The Role of Men's Childbearing Intentions in Their Paternal Involvement

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The United States has a high rate of unintended pregnancy[1] and the U.S. Department of Health and Human Services has prioritized reductions in an effort to improve the nation's health.[2] Despite on-going efforts to improve the measurement and understanding of women's childbearing intentions[3,4] and understand their consequences for children[5], men's childbearing intentions have received limited research attention, even with increased recognition of fathers' role in child health and well being.[6,7]

An expanding body of research investigates the extent of involvement of fathers in their children's lives and demonstrates that paternal behaviors are important in promoting infant and child health and well-being. But relatively little is known about how fathers' childbearing intentions influence their paternal behaviors. The limited research that exists faces severe limitations. Some studies only examine father's intentions as reported by the mother and not the father directly.[8,9] Other studies focus on men's reports, but are in small or in non-representative samples.[1011] For example, recent qualitative research investigated pregnancy intention among a select group of low-income men, and concluded that unintended childbearing is normative behavior given the context of their lives.[12] However, findings from an ethnographic study cannot be generalized to all fathers. Trying to address these limitations, the 2001 Early Childhood Longitudinal Study Birth Cohort (ECLS-B) included interviews with a nationally-representative sample of fathers about birth intentions of their biological children. In an analysis of the pregnancy intentions of resident fathers when the infant was 9 months old, Bronte-Tinkew (2009) found resident fathers with births from unintended pregnancies were less involved in positive prenatal behaviors, and had greater mother-father relationship conflict.[13] However, another study using the ECLS-B data found very limited associations between pregnancy intentions and resident fathers' post-birth involvement with their child. The limitation of research to only resident fathers excludes the highly vulnerable group of children with non-resident fathers, and precludes any investigation of the relationship between co-residency and intention status.

The inclusion of men—and measures of their childbearing intentions—in the National Survey of Family Growth (NSFG) offers an opportunity to explore the association of intention and men's fathering behaviors for a national sample of both resident and non-resident fathers. In a recent descriptive analysis of men's reports of intention status from the 2006-2010 NSFG, Lindberg and Kost found that nearly four out of ten of births to men were reported as unintended, with significant variation by men's demographic traits, including union status, age, education, race and poverty status. These same demographic

characteristics also have been shown to be associated with variations in fathering behaviors.[14] Thus, the effects of pregnancy intentions on paternal engagement are likely to be confounded with the effects of the men's demographic and socioeconomic characteristics. Indeed, such confounding has been shown to affect the relationship between women's childbearing intentions and their maternal behaviors.[15]

Given these gaps in the existing research, we use nationally representative data from the Male Cohort of the 2002 and 2006-2010 National Surveys of Family Growth to examine relationships between men's pregnancy intentions and their fathering behaviors, including an investigation of differences by father's co-residence status. We employ propensity score analysis to disentangle childbearing intentions from demographic and socioeconomic background characteristics. The NSFG offers a unique opportunity to examine the pregnancy intentions of men, and the data on this topic from the NSFG-male cohort have thus far been sorely underutilized. The NSFG men's data are not without their limitations, including a limited set of paternal engagement measures. But this work is an opportunity to push the field forward and bring needed attention to the significance of men's childbearing intentions.

Methods

Data

The National Surveys of Family Growth (NSFG) is a periodic national probability survey of the non-institutionalized population of women and men (ages 15-44 years) in the United States.[16] 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 dataset are reviewed by the Institutional Review Board at the National Center for Health Statistics (NCHS) for protections of human subjects. Further information about the design of the NSFG is available at http://www.cdc.gov/nchs/nsfg.htm.

We pool data from both the 2002 and 2006–10 survey cycles to have a sufficient number of observations for robust analyses, based on guidance from NCHS staff.[17] We explicitly tested, and rejected, the hypothesis of differential reporting of intention by year of survey, testing for differences in the distribution of the intention status of births reported in 2002 versus 2006-2010, as well as the earlier and later time periods within the 2006-2010 NSFG.

For this analysis, we include men whose most recent birth occurred in five years preceding the interview. We exclude from the analysis cases where the most recent birth was a multiple birth, children deceased by time of interview, and those in foster care. Additionally we excluded cases with missing values on the outcome measures or key covariates. This resulted in an analytical sample of 2,744 fathers.

Measures of Pregnancy Intention: For births occurring in the five years preceding the interview, men were asked a series of questions to assess their feelings right before their partner became pregnant; we used these questions are used to classify the most recent birth as *intended* (wanted and on time or later than wanted), *mistimed* (wanted but occurring sooner than desired), or *unwanted.*[*, †] For these analyses, we selected only the most recent birth for each man (the "index" child).

