

LAURA DUBERSTEIN LINDBERG, KATHRYN KOST, AND ISAAC MADDOW-ZIMET     *The Guttmacher Institute*

---

## The Role of Men's Childbearing Intentions in Father Involvement

*An expanding body of research has investigated factors that influence fathers' involvement with their children. Generally overlooked has been the role of pregnancy intentions on men's fathering behaviors. In this study, the authors used nationally representative data from men interviewed in the 2002 and 2006–2010 National Survey of Family Growth to examine relationships between fathers' pregnancy intentions and multiple aspects of their parental involvement. Using propensity score methods to control for confounding, they found that men were less likely to live with a young child from a mistimed than intended pregnancy and that among nonresident fathers, mistimed pregnancies were associated with lower levels of visitation and consequently reduced participation in caregiving and play. Among both resident and nonresident fathers, mistimed pregnancies were also associated with lower self-appraisals of fathering quality when*

*compared with intended pregnancies; for non-resident fathers, however, this association was moderated by other involvement.*

Fathers' involvement in their children's lives has been increasingly linked to positive outcomes for their children's health and well-being, and researchers have focused on factors influencing levels and patterns of involvement (Cabrera, Fitzgerald, Bradley, & Roggman, 2014; Lamb, 2010). Largely unaddressed has been the role of pregnancy intentions in fathering behaviors. Pregnancy intention is a measure of the desire to have a child just prior to the time of conception (Campbell & Mosher, 2000). Conventionally, pregnancies are categorized as intended (wanted at the time of conception), mistimed (not wanted at the time of conception, but wanted sometime in the future), or unwanted (not wanted at time of conception or ever); the latter two are often referred to together as unintended.

Research to date has focused primarily on the consequences of mothers' intentions (Gipson, Koenig, & Hindin, 2008) overlooking the experiences of fathers. Yet in a recent nationally representative study, fathers reported a third of births in the past 5 years as unintended, a proportion similar to that reported by women (Lindberg & Kost, 2014). Parenting children resulting from unintended pregnancies is thus a common experience for American men, but little is known about how men's childbearing intentions influence involvement with their child.

The Guttmacher Institute, 125 Maiden Lane, New York, NY 10038 (llindberg@guttmacher.org).

This article was edited by Kelly Rayley.

© 2016 The Authors. *Journal of Marriage and Family* published by Wiley Periodicals, Inc. on behalf of National Council on Family Relations.

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited and is not used for commercial purposes.

**Key Words:** *early childhood, fathering, fathers, gender roles, pregnancy.*

We use data from men's interviews in the 2002 and 2006–2010 National Survey of Family Growth (NSFG) to examine relationships between men's pregnancy intentions and involvement with their child. We focus on fathers with a child younger than age 5, linking self-reported pregnancy intentions with behavioral and attitudinal indicators of father involvement. First, we consider how intention status is associated with father and child coresidence. We then consider the experiences of resident and nonresident fathers separately, given the groups' different daily access to their child. We examine variation by intention status in the frequency of caregiving and play, frequency of contact (for nonresident fathers), and self-appraisal as fathers.

## BACKGROUND

### *Theoretical and Conceptual Framework*

"Father involvement" is a nuanced and evolving construct. The widely used Lamb–Pleck conceptualization of father involvement has the following three distinct parts: the father's accessibility to, engagement with, and responsibility for his child (Lamb, Pleck, Charnov, & Levine, 1985, 1987). Later conceptualizations have expanded to better recognize qualitative and emotional aspects of fathering (Marsiglio & Roy, 2013; Pleck, 2010). When compared with women, men often have less cultural and institutional support for parenthood, resulting in a wider variation in their level and type of involvement (Edin & Nelson, 2013; Marsiglio & Roy, 2012).

Our study of father involvement is informed by a theoretical framework of fathering that integrates identity theory and life course perspectives (Marsiglio, 1995; Marsiglio & Roy 2013; Rane & McBride, 2000). Identity theory has been influential in guiding research on father involvement generally (Fox & Bruce, 2001; Rane & McBride, 2000), and under specific conditions such as among divorced or other nonresident fathers (see, e.g. Henley & Pasley, 2005; Olmstead, Futris, & Pasley, 2009). Identity theory posits that identities are "internalized sets of role expectations" (Stryker, 1987, p. 90); the strength and form of an identity influences participation in related behaviors. Thus, father involvement is theorized to stem from the meaning and importance that men assign to being fathers. The more men identify

as fathers and the more salient the fathering role is to their self-identity, the more engaged with their child they will be (Ihinger-Tallman, Pasley, & Buehler, 1993).

A life course perspective brings attention to the importance of timing and context to understand life transitions such as fathering (Elder, Johnson, & Crosnoe, 2003). The location of a birth within an individual's life course influences the ongoing development of his fathering identity as well as influences whether a man characterizes a specific pregnancy as intended or unintended. In addition, life course theory recognizes that father involvement can begin even before the child is born, and multiple studies focus on father involvement during the prenatal period (Bronte-Tinkew, Scott, & Horowitz, 2009; Marsiglio, Lohan, & Culley, 2013), which has been shown to be related to greater involvement in children's later lives (Cabrera, Fagan, & Farrie, 2008). Our focus on pregnancy intentions shifts the start of this father involvement and father identity further back to the time of conception. Engaging in the planning of the pregnancy is a form of involvement that may influence father identity and thus other aspects of their involvement.

Our central hypothesis is that men will have reduced father involvement with children resulting from unintended pregnancies. We posit that childbearing intentions may be considered a proxy measure of the centrality of the father role to a man's identity at the time of the pregnancy. These intentions are indicative of men's orientation to fathering: Intended pregnancies reflect men's desire to engage in fathering at that time, whereas men with mistimed or unwanted births are hypothesized to be less motivated to devote the time and personal resources needed to engage in the behaviors that support a father identity. The strength and centrality of a fathering identity reflects men's experiences with all of their children as well as potentially varying in relationship to each child as a result of the timing and context of a particular pregnancy.

Our analysis considers both how pregnancy intentions are related to whether a father lives with his child and whether there are potentially differing associations between pregnancy intentions and father involvement for resident and nonresident fathers. When compared with resident fathers, nonresident fathers have weaker normative expectations around their father involvement, and their identity as a father may

thus be more variable. This results in greater variation in how nonresident fathers engage with their children, which may create greater opportunity for intention status to influence their fathering than among resident fathers. We would expect stronger fathering identities among resident fathers to buffer the influence of pregnancy intentions on their paternal involvement.

### *Literature Review*

Research on fathers' childbearing intentions has been constrained in part by data limitations. Until recently, relevant surveys only interviewed women, reflecting concerns that men provide incomplete reports of their fathering experiences (Joyner et al., 2012; National Institute of Child Health and Human Development, 1998). Concern about these data gaps and broad interest in father involvement motivated newer surveys of men that include both measures of men's pregnancy intentions and fathering behaviors, such as the NSFG and the Early Childhood Longitudinal Survey–Birth Cohort (ECLS-B; Cabrera et al., 2004). Although the inclusion of men in the NSFG has facilitated separate inquiry into both men's childbearing intentions (Lindberg & Kost, 2013) and their fathering behaviors (Jones & Mosher, 2013; Knop & Brewster, 2016; Yoshida, 2012), no studies to date have examined the intersection of these two areas using these nationally representative data.

