, we used the difference in coefficients method and the Freedman and Schatzkin (1992) derivation of the standard error that yields a  $t$  statistic (significance at  $p < .05$  is indicated when  $t > 1.96$ ).

## RESULTS

### *Preliminary Analyses*

We ran factor analysis with principal component analysis as the extraction method to determine whether mothers' and fathers' perceptions of fathers' prenatal involvement could be combined into a composite index. We calculated  $z$  scores for each variable. The data reduction procedure revealed that mother and father reports of prenatal involvement explained 87% of the variance in the final data set (eigenvalue = 1.75). The  $z$  scores for mother and father reports were therefore summed to construct a composite measure of mother and father reports of prenatal involvement. Factor analysis with mother and father perception of child's poor health revealed that these two variables could not be reduced to a composite index (eigenvalue = 1.10). Tests for collinearity (the correlation matrix is available from the authors) revealed no evidence of collinearity among any of the independent variables.

### *Descriptive Analyses*

We highlight several descriptive findings (Table 1). The mean composite index of fathers'

engagement at Year 1 was 27.78 activities per week ( $SD = 13.19$ ), a score that, when averaged across 7 days, suggests fathers were engaged in an average of 4 out of 7 activities per day. The mean composite index of fathers' engagement at Year 3 was 44.38 ( $SD = 22.03$ ), which suggests fathers were engaged in an average of 6.3 out of 12 activities per day. Approximately a third of fathers reported that the quality of their relationship with the mother declined between baseline and Year 1 (32.4%) and between baseline and Year 3 (35.2%). The percentage of couples who remained in residential relationships (R → R) declined from 51.3% between baseline and Year 1 to 43.8% between baseline and Year 3. Approximately one quarter of the fathers were unemployed at Years 1 and 3.

### *Multivariate Analyses*

*Year 1.* Table 2 shows the effects of control and mediator variables on paternal engagement at Year 1. It shows that fathers who engaged in more prenatal involvement and reported higher levels of status salience showed higher levels of engagement with their 1-year-olds (Model 2). Moreover, fathers who consistently resided with the mother at baseline and Year 1 (R → R) or transitioned into a residential relationship at Year 1 (N → R) were significantly more engaged with their children than fathers who were nonresidential at both times (Model 3). Also, fathers who transitioned into employment or were employed at both times were more engaged than fathers who were unemployed at Year 1 (Model 4). Together, all of the independent variables explained 33% of the variance in paternal engagement (Model 5).

Next, we present mediation results. We report the results of individual (and blocks of) mediators that met criteria for the Baron and Kenny (1986) test of mediation. The findings for individual mediators are not reported in the tables. Status salience did not significantly reduce the association between our variables (Models 1 and 2) and did not meet the criteria for mediation ( $t = .65, p > .05$ ). As a block, relationship quality and status transition variables reduced the size of the association between our variables from .17 to .10 (Models 1 and 3) and explained 41.30% of their association. Individually, only N → R relationship status transition variable ( $t = 46.12, p < .05$ ) significantly reduced the association between prenatal involvement and paternal engagement from .17 ( $p < .001$ ) to

Table 2. Fathers' Demographics, Prenatal Involvement, and Mediators Regressed on Fathers' Engagement With 1-Year-Olds With Lambda