Measures of Paternal Engagement: We examine three available measures of paternal engagement. . Current ***co-residence*** with the child was coded 1 if the father lived with the index child full-time or part-time at the date of the interview and 0 if he did not live with the child; this is the most fundamental or ""reduced form" indicator of paternal engagement. Part-time co-resident fathers were grouped with full-time resident fathers because they were most similar to this group in regards to other measures of paternal engagement. We will also estimate alternate specifications in which fathers residing with their child part-time are treated as non-resident.

The **Father Involvement** scale combined responses to questions about frequency of participation in five specific fathering behaviors among children born in the last five years: time spent feeding, bathing, reading to the child, playing with child, or taking the child on outings.[‡] For the first four fathering behaviors, questions 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 were: 1=not at all, 2=less than once a week, 3=about once a week, 4=several times a week, and 5=every day (at least once a day). For the last fathering behavior (taking children on outings), fathers were asked, "In the last 12 months, how often would you say you spent time with these children (this child) on an outing away from home to places such as museums, zoos, movies, sports, parks, playgrounds, etc.?" Possible responses were: 0=not at all, 1=once or twice during the year, 2=several times during the year, 3=1-3 times per month, 4=about once per week, 5=several times a week,

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[*] Women in the NSFG were asked a further question about the extent of mistiming; this level of detail was not collected from men.

[†] Among men not married or not living with the baby's mother at the time of the birth, pregnancy intentions were only measured among men reporting that they found out about the pregnancy before the child was born. These men were asked "When did you find out that (partner) was pregnant? Was it during the pregnancy or after the child was born?" In our analysis, 24 men reported being unaware of the most recent pregnancy and thus did not report a specific intention status for that birth. Most of these men had no prior births, suggesting that the pregnancy was mistimed, as opposed to unwanted; it seems reasonable to assume that these "unaware" births were not intended. In our initial analyses, we code these births as mistimed; we will conduct a sensitivity analyses to alternate coding (unwanted, missing) as well.

[‡] We note that mothers in the NSFG are *not* asked a parallel set of questions, or any questions, about their engagement in the hands-on tasks of parenting.

and 6=every day.[§] The survey structure in the NSFG asked about the fathering behaviors separately for resident and non-resident children. Non-resident fathers who had not seen their child in the previous 12 months were not asked the questions about fathering behaviors at all; we coded these 62 fathers as 0 on each fathering behavior. These cases with assigned values make up around 12% of the unweighted sample of nonresidential fathers; findings were not sensitive to whether these cases were excluded. We calculated the Father Involvement scale by summing the scores and dividing by five; thus, the scale ranges from 0-6, with higher values indicating greater involvement. We estimate that this Father Involvement scale had a Cronbach's alpha of 0.895 for non-resident fathers and 0.608 for resident fathers. Prior to PAA, we plan on exploring further specifications which might have a higher Cronbach's alpha for resident fathers as well considering in more detail the distribution of the components and scaled values.

Paternal Self-rating is a Likert scale from 1-5 based on men's response to the question "Thinking of all of the children who live with you, how good a job do you think you do as a father to these children?" (for fathers with resident children), or "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?" (for fathers with non-resident children), where, 1=a very good job, 2=a good job, 3=an okay job, 4=not a very good job, and 5=a bad job.

Neither the questions about fathering behaviors nor the self-rating scale were asked in relationship to specific children, but instead more universally for all children under age five (for fathering behaviors), and for all children under 18 (for self-rating).[**] We add controls to our models for parity and other children under five to try to address this limitation. In addition, fathers with both non-resident and co-resident children were asked about these sets of children separately; for the purposes of this analysis, we only included responses corresponding to the residence status of the most recent child to that father, for whom we have a measure of intention status.

Statistical Analysis

Propensity score methods are increasingly being used in public health and demography with observational data to disentangle confounding and causal factors. When random assignment—the gold standard for causal inference—is impossible, propensity score methods offer a means to account for differences between treatment and control groups that affect both group assignment and the outcome under study by modeling the selection process into each group.[18]

[§] Alternate fathering behaviors are measured for older children, but they are not relevant to this analysis, since intention status is only measured for births in the last five years

[**] This has been changed in the most recent round of the NSFG, currently in the field; data will not be available until early 2015.

Although matching approaches are most commonly used for propensity analyses[19], these are most appropriate for dichotomous treatment conditions (a single treatment versus a single control). Men's intention status, however, has three categories. We therefore use an alternate approach developed by Imbens of inverse probability weighting (IPW), in which observations in each category are weighted by the inverse of the estimated propensity score of being in that category, as derived from a regression model.[20,21] To our knowledge this application of propensity score methods to intention status measures is fairly innovative and is an approach we are using in a related body of research on the consequences of pregnancy intention status for women's behaviors, analyzing data from the NSFG as well as state-level Pregnancy Risk Assessment Monitoring System (PRAMS) data.[22,23]