Relevant to this analysis are studies that have capitalized on data from resident fathers in the ECLS-B to examine if men's pregnancy intentions have an influence on fathering behaviors prenatally and when the child is very young. One study found that resident biological fathers with births from unintended pregnancies were less involved in positive prenatal behaviors and less likely to report participation in reading, telling stories, and singing to the child at 24 months postpartum (Bronte-Tinkew, Scott, & Horowitz 2009). Another study, however, found no significant associations between men's pregnancy intentions and the frequency of resident biological fathers' participation in caregiving when the infant was 9 months old (Bronte-Tinkew, Ryan, Carrano, & Moore, 2007). A third ECLS-B study found that having a child from an unintended pregnancy was associated with increased depression among fathers, which was in turn associated with reduced father involvement (Bronte-Tinkew, Scott, Horowitz, & Lilja,

2009). Although none of these ECLS-B studies found significant differences between men with mistimed and unwanted births, other studies of women have found fewer negative outcomes associated with having a mistimed than an unwanted birth (Kost & Lindberg, 2015). This suggests that further attention should be given to examining whether mistimed and unwanted pregnancies have different associations with fathering behaviors.

The ECLS-B studies excluded nonresident fathers, for whom key outcome measures were not collected. Coresidence is a key indicator of fathers' accessibility to their children. In general, fathers who reside with their children have greater engagement in their daily lives than those who do not, as well as greater variation in father involvement among nonresident than resident fathers (Jones & Mosher, 2013). Prior studies have not considered intention status, and there remain critical research gaps in our understanding of the links between men's pregnancy intentions, coresidence, and father involvement.

With limited analysis of survey data, qualitative research has provided other evidence of a relationship between fathers' childbearing intentions and paternal behaviors. Edin and Nelson's (2013) ethnographic study of low-income men highlighted how unintended pregnancies often occur in conjunction with a constellation of other social, economic, and relationship factors that act as barriers to men's engagements with their children. In a study analyzing in-depth interviews with men with a child from an unintended pregnancy, many men expressed regret at not being involved with their child (Kavanaugh, Kost, Frohworth, & Maddow-Zimet, 2015).

Research examining potential links between pregnancy intentions and later parenting behaviors must consider that any observed associations between intention status and behaviors might be influenced by confounding factors (Kost & Lindberg, 2015; Lindberg, Maddow-Zimet, Kost, & Lincoln, 2014). Men's pregnancy intentions vary significantly by their life course context, such as marital status, age, and parity, as well as other demographic and socioeconomic traits, such as race or ethnicity and education (Lindberg & Kost, 2014). These same life course and socioeconomic characteristics also have well-established associations with fathering behaviors (Jones & Mosher, 2013; Yoshida, 2012). Thus the effects of pregnancy intentions on paternal engagement are likely

to be confounded with the effects of men's background characteristics.

## METHOD

### *Data*

We used data from the 2002 and 2006–2010 NSFG, a periodic national probability survey of the noninstitutionalized population of women and men aged 15 to 44 years in the United States (<http://www.cdc.gov/nchs/nsfg.htm>; National Center for Health Statistics, 2011). Men were included for the first time in the 2002 NSFG, with 4,928 interviews; the 2006–2010 NSFG interviewed 10,403 men. Black and Hispanic men were oversampled. The response rate for the men's survey was 78% in 2002 and 75% in 2006–2010. Methods of data collection and dissemination of the public use data set are reviewed by the institutional review board at the National Center for Health Statistics for protections of human subjects. We pooled data from the 2002 and 2006–2010 survey cycles for robust analytical samples on the basis of National Center for Health Statistics (2011) recommended procedures. The analysis was limited to men whose youngest (or only) child was born within the 5 years preceding the interview, as pregnancy intentions were only measured within this time period; we refer to this child as the "index child." We excluded from the analysis fathers for whom the most recent birth was a multiple birth, deceased, or in foster care by time of the interview. In addition, we excluded men with missing values on the outcome measures or key covariates. This resulted in a final analytical sample of 2,764 fathers. Most analyses were stratified by father's residence with the child at the date of the interview (yes/no); our sample had 2,272 resident and 492 nonresident fathers.

### *Measurement of Key Variables*

Pregnancy intentions were measured in a series of questions asking men to assess their feelings right before their partner became pregnant. We used these questions to classify the most recent birth in the past 5 years as *intended* (wanted and on time or later than wanted), *mistimed* (wanted but occurring sooner than desired), or *unwanted*, extending to men the typology of intention status conventionally used for women (Campbell & Mosher, 2000).

In our analysis, 12 men reported that they first found out about the pregnancy after the child was born and were not asked about their pregnancy intentions. These men were primarily young and unmarried at the time of conception. We group these men with those reporting a mistimed pregnancy because this is by far the most common intention status for men with these same demographic traits (Lindberg & Kost, 2014).

The dependent variables included different aspects of father involvement; the NSFG design was informed by the Lamb–Pleck father involvement conceptualization (Lamb et al., 1985, 1987), collecting primarily measures relevant to fathers' accessibility and engagement. Additional attitudinal measures offer insight to more emotional or qualitative aspects of men's fathering experience. First, coresidence with youngest child, a critical indicator of accessibility, was coded 1 if the father reported that he lived with the child (full-time or part-time) at the date of the interview and 0 if he did not.

We constructed a father–child interaction scale on the basis of questions about the father's participation during the past 4 weeks in four caregiving or play activities for all children born in the past 5 years: time spent feeding, bathing, reading to, or playing with the child. These questions were asked separately for resident and nonresident children, and we only used the responses relevant to the residence status of the youngest child. Each question followed the format, "In the last four weeks, how often did you... (feed/eat meals with; [help to] bathe, diaper, dress or use the toilet; read to; or play with)... your children (child)?" Possible responses to these questions ranged from 1 = *not at all* to 5 = *every day*. A total of 59 nonresident fathers in our sample had not seen their child or children in the previous 12 months and were not asked these items; we coded these men as 1 on each activity, indicating that they had not performed it at all in the past 4 weeks. We calculated the combined mean of the four separate caregiving and play activities; the constructed scale thus ranged from 1 to 5, with higher values indicating more frequent father–child interaction. Confirmatory factor analysis in Mplus (Muthén & Muthén, 1998–2012) found strong support for the unidimensionality of the scale for both the resident and nonresident father subsamples (root mean square error of approximation estimated at 0.05 and 0.00, respectively; Hu & Bentler, 1999).

Paternal self-rating is a Likert-type scale from 1 to 5 (1 = *a very good job* to 5 = *a bad job*) based on men's response to the following question: "Thinking of all of the children who (do not) live with you, how good a job do you think you do as a father to these children?" We created an inverted version of this scale for ease of comparison with the constructed father-child interaction scale. Again, for the purpose of this analysis, this scale was measured in relationship to the residence status of the youngest child.