Variables	Model 1			Model 2			Model 3			Model 4			Model 5		
	B	SE B	β												
F race <sup>a</sup>															
African American	0.56	0.87	.02	0.54	0.87	.02	0.96	0.79	.04	0.85	0.87	.03	1.15	0.79	.04
Hispanic	3.53	1.06	.12**	3.47	1.06	.12**	0.78	1.01	.03	3.53	1.06	.12**	0.81	1.02	.03
Other	-3.11	2.73	-.03	-3.09	2.73	-.03	-0.90	2.46	-.01	-2.76	2.72	-.02	-0.66	2.46	-.01
F education <sup>b</sup>															
<HS	-0.14	0.73	-.01	-0.11	0.73	-.00	-0.71	0.66	-.03	0.14	0.73	.01	-0.48	0.66	-.02
Some college/tech.	-1.30	0.85	-.04	-1.28	0.85	-.04	-0.57	0.79	-.02	-1.60	0.85	-.05	-0.81	0.79	-.03
College/grad school	0.18	1.70	.00	0.17	1.70	.00	0.66	1.56	.01	-0.20	1.70	-.00	0.32	1.55	.01
F age	0.03	0.07	.02	0.03	0.07	.01	-0.09	0.06	-.05	0.04	0.07	.02	-0.08	0.06	-.04
M age	0.09	0.08	.04	0.09	0.09	.04	0.09	0.07	.04	0.08	0.08	.04	0.08	0.07	.03
M is employed Y1	-0.61	0.61	-.02	-0.63	0.61	-.02	-0.53	0.55	-.02	-0.68	0.61	-.03	-0.61	0.55	-.02
F has other child, Y1	-1.23	0.67	-.05	-1.24	0.67	-.05	-0.89	0.60	-.03	-1.12	0.67	-.04	1.01	0.67	.03
Legal paternity, Y1	1.82	0.74	.06*	1.78	0.74	.06*	1.09	0.67	.03	1.74	0.74	.05*	1.09	0.64	.03
Child is a boy	-0.84	0.60	-.03	-0.86	0.60	-.03	-0.58	0.54	-.02	-0.86	0.59	-.03	-0.61	0.54	-.02
Child poor health (M)	0.24	0.40	.01	0.26	0.40	.02	0.21	0.36	.01	0.27	0.40	.02	0.25	0.36	.02
Child poor health (F)	-2.25	0.41	-.13***	-2.22	0.41	-.13***	-1.70	0.37	-.10***	-2.30	0.41	-.14***	-1.71	0.37	-.10***
Child temperament (M)	-0.03	0.10	-.01	-0.03	0.10	-.01	-0.04	0.09	-.01	-0.02	0.10	-.01	-0.02	0.09	-.01
Prenatal Involv.(M/F) <sup>c</sup>	2.27	0.41	.17***	2.22	0.41	.17***	1.33	0.38	.10***	2.17	0.41	.17***	1.25	0.38	.09***
Status salience				0.53	0.23	.06*							0.33	0.20	.03
Relationship quality <sup>d</sup>															
Improved							1.11	1.17	.02				1.32	1.17	.03
Declined							0.65	0.80	.02				0.72	0.80	.03
Consistently high							1.58	0.86	.06				1.64	0.86	.06
Relationship status <sup>e</sup>															
R → R				11.06	0.94	.42***							10.71	0.94	.41***
N → R				12.79	1.00	.34***							12.50	0.99	.33***
R → N				-0.55	1.08	-.01							-0.74	1.07	-.02
Employment transition <sup>f</sup>															
Unemp b → emp Y1										4.78	1.11	.11***	3.48	1.01	.08**
Emp b → emp Y1										2.56	0.73	.09***	1.91	0.66	.07**
Lambda	-23.52	4.34	-.24***	-22.27	4.37	-.20***	-11.75	4.61	-.10***	-24.44	4.34	-.22***	-12.14	4.76	-.11*
R <sup>2</sup>	.16			.16			.32			.17			.33		
F	18.20***			17.55***			34.11***			17.65***			31.10***		

Note. N = 1,686. Categorical variables are coded 0 = no, 1 = yes. R = residential, N = nonresidential.

<sup>a</sup>Reference = non-Hispanic Whites. <sup>b</sup>Reference = high school diploma/GED. <sup>c</sup>Mother and father's view of fathers' prenatal involvement. <sup>d</sup>Reference = relationship quality low, baseline and Year 1. <sup>e</sup>Reference = nonresidential at baseline and Year 1. <sup>f</sup>Reference = unemployed at Year 1.

\*p < .05. \*\*p < .01. \*\*\*p < .001.

.13 ( $p < .001$ ) and explained 21.91% of the variance. Fathers who were highly prenatally involved were more likely to transition into a residential relationship than to be in a consistent nonresidential relationship (odds ratio = 1.79,  $p < .001$ ), which, in turn, was related to higher levels of engagement.