Our methodology requires a multi-stage process of first calculating, and then applying, the inverse probability weights. First, we calculate the propensity scores—that is, the probability of treatment given the observed covariates—using a multinomial logistic regression model with pregnancy intention status (intended, mistimed, unwanted) as the dependent variable (intended births were used as the reference or control category). The model predicting these propensity scores was run using complex survey commands in Stata 13.0 and is based on data weighted to the population of births at the time of the survey. We further assessed the adequacy of the propensity score estimation process by comparing the balance of covariate distributions among the three intention status groups before and after the inverse propensity score weighting using the Pearson χ^2test. This process was iterative, as we developed a multinomial logistic regression that increased balance. We used a nonparsimonious approach and included available covariates in the model that are known to be important confounders—and which temporally preceded the pregnancy as well as the measures of paternal engagement—regardless of statistical significance; propensity score models conducted with only a few covariates are unlikely to yield unbiased estimates.[24] Drawing from the limited body of research on men's pregnancy intentions, we controlled for confounding factors related to life course and socioeconomic status. Variables included in the final model were: father's age at the child's birth (15-19, 20-24, 25-29, 30-44), union status at conception (married, cohabitating, single), number of prior births (0, 1,2, 3+), race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, non-Hispanic other), completed education (less than high school, high school diploma, some college, BA or higher), completed education of father's mother (less than high school, high school diploma, some college, BA or higher, missing information), male parent figure at age 14 (biological father, step-father, other, no father figure,), female parent figure at age 14 (biological mother, other, no mother figure), foreign born (0=no, 1=yes), foreign born Hispanic (0=no, 1=yes), whether the questionnaire was administered in Spanish (0=no, 1=yes), religion raised, and whether the respondent was ever on active duty in the armed forces (0=no, 1=yes). In order to improve balance, we also added interaction terms between several of the variables listed above. In addition, we

added a continuous measure of the natural logarithm of the child's age to control for any potential retrospective reporting bias in intention status; this was not statistically significant. We also controlled for data collection period (2002, 2006 through the first half of 2008, second half of 2008 through 2010 to account for either survey or period effects; these were also not significantly associated with intention status. The multinomial regression is shown in Appendix 1. Again, this model is used to estimate the propensity scores, not to test the relationship of specific independent variables to the dependent variable (intention status). For that reason, all independent variable measures are included, regardless of over-lap and significance levels once they are in the model.

Estimates of the probabilities, or propensities, of membership for each intention status group can be obtained from the multinomial regression. We then calculate the inverse of these resulting propensity scores to create the weights for individual observations. In all analyses, we accounted for the complex survey design of the NSFG data, and included population weights. For the analyses that included the inverse propensity weights, we multiplied each case's value by its inverse propensity weight and by the population weight in order to obtain unbiased effects.[25] We excluded 10 cases where the propensity values were extreme outliers, as these observations, when weighted, accounted for an extremely large proportion of the sample.

In stage two of our analysis—to assess the relationships between pregnancy intentions and paternal involvement—we regressed intention status on the outcome measures using observations weighted by the IPW. Co-residence was estimated with Poisson regression; the two scaled variables—the Father Involvement scale and the Paternal Self-rating scale—were estimated by linear regression. We estimate multivariate models, regressing the three category measure of intention status on the outcome of interest, and including controls for other background factors that may have a direct effect on the outcomes. In particular, since the available paternal involvement measures occur temporally after the birth of the child, we control for variables that occurred between the birth and the interview, including age of the child (which also controls for length of retrospective reporting of intention status), and gender of the child. Each model includes control for union status at conception, race/ethnicity, education, father's age at birth and parity, since these socio- demographic may have a direct association with the outcome measures under study, independent of any confounding with intention status (which the inverse probability weights are designed to address). Finally, we include a measure of year of interview to capture any potential survey or period effects.

Preliminary analyses revealed substantial differences in the Father Involvement scale between co-resident and non-resident fathers. Based on these factors, we decided to stratify the analyses of intention status and the paternal involvement measures by co-residence at the time of the interview. We conducted separate analyses on the specific stratified samples—co-resident with child at time of interview

(N=2,252), and non-resident at time of interview (N=492). For each of these subsamples, we went through a separate process of creating a balanced sample and estimating inverse probability weights. Thus, the IPWs are specific to each stratified sample.

We have made a considered choice to not control in these models for *current union status.* Current union status and co-residence are highly co-linear and attempts to control for both swamp the model. Furthermore, because of the way that the NSFG collected fertility and union information from men, we were unable for many cases to determine if the partner in the current union was also the mother of the child. This limitation meant that we could not determine if changes in union status from conception to time of interview represented shifts to more or less stability for the child.

Results

Paternal Engagement by Intention Status, unbalanced

Table 1 shows the patterns of variations in the level of paternal engagement by intention status before balancing the samples with the inverse probability weights. First, 64% of the sample were intended births, 27% were mistimed, and the remaining 10% were reported as unwanted (percents do not add to 100% because of rounding).