For nonresident fathers, other outcomes were their frequency of child contact and satisfaction with their level of contact. Fathers with nonresident children younger than age 18 were asked the following question: "During the last 12 months, about how often did you see or have a visit with your nonresident children (child)?" Responses were on a 6-point scale, ranging from 0 = *not at all* to 6 = *every day*. Nonresident fathers were then asked to report their satisfaction with this level of contact on a 10-point scale, with higher values indicating greater satisfaction.

### *Analytical Strategy*

Our analysis employed propensity score methods to disentangle men's pregnancy intentions from their demographic and socioeconomic characteristics, which may also influence father involvement. Propensity methods allow us to determine whether significant differences in father involvement exist net of underlying variation in the characteristics of men across intention status groups.

Propensity score methods are typically used to adjust the distribution of characteristics of two groups, so that they are balanced with respect to observed characteristics that are relevant to group assignment but that also affect the outcome of interest (Stuart, 2010). Because our analysis includes three groups for comparison rather than two (intended, mistimed, unwanted), we used an alternate approach that estimates group-specific propensity scores (Imbens, 2000). These scores, or probabilities, are then used to construct observation weights and create balanced comparison samples (McCaffrey et al., 2013). Men with intended births are weighted by the inverse of the probability of being in the intended group; men with mistimed births are weighted by the inverse of the probability of being in the mistimed group, and so on.

The inverse weighting serves to create a hypothetical sample of men in which background characteristics are balanced across groups; that is, the end result of the weighting should be intention status groups with more similar distributions of background characteristics. These methods allows us to adjust for observed variation in demographic and socioeconomic characteristics of fathers with differing pregnancy intentions in a way that is more informative and robust to model specification and confounded effects than the traditional approach, which includes these characteristics only as controls in multivariable regression models (McCaffrey et al., 2013).

The propensity scores used for weighting were estimated from a multinomial logistic regression model with pregnancy intention status (intended, mistimed, unwanted) as the dependent variable. We did this for the sample overall and separately by coresidence (results available online in the appendix tables). We then constructed observation weights, multiplying each observation's inverse propensity weight by the population weight to obtain unbiased estimates of the population of all U.S. men with a birth in the 5 years preceding the survey (Dugoff, Schuler, & Stuart, 2013).

We included all available covariates in the model that prior research suggests would be important confounders, regardless of statistical significance; propensity score models conducted with only a few covariates are unlikely to yield unbiased estimates (McCaffrey et al., 2013). When possible, we limited covariates to all relevant characteristics that temporally preceded the pregnancy or are time invariant. Variables included in the final models were union status at conception, father's age at the child's birth (age at conception was not measured), number and intention status of prior births, race and ethnicity, completed education (available only at the time of the interview), completed education of father's mother, male and female parent figures at age 14, foreign born, and whether the questionnaire was administered in Spanish. Although Spanish-language administration occurred temporally after the pregnancy, it provides an indicator of diversity of experiences among Latino fathers (Cabrera, Aldoney, & Tamis-LeMonda, 2013). We also included the natural logarithm of child's age as a proxy for the length of the retrospective recall period between conception and the interview to



control for potential bias in reported intention status related to the time since the event (Guzzo & Hayford, 2014) and controlled for survey year to account for either survey or period effects; neither of these measures were significantly associated with intention status at the bivariate level. Full results from these propensity estimation models are available in the online appendix.

### *Estimation of Associations Between Pregnancy Intentions and Father Involvement*

We first explored the relationship between pregnancy intentions and father involvement separately among resident fathers and nonresident fathers. Then, because some of the patterns observed might be affected by the underlying characteristics of men within intention status groups, in each multivariate regression model we applied inverse propensity weights to adjust the samples for demographic and socioeconomic variables that could potentially confound the relationship between pregnancy intentions and our dependent variables. In other words, our multivariate logistic regression models were estimated using the balanced samples (separately by residence).

Before examining father involvement separately by residence status, we used the full sample to estimate a logistic regression of the association between pregnancy intentions and whether the father was living with his child at the time of the interview. Among nonresident fathers, we used linear regression to model the association between pregnancy intentions and frequency of contact and satisfaction with this contact. Associations between pregnancy intentions and the paternal-child interaction scale and paternal self-appraisal were estimated with linear regression separately for the resident and nonresident samples.

Because we were interested in father involvement after pregnancy intentions were formed, our models controlled for measures that occurred between the birth and the interview that may have had a direct effect on father involvement, distinct from any confounding association with pregnancy intentions. We controlled for the child's age because the type of caregiving or father's emotional connection to their child may change from infancy to age 5 (Yeung, Sandberg, Davis-Kean, & Hofferth, 2001). Because some studies have

found that fathers interact differently with sons than daughters (Lundberg, McLanahan, & Rose, 2007; Raley & Bianchi, 2006), we also controlled for the child's gender. We also examined the current employment status of the father. Hours of employment may reduce availability for father involvement; alternately, employment allows men to provide for their children, which may facilitate their involvement, especially for nonresidential fathers (Yoshida, 2012). In addition, to provide additional protection against model misspecification, we included in the propensity-weighted regression select covariates known to have a strong, direct associations with fathering outcomes, including marital status at conception, education, and race. As these latter covariates are included only as additional controls and are not of substantive interest for the purposes of this analysis, their results are not displayed.

A limitation of the data is that although our analysis focuses on the intention status of the youngest child, the outcome measures may refer to multiple children within the family. The father-child interaction scales referred to all children younger than age 5 of the same residence status, and the self-rating scale, frequency of, and satisfaction with child contact each referred to all children younger than age 18 of the same residence status. Our models address this in multiple ways. We controlled for whether the father had other children with the same residency status as the youngest child, given that the outcome measures refer to involvement with all of these children. We also tested alternate models restricted to men with only one birth in the previous 5 years; the results for all models were substantively unchanged.

We stratified the analyses by residence status at the time of the interview and not union status as they were highly correlated, and residence status was more relevant to the questions under study in this analysis, both for theoretical reasons (residence creates differential opportunities for paternal engagement) as well as analytical reasons (the key outcome measures were measured differently for resident and nonresident fathers in the NSFG, regardless of union status). However, we did control for union status at the time of conception by balancing this characteristic across intention status groups. All analyses accounted for the complex survey design of the NSFG data using the *svy* commands in Stata 14.1 (StataCorp, 2015).

Table 1. *Measures of Father Involvement by Intention Status of Most Recent Birth, Among All, Resident, and Nonresident Fathers Aged 15 to 44, 2002 and 2006–2010 National Survey of Family Growth*

	Intention status			
	Total	Intended	Mistimed	Unwanted
<i>N</i>	2,764	1,660	807	297
All fathers ( <i>n</i> = 2,764)				
Intention status	1.00	0.64	0.27	0.09
Coreside with child now	0.88	0.93	0.79*	0.77*
Father–child interaction scale	4.08	4.21	3.88*	3.75*
Self-rating as father	4.33	4.44	4.17*	4.11*
Resident fathers ( <i>n</i> = 2,272)				
Intention status	1.00	0.67	0.24	0.08
Father–child interaction scale	4.32	4.36	4.25*	4.19*
Self-rating as father	4.42	4.47	4.31*	4.26*
Nonresident fathers ( <i>n</i> = 492)				
Intention status	1.00	0.38	0.44	0.17
Father–child interaction scale	2.37	2.36	2.43	2.23
Self-rating as father	3.75	3.97	3.63*	3.59†
Frequency of visits	3.30	3.15	3.44	3.27

†*p* < .10 versus intended. \**p* < .05 versus intended.