The block of employment variables reduced the size of the association between prenatal involvement and paternal engagement from .17 to .16 (Models 1 and 4) and explained 7.24% of their association. Only transitioning from unemployment to employment significantly reduced the association between our variables ( $t = 4.26$ ,  $p < .05$ ) from .17 to .16 ( $ps < .001$ ) and explained 5.40% of their association. Fathers who were highly prenatally involved were more likely to transition to employment than to be unemployed at Year 1 (odds ratio = 1.61,  $p < .001$ ), which, in turn, was linked with higher levels of engagement (Model 3).

*Year 3.* Table 3 shows the effects of control and mediator variables on paternal engagement at Year 3. It reveals that fathers who were more prenatally involved showed significantly higher levels of engagement with their 3-year-olds (Model 1). Fathers' status salience was no longer significantly associated with paternal engagement at Year 3 (Model 2). Fathers who were in a residential relationship at baseline and Year 3 (R → R) or who transitioned into a residential relationship at Year 3 (N → R) were significantly more engaged with their children than fathers who were nonresidential at both times (Model 3). Regarding employment, fathers who were employed at both times or who transitioned into employment at Year 3 were more engaged with their children than fathers who were unemployed at Year 3 (Model 4). Together, all of the independent variables explained 39% of the variance in paternal engagement (Model 5).

The mediation results are similar to Year 1. The block of relationship status and quality transition variables reduced the size of the association between prenatal involvement and parental engagement from .06 to .01 (Models 1 and 3) and explained 84.35% of their association. Only N → R relationship status transition variable significantly reduced this association at Year 3 ( $t = 186.30$ ,  $p < .05$ ) from .06 ( $p < .05$ ) to .03 ( $p < .05$ ) and explained 56.15% of the variance. Fathers who were more prenatally involved were more likely to transition into a residential

relationship than those who were not (odds ratio = 2.09,  $p < .001$ ), which, in turn, was significantly related to increased levels of paternal engagement (Model 3).

The block of employment variables reduced the association between prenatal involvement and paternal engagement from .06 to .05 (Models 1 and 3) and explained 7.96% of their association. Only the transition to employment at Year 3 significantly reduced the association between our variables ( $t = 6.83$ ,  $p < .05$ ), from .064 ( $p < .05$ ) to .059 ( $p < .05$ ), explaining 6.83% of their association. Fathers who were more prenatally involved were more likely to transition to employment than to be unemployed at Year 3 (odds ratio = 1.39,  $p < .01$ ), which was significantly associated with increased levels of paternal engagement (Model 3). All mediators reduced the size of the association between our variables from .06 to .01, explaining 87.67% of the relationship between them (Model 5).

## DISCUSSION

The findings reported here make a contribution to the literature because they are the first to explain the process by which unmarried fathers' prenatal involvement has an effect on father engagement when the children are 1 and 3 years of age using a nationally representative sample of mostly unmarried couples. It also responds to the need identified in the literature to examine this association in a systematic manner (Palkovitz, 1985). This is an important contribution because it suggests that a father's relationship and commitment to his unborn child and partner at the transition to fatherhood can have a long reach and set him on a trajectory of more or less involvement with his child through his relationship with his partner as well as his commitment to stay employed or find employment.

In this article, we used life course theory to examine how fathers' support for their partner during the pregnancy and presence at childbirth are associated with levels of fathers' later involvement. Multivariate analyses support our hypothesis that prenatal involvement is significantly associated with levels of paternal engagement when the child is at ages 1 and 3. The coefficient between fathers' prenatal involvement and father engagement in the control model was more robust at Year 1 than at Year 3, suggesting a weakening of the effect over time. It is noteworthy, however, that fathers' prenatal

Table 3. Fathers' Demographics, Prenatal Involvement, and Mediators Regressed on Fathers' Engagement With 3-Year-Olds With Lambda