While 88% of men live with their most recent child at the time of the interview, co-residence varied significantly by intention status, declining from 93% of intended births to 80% of mistimed births and 77% among unwanted. Looking just at fathers who resided with their child at the time of the survey, 68% of their most recent births had been intended. In contract, intended births make up just 38% of births to nonresident fathers; the majority of the most recent births to nonresident fathers had been mistimed (44%) or unwanted (17%).

For the full sample, both the Father Involvement and Self-rating scales varied significantly by intention status; men with intended births reported greater overall involvement and higher self-rating of themselves as a father than men with mistimed or unwanted births. Overall, co-resident fathers have substantially higher score on the Father Involvement scale than do non-resident father's (mean of 4.2 versus 2.4), as well as higher self-rating as a father (4.4 versus 3.8). These differences occur across each intention status. Among co-resident fathers, both self-rating as a father and the Father Involvement scale vary significantly by intention status. Among non-resident fathers, intention status has only a marginally significant association with self-rating as a father (p=.06), but not with the level of overall involvement (p=.80).

[INSERT TABLE 1]

Balancing the Sample

The patterns of associations—or lack thereof—in the unbalanced sample may be driven by confounding variables if men differ by intention status in key background characteristics that also influence their paternal engagement. Table 2 shows the distributions of key life course and socioeconomic measures for all births and for each of the three intention status groups for the unbalanced, full sample. The Chi-squared tests for the distribution of these characteristics indicate significant differences across intention status groups. Sixty-one percent of intended births had fathers aged 25 or older and 55% had fathers with at least some college education. And almost three-quarters of intended births were the father's first or second birth. In contrast, a higher proportion of mistimed births were first births (prior parity=0), and to fathers with only a high school degree. Mistimed births also had a higher proportion of single fathers and black fathers than did intended births. Unwanted births were more common among the oldest fathers, men age 30-44, at higher parity, married and white.[††] After balancing the sample by weighting the observations by the inverse of the propensity scores derived from multinomial regression (see Appendix 1), distributions of the characteristics of fathers in the intentions status groups were more similar on all of these life course and socioeconomic measures and any remaining differences were not statistically significant ($p>.05$; final column, Table 2).

A similar process of balancing was performed separately on the samples of residential and non-residential fathers and results are available in Appendix 2 and 3. Even within these subgroups, the samples were significantly unbalanced on most variables prior to weighting by the IPWs.

For the total sample, as well as for the residential subgroups, the year of the survey interview did not vary significantly by intention status, negating any concerns about period or survey implementation influences.

Variations in Paternal Engagement by Intention Status, Propensity Score Models

We next present the results of multivariate regressions estimating the association between men's intention status and their paternal engagement. We present the full models, which include controls for factors hypothesized to have a direct influence on the outcomes under study. However, since these control variables are not are central research focus, we only a highlight a few particularly interesting findings.

Co-residence at Time of Interview

[††] It's interesting that 19% of unwanted births occur to men at with no prior births. This suggests that these men did not want to be a father at all, irregardless of timing. Although the unweighted N for this group is relatively small, we hope to look in more detail at their fathering behaviors, since a birth for this group is highly discordant with their stated preferences.

We first estimate the likelihood that each father lives (full time or part time) with their child at the time of interview for the full sample (Table 3). We find very weak negative effects of intention status on co-residence, with similar size effects for mistimed (RRR=.96) and unwanted (RRR=.94) births. Given that co-residence did vary significantly by intention status in the unbalanced data (Table 1), this indicates that confounding background factors drove this observed association, as opposed to a more causal relationship.

Father Involvement Scale

We next consider the association between intention status and the Father Involvement scale, for the full sample and separately by co-residence status (Table 4). Among non-residential fathers, fathers with a mistimed birth have significantly lower scores (coefficient=.65) than fathers with an intended birth on the Father Involvement scale, although there is no significant difference between intended and unwanted births. Among residential fathers, both mistimed and unwanted births are associated with significantly lower values on the Father Involvement scale than among intended births. As a final check, we estimate the model for the full sample, and include a control for co-residence. As expected, residence with the child has a large and significant relationship with Father Involvement (coefficient=5.26, p=.00). Even so, mistimed births have significantly lower scores on the scale, while unwanted births are not significantly different than intended births.

A few other estimated relationships are note-worthy. First, for the total sample, men report higher scores on the father involvement scale during the 2008-2010 period. In further work we plan to consider the potential of the recession on altering father involvement, perhaps because men were less likely to be employed or worked fewer hours? Second, non-residential fathers have significantly higher scores on the Father Involvement scale if the child is male; there is no difference by gender among residential fathers. This suggestion that non-residential fathers may choose to engage in fatherhood differently when they have a male child resonates with prior research and should be further investigated.