## RESULTS

### *Father Involvement by Intention Status, Unbalanced*

Table 1 shows patterns of father involvement by intention status and coresidence using only the population-weighted data (the unbalanced samples). Among all fathers, 64% of last births were intended, 27% mistimed, and 9% unwanted. Coresidence, paternal–child interaction, and self-rating as a father all varied significantly by intention status.

There were large differences in both intention status and levels of paternal engagement between resident and nonresident fathers. Births were more likely to be intended among resident than nonresident fathers (67% vs. 38%), and less likely to be mistimed (24% vs. 44%) or unwanted (8% vs. 17%). Overall, resident fathers had substantially higher scores on the interaction scale than did nonresident fathers (4.3 vs. 2.4) as well as higher paternal self-rating (4.4 vs. 3.8).

Among resident fathers, men with intended births reported higher levels of interaction than men with mistimed or unwanted births. In contrast, among nonresident fathers, intention status was not significantly associated with the frequency of interaction or frequency of visits with the child. Both resident and nonresident

fathers had higher self-rating as a father if they had an intended when compared with a mistimed or unwanted birth (the latter was only marginally significant among nonresident fathers).

### *Demographic and Socioeconomic Characteristics of Fathers*

The patterns of associations—or lack thereof—in the unbalanced sample may be driven by confounding variables if the characteristics of men in the intention status groups differ in ways that also influence their paternal engagement. Table 2 presents the distributions of key sociodemographic measures overall and for each of the three intention status groups for the unbalanced resident and nonresident subsamples.

Overall, resident and nonresident fathers varied widely in these characteristics (Table 2). Nonresident fathers were generally much younger at the time of the most recent birth and less likely to have been married at conception. In addition, nonresident fathers were less likely to be non-Hispanic White and more likely to have less education than resident fathers.

Among resident fathers, there were many significant differences in the fathers' characteristics between those who had intended and mistimed

Table 2. *Proportionate Distribution (Column Percentages) of Father's Background Characteristics by Intention Status of Most Recent Birth Among Resident and Nonresident Fathers, 2002 and 2006–2010 National Survey of Family Growth*

Variable name	Intention status of most recent birth							
	Resident fathers				Nonresident fathers			
	Total	Intended	Mistimed	Unwanted	Total	Intended	Mistimed	Unwanted
<b>Age at birth</b>								
15–19	.16	.11	.33*	.15	.44^	.33	.54*	.40
20–24	.28	.27	.32	.24	.22^	.21	.23	.18
30–44	.26	.29	.14*	.36	.12^	.19	.04*	.17
<b>Parity of most recent birth</b>								
1	.38	.39	.42	.16*	.45	.40	.55*	.27
2	.36	.36	.36	.27	.24^	.20	.26	.29
3+	.27	.25	.21	.56*	.31	.40	.18*	.44
<b>Marital status at conception</b>								
Married	.71	.78	.54*	.64*	.27^	.36	.19*	.25
Cohabiting	.19	.16	.26*	.21	.22	.29	.19	.15
Single	.10	.06	.20*	.15*	.52^	.35	.62*	.60*
<b>Race/ethnicity</b>								
Hispanic	.21	.20	.23	.28	.38^	.50	.25*	.44
White, not Hispanic	.62	.64	.61	.53	.31^	.20	.39*	.33
Black, not Hispanic	.10	.09	.13*	.13	.27^	.25	.32	.17
Other, not Hispanic	.06	.07	.04*	.06	.04	.04	.04	.06
<b>Education</b>								
Less than high school	.18	.17	.18	.31*	.40^	.52	.27*	.47
High school	.29	.25	.42*	.30	.33	.29	.37	.33
Some college	.25	.25	.27	.21	.22	.14	.29*	.19
Bachelor of Arts or higher	.27	.33	.13*	.18*	.05^	.05	.07	.01

\*  $p < .05$  versus intended. ^  $p < .05$  versus resident.

or unwanted births, with men having intended births generally older, more likely to be married, and better educated than other fathers. In contrast, among nonresident fathers, differences in characteristics were concentrated among the mistimed and intended groups. Mistimed births were significantly more common than intended births among nonresident dads who were 15 to 19 years old at the birth of the child, having a first birth, single, and less educated. Among nonresident fathers, the only significant difference between those having intended and unwanted births was in the share of fathers who had been single at conception; 60% of unwanted births to nonresident fathers were to single men, compared with about one third of intended births.

#### *Father Involvement by Intention Status, Balanced*

We turn now to the relationship between pregnancy intentions and father involvement using

the balanced samples to account for differing distributions of the fathers' characteristics. We look first at the likelihood of coresidence in the full sample and then to the analyses stratified by residence status.

*Fathers' accessibility to their child: coresidence and frequency of nonresident child contact.* Fathers with mistimed births were significantly less likely to live with their child at the time of the interview (odds ratio = 0.63) than those with intended births (Table 3). Although there was no significant association between coresidence and unwantedness, the magnitude of the association was similar to that estimated for mistimed births. Child's age was positively associated with the odds of coresidence, whereas there was no significant association with the child's gender. Fathers with a full-time job had higher odds of living with their child than fathers who were not working at all, although this difference was only marginally significant ( $p < .10$ ).



Table 3. Odds Ratios of Residence With Child, by Intention Status of Most Recent Birth, Balanced Full Sample of Fathers, 2002 and 2006–2010 National Survey of Family Growth

Measure	Full sample Residence with child
Intendedness	
Intended (ref.)	
Mistimed	0.63*
Unwanted	0.69
Age of child (ln)	0.69*
Male child	0.98
Current work status	
Not working (ref.)	
Part-time	1.14
Full-time	1.78†

Note. All models include additional controls for union status at conception, race and ethnicity, and education. ref. = reference; ln = natural logarithm.  
† $p < .10$ . \* $p < .05$ .

Among nonresident fathers, those with a mistimed birth visited their child significantly less than those with an intended birth (coefficient =  $-0.52$ , Table 4), whereas there was no association between unwanted births and visiting. Increasing child’s age, having other nonresident children, and working part-time or full-time were all negatively associated with frequency of visits. In contrast, fathers with a male child had significantly more frequent contact with their child than those with a daughter.

In contrast, nonresident fathers with a child from an unwanted pregnancy reported significantly greater satisfaction with the frequency of their visits than those with a child from an intended pregnancy (Table 4). We also estimated significantly higher satisfaction among men with a child from an unwanted versus a mistimed pregnancy (not shown). There was no significant difference in satisfaction levels between nonresident fathers with intended and mistimed births. These associations were net of any direct effect of the frequency of visits, which was also positively associated with satisfaction. All other measures in the model were not significant at the  $p < .05$  level.