Variables	Model 1			Model 2			Model 3			Model 4			Model 5		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
F engagement, Y1	0.67	0.04	.40***	0.67	0.04	.40***	0.54	0.04	.32***	0.66	0.04	.40***	0.54	0.04	.32***
F race <sup>a</sup>															
African American	-0.67	1.33	-.02	-0.67	1.34	-.02	0.33	1.24	.01	-0.27	1.34	-.01	0.51	1.24	.01
Hispanic	3.32	1.62	.07*	3.35	1.62	.07	0.90	1.57	.02	3.48	1.63	.07	1.27	1.59	.03
Other	-1.26	4.20	-.01	-1.26	4.20	-.01	-1.26	3.89	-.01	0.06	4.21	.00	-0.50	3.90	-.00
F Education <sup>b</sup>															
Less than HS	1.80	1.15	.04	1.80	1.15	.04	1.58	1.07	.03	2.16	1.15	.05	1.76	1.07	.04
Some college/tech.	-0.54	1.25	-.01	-0.54	1.25	-.01	-0.34	1.18	-.01	-0.80	1.25	-.02	-0.56	1.18	-.01
College/grad school	2.42	2.68	.02	2.44	2.68	.02	1.96	2.51	.02	1.90	2.68	.02	1.58	2.51	.01
F age	0.13	0.10	.04	0.13	0.10	.04	0.08	0.10	.03	0.14	0.10	.04	0.10	0.10	.03
M age	0.11	0.12	.03	0.11	0.12	.03	0.06	0.11	.01	0.11	0.12	.03	0.07	0.11	.02
M is employed, Y3	0.45	0.94	.01	0.50	0.94	.01	0.74	0.87	.02	0.42	0.95	.01	0.88	0.88	.02
F has other child, Y1	-0.52	1.03	-.01	-0.51	1.03	-.01	-0.41	0.96	-.01	-0.39	1.03	-.01	-0.34	0.96	-.01
F has new child, Y3	-10.85	1.95	-.12***	-10.86	1.95	-.12***	-4.45	1.84	-.05*	-10.61	1.94	-.12***	-4.42	1.84	-.05*
Legal paternity, Y1	0.55	1.15	.01	0.57	1.15	.01	0.57	1.06	.01	0.49	1.14	.01	0.56	1.06	.01
Child is a boy	1.69	0.92	.04	1.70	0.92	.04	1.79	0.85	.04	1.80	0.92	.04	1.88	0.85	.04*
Child poor health (M)	-0.52	0.63	-.02	-0.53	0.63	-.02	-0.32	0.58	-.01	-0.50	0.63	-.02	-0.30	0.58	-.01
Child poor health (F)	-1.87	0.64	-.06**	-1.88	0.64	-.06**	-1.18	0.60	-.04*	-1.77	0.64	-.06**	-1.12	0.60	-.04
Prenatal involv. (M/F) <sup>c</sup>	1.40	0.64	.06*	1.43	0.64	.07*	0.22	0.60	.01	1.29	0.64	.06*	0.17	0.60	.01
Status salience				-0.28	0.35	-.02							-0.39	0.32	-.02
Relationship quality <sup>d</sup>															
Improved							0.68	1.84	.01				0.80	1.84	.01
Declined							-0.29	1.22	-.01				-0.19	1.22	-.00
Consistently high							1.87	1.31	.04				2.14	1.31	.05
Relationship status <sup>e</sup>															
R → R							14.33	1.48	.32***				13.91	1.49	.31***
N →							17.41	1.64	.26***				17.09	1.65	.26***
RR → N							-0.44	1.49	-.01				-0.66	1.50	-.01
Employ. transition <sup>f</sup>															
Unemp b → emp Y3										5.47	1.63	.08**	3.82	1.52	.06**
Emp b → emp Y3										2.94	1.17	.06*	1.30	1.09	.03
Lambda	-19.24	6.62	-.10**	-19.83	6.66	-.11*	-18.10	7.03	-.10**	-21.37	6.77	-.11**	-21.72	7.25	-.12**
R <sup>2</sup>	.28			.28			.39			.29			.39		
F	36.63***			34.73***			44.43***			33.79***			39.89***		

Note. N = 1,686. Categorical variables are coded 0 = no, 1 = yes. R = residential, N = nonresidential.