Self-Appraisal of Fathering

We next consider the association between intention status and the men's self-appraisal of their fathering (Table 5). In Model 1, among non-residential fathers, pregnancy intention is significantly associated with the scaled measure of self-appraisal of fathering. Fathers with mistimed births rated themselves significantly lower as fathers than men with intended births (coefficient=.68), while there is no significant difference between unwanted and intended births. The same set of associations was estimated among residential fathers, as well as the full sample. These relationships generally parallel the patterns—significant differences between intended and mistimed, but not unwanted, births—observed for

the Father Involvement scale, suggesting that men rate themselves as fathers in part based on their paternal engagement. To address this, we estimated an additional model of the self-appraisal scale, adding the Father Involvement scale as an independent variable (Table 5, Model 2). As expected, the Father Involvement scale had a significant positive association with men's self-rating of their fathering. In these final models, the association between mistimed births and self-appraisal was now only marginally significant for the non-residential (coefficient=.78, p=.07) and residential (coefficient=.90, p=.05) subsamples; it remains statistically significant for in the model estimated for all fathers (coefficient=.89, p=.03).

We pause to comment on a few other estimated relationships. Among non-resident fathers, self-rating declines significantly in later years, even net of the Father Involvement scale, again suggesting the Recession may be influencing aspects of paternal engagement. In general, these models found few significant associations with self-rating other than intention status and parity. We plan to further explore this self-rating scale prior to PAA.

Conclusions

The general conclusion of this paper is that the intention status of births to men matters for their paternal engagement. As such, policies and programs which 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.

For both those fathers living with their child, and those who do not, mistimed births are associated with less involvement in basic parenting activities, such as feeding, bathing or even reading to their child. Indeed, men rate themselves more poorly as fathers when they have a mistimed birth. 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 competing demands on their time and resources (other children, a job, career or educational aspirations) or simply felt particularly unable or unwilling to meet the demands of parenthood at that time. The less engagement in fathering activities and lower self-rating of himself as a father is the actualization of this mistiming. Men's paternal engagement is less affected by a birth being unwanted, suggesting that men are more able or more willing to accommodate to these births.

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. In other words, the observed effects of intention status may be confounded with women'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 our investigation of the impact of father's childbearing intentions on 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 behaviors by applying a propensity weighting strategy. To our knowledge, no other analysis to date has used these methods to examine the relationship between men's childbearing intentions and their paternal behaviors.

The findings described in this paper should be considered preliminary. We plan to refine our models and analyses in the coming months in preparation for presentation at the PAA meetings in Spring 2014. However, we believe that even these preliminary findings reveal important new knowledge about the involvement of fathers in young children's lives.

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Table 1. Percent of fathers coresiding with last birth, by birth intention of last birth; level of paternal involvement, by birth intention of last birth, males aged 15-44, 2002 and 2006-2010 NSFG

	Intention Status				
	Intended	Mistimed	Unwanted	Total	p-value*
N	1,658	803	283	2,744	
Coresidence					
Co-reside with child now	0.93	0.80	0.77	0.88	0.00
Fathering behaviors					
All fathers (n=2,744)					
Intention status	0.64	0.27	0.09	1.00	
Self-rating as father	4.44	4.18	4.11	4.34	0.00
Overall involvement	4.12	3.80	3.68	4.00	0.00
Co-resident now (n=2,252)					
Intention status	0.68	0.24	0.08	1.00	
Self-rating as father	4.47	4.31	4.26	4.42	0.00
Overall involvement	4.26	4.14	4.10	4.22	0.01
Non-resident now (n=492)					
Intention status	0.38	0.44	0.17	1.00	
Self-rating as father	3.97	3.63	3.59	3.75	0.06
Overall involvement	2.38	2.43	2.29	2.38	0.80

* For coresidence measure, p-value is from Pearson chi-square test; for all fathering behaviors measures, Wald tests were performed.

Table 2. Proportionate distribution of father's background characteristics by intention status of most recent birth, and p-values for Pearson chi-square tests of significance across intention status groups for unbalanced and balanced samples; 2002 and 2006-10 NSFG