*Father–child interaction scale.* We next considered the association between intention status and the father–child interaction scale separately for resident and nonresident fathers (Table 5). Among resident fathers, there were only weak

Table 4. Linear Regression of Frequency of Visits and Satisfaction With Visits, by Intention Status of Most Recent Birth, Balanced Nonresident Father Sample, 2002 and 2006–2010 National Survey of Family Growth

Measure	Nonresident fathers	
	Frequency of visits	Satisfaction with visits
Intendedness		
Intended (ref.)		
Mistimed	$-0.52^*$	$-0.08$
Unwanted	0.01	1.05*
Age of child (ln)	$-0.49^*$	$-0.19$
Male child	0.47*	0.27
Other nonresident child younger than age 18	$-0.62^*$	$-0.08$
Current work status		
Not working (ref.)		
Part-time	$-0.90^*$	1.20
Full-time	$-0.86^*$	$-0.06$
Frequency of visits		0.79*

Note. All models include additional controls for union status at conception, race and ethnicity, and education. ref. = reference; ln = natural logarithm.  
\* $p < .05$ .

associations between this scale and intention status, with mistimed pregnancies associated with less frequent interaction at marginal significance levels ( $p < .10$ ). Among nonresident fathers, men with a mistimed birth had significantly lower scores on the interaction scale than fathers with an intended birth (coefficient =  $-0.51$ , Model 1). After controlling for frequency of visitation (Model 2), however, this association was no longer significant. The frequency of visits itself had a significant positive effect on the scale.

The other variables in the model had mixed associations with the interaction scale. Among resident fathers, having another child younger than age 5 residing with them was associated with more father–child interaction, whereas working part-time or full-time was associated with less interaction when compared with not working. Among nonresident fathers, both the child’s age and working full-time had negative associations with father–child interaction in Model 1, but among this group, controlling for frequency of visits in Model 2 dampened any other associations. There was no evidence that fathers were more interactive with a male than female child, regardless of coresidence status.

Table 5. *Linear Regression of Father–Child Interaction Scale by Intention Status of Most Recent Birth, Balanced Sample, Among Resident and Nonresident Fathers, 2002 and 2006–2010 National Survey of Family Growth*

Measure	Resident fathers	Nonresident fathers	
		Model 1	Model 2
Intendedness			
Intended (ref.)			
Mistimed	−0.08 <sup>†</sup>	−0.51 <sup>*</sup>	−0.23
Unwanted	−0.11	−0.26	−0.21
Age of child (ln)	0.01	−0.30 <sup>*</sup>	−0.02
Male child	−0.04	0.26	−0.01
Other child younger than age 5 <sup>a</sup>	0.16 <sup>*</sup>	−0.27	0.00
Current work status			
Not working (ref.)			
Part-time	−0.29 <sup>*</sup>	−0.38	0.08
Full-time	−0.18 <sup>*</sup>	−0.56 <sup>*</sup>	−0.08
Frequency of visits			0.49 <sup>*</sup>

Note. All models include additional controls for union status at conception, race and ethnicity, and education. ref. = reference.

<sup>a</sup>In same residence status.

<sup>†</sup> $p < .10$ . \* $p < .05$ .

*Self-appraisal of fathering.* Finally, we estimated multiple models of the association between intention status and men's appraisal of themselves as fathers (Table 6). In Model 1, for both resident and nonresident fathers, those with mistimed births rated themselves significantly

lower than did fathers with intended births. For nonresident fathers, there were no significant differences in self-appraisal between fathers with unwanted and intended births; for resident fathers, the negative association between unwanted births and self-appraisal was marginally significant.

We estimated a second model of the self-appraisal scale, adding the father–child interaction scale as an independent variable to test if men rated themselves as fathers in part based on their level of caregiving or playing (Model 2). We found that the father involvement scale had a significant positive association with men's self-rating of their job as fathers for both resident and nonresident fathers. The negative association between mistimed births and self-appraisal was no longer significant for nonresident fathers, but it remained significant for resident fathers (coefficient = –0.13; Model 2). Child's age and having additional children younger than age 18 in the household significantly decreased self-appraisal for resident fathers; neither of these measures had a significant association with self-appraisal among nonresident fathers. Neither employment nor child's gender had statistically significant associations with self-rating for either group of fathers.

Table 6. *Linear Regression of Self-Rating Scale by Intention Status of Most Recent Birth, Balanced Sample, Among Resident and Nonresident Fathers, 2002 and 2006–2010 National Survey of Family Growth*

Measure	Resident fathers		Nonresident fathers	
	Model 1	Model 2	Model 1	Model 2
Intendedness				
Intended (ref.)				
Mistimed	–0.15*	–0.13*	–0.34*	–0.21
Unwanted	–0.15 <sup>†</sup>	–0.12	–0.27	–0.22
Age of child (ln)	–0.07*	–0.07*	–0.07	0.00
Male child	0.01	0.03	0.25 <sup>†</sup>	0.19
Other child younger than age 18 <sup>a</sup>	–0.24*	–0.23*	–0.18	0.08
Current work status				
Not working (ref.)				
Part-time	–0.13	–0.07	0.27	0.36 <sup>†</sup>
Full-time	–0.04	0.01	0.13	0.26
Father–child interaction scale		0.24*		0.25*

Note. All models include additional controls for union status at conception, race and ethnicity, and education. ref. = reference.

<sup>a</sup>In same residence status.

<sup>†</sup> $p < .10$ . \* $p < .05$ .

## DISCUSSION

The availability of national data from men permits us to bring needed attention to father's experiences of unintended childbearing. Among American men, we find that nearly 4 of 10 of their most recent births were reported as unintended; this ranges from one third of births among fathers living with the child at the interview to two thirds of births to non-resident fathers. Our analysis offers three central findings. First, these findings echo previous research showing strong demographic and socioeconomic differentials in men and women's experiences with unintended childbearing and demonstrate the importance of accounting for these differentials when examining outcomes (Kost & Lindberg, 2015; Lindberg et al., 2014; Lindberg & Kost, 2014). Second, we found new evidence that intention status is associated with a range of father involvement behaviors and attitudes. Men were less likely to live with a young child from a mistimed than an intended pregnancy; this in turn was associated with reduced father involvement because resident fathers reported more engagement in caregiving and play with their child and rated themselves better as fathers than did nonresident fathers. Third, we estimated that most of the negative associations between unintended childbearing and father involvement were concentrated among men with mistimed births, regardless of residence status.

Prior work on the effect of women's childbearing intentions on maternal behaviors and infant health has highlighted the importance of accounting for demographic and socioeconomic characteristics of the mother because such characteristics are related both to childbearing intentions and to measures of maternal behavior and infant health (Gipson et al., 2008; Kost & Lindberg, 2015; Lindberg et al., 2014). In other words, the observed effects of intention status may be confounded with an individual's background characteristics, making it difficult to know whether it is characteristics, such as age, which account for differences in behavior rather than childbearing intentions. These same concerns are relevant to fathers' childbearing intentions and their paternal behaviors. In these analyses, we demonstrated that men's life course and socioeconomic characteristics do indeed vary by intention status and therefore took these differences into account in our examination of

paternal engagement by applying a propensity weighting strategy.