<sup>a</sup>Reference = non-Hispanic Whites. <sup>b</sup>Reference = high school diploma/GED. <sup>c</sup>Mothers' and father's view of fathers' prenatal involvement. <sup>d</sup>Reference = relationship quality low, baseline and Year 3. <sup>e</sup>Reference = nonresidential at baseline and Year 3. <sup>f</sup>Reference = unemployed at Year 3.

\*p < .05. \*\*p < .01. \*\*\*p < .001.

involvement was significantly linked with levels of father engagement at Year 3 after statistically controlling for father engagement at Year 1. This finding is consistent with the life course perspective that early timing of father involvement can have a long-term influence on the paternal role.

From a life course perspective, we expected that a man's early involvement would lead to a series of life changes, including establishing a salient identity as a father (i.e., strongly identifying with the father role), strengthening his relationship with his partner, and keeping or getting a job, which can explain why early involvement is related to later engagement with children. Although status salience was linked with increased father engagement at Year 1, we found no support for our mediation hypothesis. One explanation might lie in our measure of status saliency. Although we had good internal validity, our measure included two self-directed items and a general item (e.g., "Being a father is one of the most fulfilling experiences for a man"), which may have elicited different responses from men depending on whom they choose as a reference point. Future research should strive to make all questions about status salience specific to the individual respondent. Another explanation might be that developing an identity as a father takes longer than just a couple of years, as was measured here, or is a lifetime process.

We also hypothesized that fathers who are in close and stable relationships with their partners would be more engaged with their children than those who are not and that partner relationship would explain why being prenatally involved is linked to later engagement. Our findings support these hypotheses. In regards to the direct association, we found that fathers who were in consistent residential relationships or transitioned into one at either Year 1 or 3 were more likely to be engaged with their children than fathers who were nonresident at both time points. Contrary to our hypothesis, however, the *quality* of the partner relationship was not associated with father engagement. This finding could be explained by the relatively high level of self-reported partner quality relationship in our sample. Results might be different with another measure of conflict. It is also possible that quality of mother-father relationship is more relevant to the *quality* of the father-child relationship than to the amount of time fathers are engaged with their children, as was measured here. What is most relevant to our measure of

father engagement is father residential status, which affords the father the opportunity to interact (positively or negatively) with his child.

In regards to mediation, together the relationship quality and status transition variables account for most of the mediation effect: 41% for Year 1 paternal engagement and 84% for Year 3 paternal engagement. Specifically, *transitioning into a residential relationship* (through marriage or cohabitation) across time periods most consistently explained the largest percentage of the mediation effect between prenatal involvement and later paternal engagement. The life course perspective posits that individuals follow *trajectories* that have developmental implications. Transitioning into fatherhood can be exciting or very stressful for many couples, which can lead to positive change such as stable relationship or negative change such as decreased relationship quality (Cowan & Cowan, 2000). Consistent with this perspective, our findings suggest that early involvement with the mother and child during the pregnancy places unmarried fathers on a positive trajectory of increased commitment to the mother and subsequent higher engagement with their infant. Our results also support qualitative findings that a man's prenatal experiences can strengthen his commitment to his partner (Marsiglio, 2004).

The literature review also suggested that, at the transition into fatherhood, some men may be motivated to find employment, which might also explain why prenatal involvement is related to later involvement. Although there are many reasons why men might be unemployed at the time of the interview in this study (e.g., outsourcing, disability), we found that fathers who were more prenatally involved were more likely to transition into employment than those who were less prenatally involved, which, in turn, was linked to increased father engagement. According to life course theory, individuals who choose certain trajectories (i.e., be an involved father) may be more motivated to make the necessary changes to meet the responsibilities of those choices. A man who shows commitment and support for his partner and child at the *transition to fatherhood* might be on a trajectory of supportive fathering that includes employment and, consequently, increased father engagement. Fathers who choose to become involved with the mother and child during the pregnancy may also decrease their involvement in risky behaviors, such as drug use or criminal behavior (Duncan,

Wilkerson, & England, 2006). Because of the low frequency of risky behaviors (e.g., jail time, drug use) reported by men in the FF study, we were unable to test this hypothesis. In light of our finding that men's prenatal involvement, positive employment transitions, and later paternal engagement with children are linked, however, it is conceivable that fathers who commit to their children and partners may also be more motivated to do the "right thing" and "clean up their acts" by reducing risky behaviors.