	Distribution Before Balancing				Unbalance	Balanced
Variable Name	Total	Intended	Mistimed	Unwanted	p-value*	p-value*
Life Course						
Age at birth						
15-20	0.20	0.12	0.37	0.20	0.00	0.73
20-24	0.27	0.27	0.30	0.23	0.27	0.98
25-29	0.29	0.33	0.20	0.25	0.00	0.17
30-44	0.24	0.28	0.12	0.32	0.00	0.39
Total	1.00	1.00	1.00	1.00		
Parity						
0	0.39	0.39	0.45	0.19	0.00	0.47
1	0.34	0.35	0.34	0.28	0.29	0.84
2+	0.27	0.26	0.21	0.54	0.00	0.13
Total	1.00	1.00	1.00	1.00		
Marital status at conception						
Married	0.65	0.75	0.46	0.55	0.00	0.17
Cohabitating	0.20	0.18	0.25	0.20	0.01	0.37
Single	0.15	0.08	0.29	0.26	0.00	0.42
Total	1.00	1.00	1.00	1.00		
SES factors						
Race						
White, not Hispanic	0.23	0.22	0.23	0.31	0.07	0.68
Hispanic	0.58	0.61	0.56	0.48	0.03	0.68
Black, not Hispanic	0.12	0.10	0.17	0.14	0.00	0.61
Other, not Hispanic	0.06	0.07	0.04	0.07	0.10	0.76
Total	1.00	1.00	1.00	1.00		
Spanish Questionnaire	0.13	0.14	0.09	0.17	0.02	0.64
Education						
Less than high school	0.21	0.20	0.20	0.35	0.00	0.26
High school	0.30	0.25	0.41	0.31	0.00	0.97
Some college	0.25	0.24	0.28	0.20	0.12	0.79
B.A. or higher	0.24	0.31	0.12	0.15	0.00	0.63
Total	1.00	1.00	1.00	1.00		
Other						
Year of Survey Administration						
2002	0.50	0.50	0.50	0.49	0.96	0.70
2006-08	0.24	0.24	0.26	0.23	0.64	0.27
2008-10	0.26	0.26	0.24	0.29	0.54	0.58
Total	1.00	1.00	1.00	1.00		

*Statistical significance of p-values evaluated at the .05 level.

Table 3. Relative risk ratios (RRR) of co-residence by intention status of birth, balanced sample; 2002 and 2006-10 NSFG.

Measure	RRR	p-value*
Intendedness (ref: Intended)		
Mistimed	0.96	0.09
Unwanted	0.94	0.07
Race(ref: White, not Hispanic		
Hispanic	0.90	0.00
Black, not Hispanic	0.85	0.00
Other,not Hispanic	0.99	0.83
Age at birth (ref: <25)		
25-30	1.19	0.00
30-35	1.19	0.00
35+	1.21	0.00
Age of child (ln)	0.96	0.01
Education (ref: <HS)		
HS grad	1.10	0.10
Some college	1.10	0.07
BA or higher	1.13	0.03
Parity (ref: 0)		
1	1.03	0.29
2+	1.00	0.90
Male child	0.99	0.76
Survey year (ref: 2002)		
2006-2008	0.94	0.07
2008-2010	0.96	0.28

*Statistical significance of p-values evaluated at the .05 level.

Table 4. Linear regression of involvement scale by intention status of birth, balanced sample; among full sample, coresident and non-resident fathers, 2002 and 2006-10 NSFG.

Measure	Full Sample		Co-resident Fathers		Non-resident Fathers	
	b	p-value*	b	p-value*	b	p-value*
Intendedness (ref: Intended)						
Mistimed	0.89	0.02	0.90	0.04	0.65	0.01
Unwanted	0.91	0.22	0.87	0.03	0.87	0.54
Race(ref: White, not Hispanic						
Hispanic	0.79	0.00	0.76	0.00	0.75	0.22
Black, not Hispanic	1.03	0.75	1.02	0.79	1.02	0.94
Other,not Hispanic	0.90	0.43	0.90	0.50	0.64	0.27
Age at birth (ref: <25)						
25-30	0.95	0.54	0.95	0.44	0.97	0.89
30-35	0.86	0.07	0.95	0.43	0.66	0.08
35+	0.93	0.42	0.99	0.88	0.74	0.30
Age of child (ln)	1.02	0.57	1.07	0.08	0.82	0.02
Education (ref: <HS)						
HS grad	1.01	0.88	0.96	0.54	1.11	0.60
Some college	1.30	0.00	1.25	0.00	1.55	0.03
BA or higher	1.32	0.00	1.23	0.01	1.87	0.02
Parity (ref: 0)						
1	0.91	0.26	0.88	0.06	1.01	0.96
2+	0.83	0.01	0.88	0.09	0.58	0.04
Male child	1.02	0.68	0.98	0.68	1.36	0.03
Survey year (ref: 2002)						
2006-2008	1.09	0.09	1.08	0.14	1.15	0.34
2008-2010	1.18	0.00	1.11	0.08	1.55	0.05
Other child under 5	1.20	0.01	1.22	0.00	1.07	0.77
Coresident	5.26	0.00				

*Statistical significance of p-values evaluated at the .05 level.

Table 5. Linear regression of self-rating scale by intention status of birth using the balanced sample; among full sample, coresident and non-resident fathers, 2002 and 2006-10 NSFG.