After balancing the data on these confounding factors, we found that men with mistimed births were less likely to live with their child at the time of the interview; although smaller sample sizes limited the power of the analysis for men with unwanted births, the direction and magnitude of the associations were similar. Living apart from one's father has been identified as a central influence on child well-being (Amato, 2005; Brown, 2010; McLanahan, 2004), and so these findings suggest that children from an unintended birth are disadvantaged when compared with their intended peers. In addition, among nonresident fathers, intention status was associated with how frequently men visited with their children, although other demands on the father (employment, other children) also reduced visitation. Paralleling other research, we found that fathers also reported significantly higher levels of visitation if their child was male; this suggests that men may have a stronger identification to their role as a father for sons than daughters. Among nonresident fathers, men with a young child from an unwanted pregnancy reported greater satisfaction with their frequency of visits than did men with an intended pregnancy. This greater satisfaction should not be taken as a particularly positive outcome. Instead, given that the model also controlled for frequency of contact, it suggests that men with an unwanted birth desire less frequent contact with their child than do men with an intended birth.

Both resident and nonresident fathers provided less caregiving or play to children from mistimed than intended pregnancies. Unsurprisingly, for nonresident fathers this association was almost completely mediated by the frequency of contact with the child. Among nonresident fathers, having a mistimed pregnancy was associated with a lower self-rating than an intended pregnancy, but controlling for the level of father-child interaction attenuated this difference. Nonresident fathers with mistimed births rated themselves worse because they were doing less; their level of interactive involvement with their child appears to be the primary measure that nonresident fathers use to judge their own fathering. In contrast, among resident fathers, mistimed births also were associated with lower self-rating, but this relationship held regardless of men's level of interaction. This suggests that resident fathers develop their self-appraisal

related to factors other than their level of involvement in hands-on caregiving and play, perhaps in relation to unmeasured factors such as the emotional quality of their time with their child or feedback from the mother. The available measures may not be as appropriate for resident fathers; once a father lives with his young child, these day-to-day caregiving tasks may be the norm regardless of intention status. These differences between resident and nonresident fathers mean that past studies that examined the role of pregnancy intentions only among resident fathers provide only a partial view and should not be generalized to all fathers (Bronte-Tinkew et al., 2007; Bronte-Tinkew, Scott, & Horowitz, 2009; Bronte-Tinkew, Scott, Horowitz, & Lilja, 2009).

Across all of the father involvement measures, the significant effects we found were concentrated primarily among fathers of mistimed births. Men may describe a birth as mistimed—that it occurred sooner than he wanted—for many reasons. Fathers who indicated that a birth occurred earlier than they had wanted may have felt that this pregnancy occurred at a particularly difficult time to meet the demands of parenthood because of competing demands on their time and resources not measured in the data. However, for many of the outcome measures we cannot reject the possibility that there is no difference in the behaviors and attitudes of fathers with mistimed and unwanted births; the smaller sample sizes for fathers with unwanted births limit the power to detect significant differences. In much of the research on women's childbearing experiences, unwanted births are often associated with the strongest negative effects on maternal behaviors and infant health. More research is needed on the factors that determine pregnancy intentions for men, and how births reported as mistimed or unwanted may differ.

Finally, in reflecting on the findings of this analysis, it is important to return to the initial recognition that whether a man considers a pregnancy to be intended, mistimed, or unwanted is likely to be directly tied to the context in which it occurs. Childbearing desires are strongly influenced by an individual's age, union status, prior births, and other observable characteristics that reflect social patterns of an individual's life course. Our use of propensity scores is designed to account for those factors so that we may better understand the direct association of pregnancy

intentions with fatherhood involvement. Ultimately, the goal of policymakers should be to allow men the access to the services and support they need to prevent pregnancies that they do not feel able to father at that point in their lives.

### *Limitations*

This analysis faced a number of limitations, particularly around the measurement of key concepts. First, the available measures of father involvement were narrow, and additional measures related to nurturance, intimacy, or responsibility might allow for a broader understanding of father involvement (Marsiglio & Roy, 2013; Pleck, 2010) as well as the potential to discover other associations with intention status. Furthermore, although these analyses focus on the behaviors and attitudes of fathers, mothers likely play an influential role in their involvement, unmeasured in this data. Mothers may limit or encourage fathers' access to and involvement with the children, particularly nonresident fathers (Edin & Nelson, 2013). Another limitation is that, although men reported the intention status of an individual child, their fathering behaviors and self-appraisal referred to all children of the same residence type. It is possible that the older children are also impacted by the intention status of their youngest sibling. More research exploring fathering as a property of the family context and not just the father-child dyad is needed. Similarly, fathers' experiences with first and later children may be qualitatively different, but sample size limitations did not allow us to examine the experiences of first-time fathers separately. Future work that might be able to pool data across more waves of the NSFG may be able to address some of these limitations.

The available measures of coresidence and contact with nonresident children likely miss underlying variation. Coresidence may have varied meanings for different men in terms of frequency of time spent together (Waller & Jones, 2014). This is particularly relevant for fathers reporting that their child lives with them part-time because this likely masks variation in the number of nights spent together or the pattern of this time together. Similarly, there are many difficulties in conceptualizing and measuring contact between nonresident fathers and children when contact is irregular or across modes (overnights, phone calls, etc.; Argys et al., 2007).

The experiences of some fathers are likely missing from this analysis either because they do not participate in the NSFG or do not report accurately on their children. Joyner et al. (2012) estimated that the NSFG men aged 15 to 24 do not report up to 30% of children they fathered, in contrast to little underreporting among older men. However, the underreporting of fertility has been shown to have little influence on the overall distribution of men's childbearing intentions in the NSFG (Lindberg & Kost, 2014). Although household surveys may underrepresent men who have weak ties to households (Martin, 2007), these "missing" fathers likely have less child contact and paternal involvement. Thus any biases in the data should mean that our estimates are biased in a conservative direction, working against finding significant relationships between intention status and fathering.

A final limitation of this data is in the measurement of intention status. For both women and men, intention status in the NSFG is measured retrospectively, which risks biasing reporting over time (Guzzo & Hayford, 2014). Mitigating these concerns are analyses of women's retrospective reporting in the NSFG, which found little evidence of any such bias up to 3 years following the birth (Kost & Lindberg, 2015) and the current analysis, which found no evidence of an association between intention status and the age of the child (representing the length of the retrospective recall period).

Many thoughtful critiques have shed light on other challenges of measuring women's childbearing intentions (Bachrach & Newcomer, 1999; Klerman, 2000; Santelli, Lindberg, Orr, Finer, & Speizer, 2009). Although the meaning women ascribe to their pregnancy intentions and how researchers can capture this meaning in their work remain areas of ongoing development, limited attention has been given to these issues for men. Wholly applying concepts and measures developed for women to men, without consideration of gendered and social differences, obfuscates our understanding of men's fertility and fathering experiences. Moreover, it is also difficult to consider how intention status may differentially influence the behaviors of fathers and mothers because their parenting is conceptualized and measured differently in the NSFG. Mothers are not asked any questions about their engagement in the hands-on tasks of parenting, nor a self-appraisal of their parenting. Instead, available maternal involvement

measures focus on health-promoting behaviors (breastfeeding, prenatal care) with no related measures for men. Yet recent theories of parenting highlight the commonalities, and not the differences, between fathers and mothers (Fagan, Day, Lamb, & Cabrera, 2014).