It is possible that there are other important mediators that were not measured in the present study. Fathers who are prenatally involved may be more engaged with their children because of their bond and love for their child, not necessarily because of their relationship with the mother. Researchers have found that a small percentage of men remained in contact with their child even when they reported being just friends or having no relationship with the child's mother (Cabrera et al., 2004). In our study, we controlled for child characteristics (gender, temperament, and health) that have been found to correlate with father involvement. Only child's health status as reported by the father was significantly and negatively related to father engagement. Because we controlled for these variables, our findings that mother-father relationship status and employment status explain the association between prenatal involvement and father engagement are stronger. From attachment theory, however, we would expect that parents with strong bonds with their children will be most likely to want to stay involved in their children's life. Thus it is possible that as the father and child become more bonded, fathers will be reluctant to separate from their children, and then the status of partner relationship may become less consequential to father engagement over the child's life course. This is a fruitful direction for future research.

There are several limitations to this study. First, the FF items used to measure prenatal involvement assessed fathers' support of the mother during pregnancy and father presence at the child's birth. A distinction has been drawn in the literature between prenatal involvement that supports the mother and that which is more directed toward the child (e.g., listen to fetus's heartbeat). We were not able to include this type of nuanced measurement in our study because the FF data do not have child-directed prenatal questions. Although these two sets of experiences/processes overlap, future measurement of this

construct needs to distinguish partner support variables (e.g., buying things for mother during pregnancy) from father awareness of child variables (e.g., saw an ultrasound, heard the fetus's heartbeat). Another measurement limitation in the FF is the lack of variables about men's intentionality, timing, or wantedness of the birth, which can be related to father engagement (Bronte-Tinkew, Ryan, Carrano, & Moore, 2007; Cabrera, Fitzgerald, Bradley, & Roggman, 2007).

Second, it is worth noting that fathers with close relationships with their partners and fathers who transitioned into employment may have been selected by their partners or by themselves into this study, and hence we have a select sample of involved fathers. Approximately 25% of unmarried fathers did not participate in this study at baseline. This can explain the low levels of jail time or drug use found in the participating sample. The excluded men were also less likely to be close to their partners. This is an important issue to consider when drawing generalizations from our findings. Also, attrition was substantial; 38.8% of fathers who met criteria for this study at baseline and participated at baseline did not participate at Years 1 or 3 or they had substantial missing data. It is possible that the sample underrepresents certain types of fathers. Our attrition analyses revealed that nonparticipating fathers experienced greater risk factors. Although we corrected for sample bias in our analyses, this selective attrition may still result in overestimating the association between prenatal involvement and later engagement. Third, mothers and fathers were not always asked the same question in the same way in the FF study, making it difficult to use mother report of father engagement, which would have been useful in establishing the reliability of the engagement measure as well as increasing our sample size. Another limitation not specific to the FF study is that self-report data may overestimate father engagement behaviors, and thus we need to interpret these findings with some caution.

Despite these limitations, these present findings have important implications for understanding the factors that promote father engagement over time. From policy and program perspectives, our findings suggest that efforts to promote family stability need to include fathers, especially supporting mother-father relationships before the baby is born, helping fathers to secure employment, and encouraging fathers to establish relationships with their children even before they

are born. Although low-income fathers face other formidable challenges, including poverty, one of the key barriers to marriage among low-income women is men's involvement (Edin et al., 2004; Waller, 1999). Our findings suggest that involvement early in the transition to fatherhood can lead to more committed relationships and employment that can keep fathers involved with their child and partner longer than expected (Cabrera, Shannon, & Tamis-LeMonda, 2007). It seems reasonable that policymakers and practitioners would want to capitalize on this finding and help families make life transitions that place fathers on a trajectory of involved parenthood.

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