	Full Sample				Co-resident Fathers				Non-resident Fathers			
Measure	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	b	p-value*	b	p-value*	b	p-value*	b	p-value*	b	p-value*	b	p-value*
Intendedness (ref: Intended)												
Mistimed	0.86	0.01	0.89	0.03	0.87	0.02	0.90	0.05	0.68	0.01	0.78	0.07
Unwanted	0.87	0.09	0.90	0.16	0.90	0.23	0.94	0.48	0.84	0.32	0.88	0.38
Race(ref: White, not Hispanic												
Hispanic	0.96	0.51	1.02	0.77	0.96	0.56	1.05	0.47	0.82	0.32	0.90	0.53
Black, not Hispanic	1.04	0.75	1.03	0.80	1.13	0.27	1.12	0.29	0.88	0.40	0.87	0.32
Other,not Hispanic	0.84	0.16	0.86	0.15	0.83	0.21	0.86	0.20	0.43	0.05	0.48	0.10
Age at birth (ref: <25)												
25-30	1.00	1.00	1.01	0.86	0.97	0.70	0.99	0.85	1.12	0.54	1.13	0.50
30-35	0.83	0.08	0.86	0.15	0.82	0.07	0.84	0.08	0.98	0.91	1.10	0.59
35+	0.91	0.40	0.93	0.51	0.90	0.36	0.90	0.36	0.99	0.97	1.08	0.70
Age of child (ln)	0.97	0.32	0.97	0.23	0.96	0.21	0.94	0.05	1.01	0.91	1.07	0.34
Education (ref: <HS)												
HS grad	0.98	0.86	0.98	0.84	0.94	0.59	0.96	0.68	0.98	0.87	0.95	0.75
Some college	1.06	0.65	0.99	0.91	1.05	0.66	0.98	0.85	1.05	0.81	0.92	0.66
BA or higher	1.20	0.16	1.11	0.43	1.16	0.18	1.09	0.48	1.29	0.27	1.08	0.71
Parity (ref: 0)												
1	0.76	0.00	0.78	0.00	0.76	0.00	0.79	0.01	0.92	0.66	0.92	0.60
2+	0.73	0.00	0.77	0.00	0.72	0.00	0.75	0.00	0.75	0.21	0.88	0.53
Male child	1.07	0.27	1.06	0.27	1.03	0.68	1.03	0.55	1.26	0.08	1.15	0.26
Survey year (ref: 2002)												
2006-2008	0.88	0.08	0.86	0.03	0.91	0.19	0.89	0.08	0.74	0.06	0.71	0.03
2008-2010	0.92	0.28	0.88	0.08	0.99	0.92	0.96	0.55	0.74	0.05	0.65	0.00
Other child under 5	1.12	0.08	1.07	0.33	1.10	0.14	1.03	0.62	1.01	0.95	0.99	0.98
Involved scale			1.15	0.27			1.38	0.00			1.34	0.00

*Statistical significance of p-values evaluated at the .05 level.

Appendix Table 1. Relative risk ratios (RRR) from multinomial logistic regression on men's childbearing intentions (intended births are reference group).

	Mistimed vs. Intended		Unwanted vs. Intended	
Characteristic	RRR	p-value*	RRR	p-value*
Race (ref: White)				
Hispanic	2.11	0.20	2.25	0.32
Black NH	2.00	0.14	2.52	0.29
Other NH	1.55	0.50	3.70	0.14
Age at birth (ref<25)				
25-30	0.55	0.05	0.91	0.81
30-35	0.28	0.00	0.54	0.13
35+	0.22	0.00	0.69	0.36
Parity (ref: 0)				
1	1.84	0.20	2.64	0.16
2	2.39	0.05	7.46	0.00
3+	2.33	0.08	32.64	0.00
Education (ref: <HS)				
HS grad	1.53	0.37	0.61	0.61
Some college	1.06	0.89	0.30	0.23
BA or higher	0.52	0.18	0.29	0.24
Marital status at conception (ref: Married)				
Cohabiting	2.12	0.01	4.04	0.02
Single	6.08	0.00	9.38	0.00
Born outside United States	1.62	0.07	1.21	0.66
Survey administered in Spanish	0.46	0.08	0.41	0.02
Foreign born Hispanic	0.56	0.18	1.47	0.58
Military service for at least 6 months	1.11	0.65	1.01	0.97
Mother's education (ref: <HS)				
HS grad	0.92	0.64	0.79	0.38
Some college	1.13	0.62	1.91	0.06
BA or higher	1.33	0.27	0.77	0.56
Missing	1.18	0.67	1.64	0.36
Male parent figure at age 14 (ref: Biological)				
Step-father	1.40	0.12	1.23	0.51
Other/None	1.13	0.54	1.30	0.35
Female parent figure at age 14 (ref: Biological)				
Other/None	1.05	0.87	1.29	0.48
Age of child (ln)	1.14	0.14	1.22	0.07
Survey year				
2006-2008	0.92	0.68	0.56	0.13
2008-2010	0.77	0.21	0.87	0.69

Note: Interaction terms between several of the above variables were also included in the propensity model, but are not listed here due to space constraints.

*Statistical significance of p-values evaluated at the .05 level.