### Conclusion

In this analysis, we found that the intention status of births matters for men's paternal involvement and for how they think of themselves as fathers. Understanding men's identity and involvement as fathers necessitates recognizing and accounting for men's involvement in and attitudes toward fertility-related behaviors (National Institute of Child Health and Human Development, 1998). Although this research is possible only because of the drive to include men and measures of their father involvement in nationally representative surveys, future efforts would be enhanced by expanding to encompass a broader view of fathering. Findings from this study highlighting the potential relationship between men's pregnancy intentions and their parental involvement suggest that policies and programs that help men to achieve their desired timing and spacing of their children may help to improve fathering behaviors and have the potential to have positive impacts on the well-being of children and families. Father engagement programs and future research need to recognize intention status as an important context for fathering.

### SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Appendix Tables

### REFERENCES

- Amato, P. R. (2005). The impact of family formation change on the cognitive, social, and emotional well-being of the next generation. *The Future of Children, 15*, 75–96. doi:10.1353/foc.2005.0012
- Argys, L., Peters, E., Cook, S., Garasky, S., Nepomnyaschy, L., & Sorensen, E. (2007). Measuring contact between children and nonresident fathers. In S.L. Hofferth and L.M. Casper (Eds.), *Handbook of measurement issues in family research*, (pp. 375–398). Mahwah, NJ: Lawrence Erlbaum Associates. doi:10.4324/9780203759622.ch21



- Bachrach, C. A., & Newcomer, S. (1999). Forum: Intended pregnancies and unintended pregnancies: Distinct categories or opposite ends of a continuum? *Family Planning Perspectives, 31*, 251–252. doi:10.1363/3125199
- Bronte-Tinkew, J., Ryan, S., Carrano, J., & Moore, K. A. (2007). Resident fathers' pregnancy intentions, prenatal behaviors, and links to involvement with infants. *Journal of Marriage and Family, 69*, 977–990. doi:10.1111/j.1741-3737.2007.00425.x
- Bronte-Tinkew, J., Scott, M. E., & Horowitz, A. (2009). Male pregnancy intendedness and children's mental proficiency and attachment security during toddlerhood. *Journal of Marriage and Family, 71*, 1001–1025. doi:10.1111/j.1741-3737.2009.00649.x
- Bronte-Tinkew, J., Scott, M. E., Horowitz, A., & Lilja, E. (2009). Pregnancy intentions during the transition to parenthood and links to coparenting for first-time fathers of infants. *Parenting: Science and Practice, 9*(1–2), 1–35. doi:10.1080/15295190802656729
- Brown, S. L. (2010). Marriage and child well-being: Research and policy perspectives. *Journal of Marriage and Family, 72*, 1059–1077. doi:10.1111/j.1741-3737.2010.00750.x
- Cabrera, N., Moore, K., Bronte-Tinkew, J., Halle, T., West, J., Brooks-Gunn, J., & Boller, K. (2004). The DADS initiative: Measuring father involvement in large-scale surveys. In R. Day & M. Lamb (Eds.), *Conceptualizing and measuring father involvement* (pp. 417–452). Mahwah, NJ: Erlbaum. doi:10.4324/9781410609380
- Cabrera, N. J., Aldoney, D., & Tamis-LeMonda, C. S. (2013). Latino fathers. In N. J. Cabrera & C. S. Tamis-LeMonda (Eds.), *Handbook of father involvement: Multidisciplinary perspectives* (pp. 244–260). Abingdon, UK: Taylor and Francis. doi:10.4324/9780203101414.ch14
- Cabrera, N. J., Fagan, J., & Farrie, D. (2008). Explaining the long reach of fathers' prenatal involvement on later paternal engagement. *Journal of Marriage and Family, 70*, 1094–1107. doi:10.1111/j.1741-3737.2008.00551.x
- Cabrera, N. J., Fitzgerald, H. E., Bradley, R. H., & Roggman, L. (2014). The ecology of father-child relationships: An expanded model. *Journal of Family Theory & Review, 6*, 336–354. doi:10.1111/jftr.12054
- Campbell, A. A., & Mosher, W. D. (2000). A history of the measurement of unintended pregnancies and births. *Maternal and Child Health Journal, 4*, 163–169. doi:10.1023/A:1009519329226
- DuGoff, E. H., Schuler, M., & Stuart, E. A. (2014). Generalizing observational study results: Applying propensity score methods to complex surveys. *Health Services Research, 49*, 284–303. doi:10.1111/1475-6773.12090
- Edin, K., & Nelson, T. J. (2013). *Doing the best I can: Fatherhood in the inner city*. Berkeley: University of California Press. doi:10.1080/10796126.2013.823922
- Elder, G. H., Jr., Johnson, M. K., & Crosnoe, R. (2003). The emergence and development of life course theory. In J.T. Mortimer & M.J. Shanahan (Eds.), *Handbook of the Life Course*, (pp. 3–19). New York: Kluwer Academic/ Plenum Publishers. doi:10.1007/978-0-306-48247-2\_1
- Fagan, J., Day, R., Lamb, M. E., & Cabrera, N. J. (2014). Should researchers conceptualize differently the dimensions of parenting for fathers and mothers? *Journal of Family Theory & Review, 6*, 390–405. doi:10.1111/jftr.12044
- Fox, G. L., & Bruce, C. (2001). Conditional fatherhood: Identity theory and parental investment theory as alternative sources of explanation of fathering. *Journal of Marriage and Family, 63*, 394–403. doi:10.1111/j.1741-3737.2001.00394.x
- Gipson, J. D., Koenig, M. A., & Hindin, M. J. (2008). The effects of unintended pregnancy on infant, child, and parental health: A review of the literature. *Studies in Family Planning, 39*, 18–38. doi:10.1111/j.1728-4465.2008.00148.x
- Guzzo, K. B., & Hayford, S. R. (2014). Revisiting retrospective reporting of first-birth intendedness. *Maternal and Child Health Journal, 18*, 2141–2147. doi:10.1007/s10995-014-1462-7
- Henley, K., & Pasley, K. (2005). Conditions affecting the association between father identity and father involvement. *Fathering, 3*, 59. doi:10.3149/fth.0301.59
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*, 1–55. doi:10.1080/10705519909540118
- Ihinger-Tallman, M., Pasley, K., & Buehler, C. (1993). Developing a middle-range theory of father involvement postdivorce. *Journal of Family Issues, 14*, 550–571. doi:10.1177/019251393014004005
- Imbens, G. W. (2000). The role of the propensity score in estimating dose-response functions. *Biometrika, 87*, 706–710. doi:10.1093/biomet/87.3.706
- Jones, J., & Mosher, W. D. (2013). Fathers' involvement with their children: United States, 2006–2010. *National Health Statistics Reports, 71*, 1–22.
- Joyner, K., Peters, H. E., Hynes, K., Sikora, A., Taber, J. R., & Rendall, M. S. (2012). The quality of male fertility data in major US surveys. *Demography, 49*, 101–124. doi:10.1007/s13524-011-0073-9
- Kavanaugh, M. L., Kost, K., Frohwirth, L., & Maddow-Zimet, I. (2015, May). *The impact of an unplanned child: A qualitative study of the consequences of unintended childbearing for mothers and fathers*. Presented at the Population