Appendix Table 2. Proportionate distribution of father's background characteristics by intention status of most recent birth, and p-values for Pearson chi-square tests of significance across intention status groups for unbalanced and balanced samples; 2002 and 2006-10 NSFG--Residential Fathers only

		Distribution Before Balancing			Unbalanced	Balanced
Variable Name	Total	Intended	Mistimed	Unwanted	p-value*	p-value*
Life Course						
Age at birth						
15-20	0.16	0.11	0.33	0.15	0.00	0.49
20-24	0.28	0.27	0.32	0.24	0.28	0.49
25-29	0.29	0.33	0.21	0.25	0.00	0.47
30-44	0.26	0.29	0.14	0.36	0.00	0.34
Total	1.00	1.00	1.00	1.00		
Parity						
0	0.38	0.39	0.42	0.16	0.00	0.24
1	0.35	0.36	0.36	0.27	0.28	0.99
2+	0.27	0.25	0.21	0.57	0.00	0.11
Total	1.00	1.00	1.00	1.00		
Marital status at conception						
Married	0.71	0.78	0.54	0.64	0.00	0.33
Cohabitating	0.20	0.17	0.27	0.21	0.00	0.72
Single	0.10	0.06	0.20	0.15	0.00	0.32
Total	1.00	1.00	1.00	1.00		
SES factors						
Race						
White, not Hispanic	0.21	0.20	0.22	0.27	0.19	0.87
Hispanic	0.62	0.64	0.61	0.53	0.10	0.62
Black, not Hispanic	0.10	0.09	0.13	0.13	0.02	0.27
Other, not Hispanic	0.06	0.07	0.04	0.07	0.11	0.87
Total	1.00	1.00	1.00	1.00		
Spanish Questionnaire	0.11	0.12	0.08	0.14	0.10	0.89
Education						
Less than high school	0.19	0.17	0.18	0.31	0.00	0.32
High school	0.29	0.25	0.42	0.30	0.00	0.94
Some college	0.25	0.25	0.27	0.21	0.32	0.78
B.A. or higher	0.27	0.33	0.13	0.19	0.00	0.64
Total	1.00	1.00	1.00	1.00		
Other						
Year of Survey Administration						
2002	0.51	0.51	0.51	0.54	0.90	0.74
2006-08	0.23	0.23	0.25	0.19	0.44	0.29
2008-10	0.26	0.26	0.25	0.28	0.80	0.49
Total	1.00	1.00	1.00	1.00		

*Statistical significance of p-values evaluated at the .05 level.

Appendix Table 3. Proportionate distribution of father's background characteristics by intention status of most recent birth, and p-values for Pearson chi-square tests of significance across intention status groups for unbalanced and balanced samples; 2002 and 2006-10 NSFG--Non-Residential Fathers only

	Distribution Before Balancing				Unbalanced	Balanced
Variable Name	Total	Intended	Mistimed	Unwanted	p-value*	p-value*
Life Course						
Age at birth						
15-20	0.44	0.33	0.54	0.40	0.01	0.66
20-24	0.22	0.21	0.23	0.18	0.75	0.58
25-29	0.23	0.28	0.18	0.25	0.33	0.82
30-44	0.12	0.19	0.04	0.17	0.00	0.82
Total	1.00	1.00	1.00	1.00		
Parity						
0	0.45	0.40	0.55	0.27	0.01	0.74
1	0.24	0.20	0.26	0.29	0.50	0.70
2+	0.31	0.40	0.18	0.44	0.00	0.72
Total	1.00	1.00	1.00	1.00		
Marital status at conception						
Married	0.26	0.36	0.19	0.24	0.06	0.80
Cohabitating	0.22	0.29	0.18	0.14	0.10	0.42
Single	0.52	0.35	0.63	0.61	0.00	0.82
Total	1.00	1.00	1.00	1.00		
SES factors						
Race						
White, not Hispanic	0.38	0.50	0.26	0.42	0.00	0.96
Hispanic	0.31	0.20	0.39	0.32	0.04	0.87
Black, not Hispanic	0.27	0.25	0.32	0.18	0.08	0.82
Other, not Hispanic	0.05	0.04	0.04	0.08	0.54	0.71
Total	1.00	1.00	1.00	1.00		
Spanish Questionnaire	0.25	0.39	0.13	0.26	0.00	0.97
Education						
Less than high school	0.40	0.52	0.27	0.47	0.00	0.82
High school	0.33	0.29	0.37	0.33	0.48	0.91
Some college	0.22	0.14	0.29	0.19	0.05	0.93
B.A. or higher	0.05	0.05	0.07	0.01	0.16	0.82
Total	1.00	1.00	1.00	1.00		
Other						
Year of Survey Administration						
2002	0.41	0.39	0.46	0.32	0.25	0.10
2006-08	0.31	0.30	0.31	0.36	0.72	0.98
2008-10	0.28	0.31	0.23	0.32	0.34	0.13
Total	1.00	1.00	1.00	1.00		

*Statistical significance of p-values evaluated at the .05 level.