- Association of America 2015 annual meeting, San Diego, CA.
- Klerman, L. V. (2000). The intendedness of pregnancy: A concept in transition. *Maternal and Child Health Journal*, 4, 155–162. doi: 10.1023/A:1009534612388
- Knop, B., & Brewster, K. L. (2016). Family flexibility in response to economic conditions: Fathers' involvement in child-care tasks. *Journal of Marriage and Family*, 78, 283–292. doi: 10.1111/jomf.12249
- Kost, K., & Lindberg, L. (2015). Pregnancy intentions, maternal behaviors and infant health: Investigating relationships with new measures and propensity score analysis. *Demography*, 52, 83–111. doi:10.1007/s13524-014-0359-9
- Lamb, M., Pleck, J., Charnov, E., & Levine, J. (1985). The role of the father in child development: The effects of increased paternal involvement. In B. Lahey & A. Kazdin (Eds.), *Advances in clinical child psychology* (pp. 229–266). New York, NY: Plenum Press. doi:10.1007/978-1-4613-9820-2\_7
- Lamb, M. E. (Ed.). (2010). *The role of the father in child development*. New York, NY: Wiley.
- Lamb, M. E., Pleck, J. H., Charnov, E. L., & Levine, J. A. (1987). A biosocial perspective on paternal behavior and involvement. In J. Lancaster, J. Altmann, A. Rossi, & L. Sherrod (Eds.), *Parenting across the life span: Biosocial dimensions* (pp. 111–142). New York: Aldine De Gruyter. doi:10.1016/0197-0070(88)90113-1
- Lindberg, L., & Kost, K. (2014). Exploring US men's birth intentions. *Maternal and Child Health Journal*, 18, 625–633. doi: 10.1007/s10995-013-1286-x
- Lindberg, L., Maddow-Zimet, I., Kost, K., & Lincoln, A. (2014). Pregnancy intentions and maternal and child health: An analysis of longitudinal data in Oklahoma. *Maternal and Child Health Journal*, 19, 1087–1096. doi:10.1007/s10995-014-1609-6
- Lundberg, S., McLanahan, S., & Rose, E. (2007). Child gender and father involvement in fragile families. *Demography*, 44, 79–92. doi: 10.1353/dem.2007.0007
- Marsiglio, W. (1995). *Fatherhood: Contemporary theory, research, and social policy*. Thousand Oaks, CA: SAGE. doi:10.4135/9781483327242
- Marsiglio, W., Lohan, M., & Culley, L. (2013). Framing men's experience in the procreative realm. *Journal of Family Issues*, 34, 1011–1036. doi:10.1177/0192513X13484260
- Marsiglio, W., & Roy, K. (2012). *Nurturing dads: Social initiatives for contemporary fatherhood*. New York: Russell Sage. doi:10.1080/10796126.2013.764848
- Marsiglio, W., & Roy, K. (2013). Fathers' nurturance of marriage children over the family life course. In G. Petersen & K. Bush (Eds.), *Handbook of marriage and the family* (pp. 353–376). New York: Springer. doi: 10.1007/978-1-4614-3987-5\_16
- Martin, E. (2007). Strength of attachment: Survey coverage of people with tenuous ties to residences. *Demography*, 44, 427–440. doi:10.1353/dem.2007.0014
- McCaffrey, D. F., Griffin, B. A., Almirall, D., Slaughter, M. E., Ramchand, R., & Burgette, L. F. (2013). A tutorial on propensity score estimation for multiple treatments using generalized boosted models. *Statistics in Medicine*, 32, 3388–3414. doi: 10.1002/sim.5753
- McLanahan, S. (2004). Diverging destinies: How children are faring under the second demographic transition. *Demography*, 41, 607–627. doi:10.1353/dem.2004.0033
- Muthén, L. K., & Muthén, B. O. (1998–2012). *Mplus user's guide* (7th ed.). Los Angeles: Muthén & Muthén.
- National Center for Health Statistics. (2011). *Public use datafile documentation 2006-2010, user's guide*. Hyattsville, MD: Department of Health and Human Services.
- National Institute of Child Health and Human Development. (1998). *Nurturing fatherhood: Improving data and research on male fertility, family formation, and fatherhood*. Washington, DC: Department of Health and Human Services.
- Olmstead, S. B., Futris, T. G., & Pasley, K. (2009). An exploration of married and divorced, non-resident men's perceptions and organization of their father role identity. *Fathering*, 7, 249. doi: 10.3149/fth.0703.249
- Pleck, J. H. (2010). Paternal involvement: Revised conceptualization and theoretical linkages with child outcomes. In M. E. Lamb (Ed.), *The role of the father in child development* (pp. 58–93). Hoboken, NJ: Wiley.
- Raley, S., & Bianchi, S. (2006). Sons, daughters, and family processes: Does gender of children matter? *Annual Review of Sociology*, 32, 401–421. doi: 10.1146/annurev.soc.32.061604.12310
- Rane, T. R., & McBride, B. A. (2000). Identity theory as a guide to understanding fathers' involvement with their children. *Journal of Family Issues*, 21, 347–366. doi:10.1177/019251300021003004
- Santelli, J., Lindberg, L., Orr, M., Finer, L., & Speizer, I. (2009). Toward a multidimensional measure of pregnancy intentions: Evidence from the United States. *Studies on Family Planning*, 40, 87–100. doi:10.1111/j.1728-4465.2009.00192.x
- StataCorp. (2015). *Stata statistical software: Release 14* [Computer software]. College Station, TX: StataCorp LP.
- Stryker, S. (1987). Identity theory: Developments and extensions. In K. Yardley & T. Honess (Eds.), *Self and identity: Psychosocial perspectives* (pp. 89–103). New York: Wiley.

- Stuart, E. A. (2010). Matching methods for causal inference: A review and a look forward. *Statistical Science: A Review Journal of the Institute of Mathematical Statistics*, 25, 1–21. doi: 10.1214/09-STS313
- Waller, M. R., & Jones, M. R. (2014). Who is the residential parent? Understanding discrepancies in unmarried parents' reports. *Journal of Marriage and Family*, 76, 73–93. doi:10.1111/jomf.12087
- Yeung, W. J., Sandberg, J. F., Davis-Kean, P. E., & Hofferth, S. L. (2001). Children's time with fathers in intact families. *Journal of Marriage and Family*, 63, 136–154. doi: 10.1111/j.1741-3737.2001.00136.x
- Yoshida, A. (2012). Dads who do diapers: Factors affecting care of young children by fathers. *Journal of Family Issues*, 33, 451–477. doi: 10.1177/0192513X114153